Western Copper Corporation

Project Proposal

Carmacks Copper Project
Yukon Territory

Appendix P

Carmacks Copper Project
Socio-economic Effects Assessment
(February 2007)

Carmacks Copper Project
Socio-economic Effects Assessment

Response to YESAB Adequacy Review

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1 Introduction

The Carmacks Copper Project is a planned open-pit mine located on Williams Creek approximately 8 km west of the Yukon River and 40 km northwest of Carmacks, Yukon. The project is wholly owned by Western Copper Corporation of Vancouver, BC.

Copper was first reported in the area by George Dawson during his trip through the Yukon in 1887 and the staking of copper showings along Williams Creek began in 1898. But the Carmacks Copper Project mining property itself was not staked until 1970 following the discovery of the Casino property 100 km to the northwest. Some trenching and drilling was done on the property in the early 1970s followed by a more intensive round of exploration work beginning in 1990 following the acquisition of the property by Western Copper Holdings Corporation.

In 1993 Western Copper Holdings Corporation completed a full feasibility study which was updated in 1995. The decision to proceed with project development was made following the feasibility study update and the company began the permitting process. By the end of 1997 both the basic engineering study and a definitive capital cost estimate had been completed. In 1998 work on the project was suspended indefinitely due to a low copper price.

A Thumbnail History of Carmacks

Carmacks, located at the confluence of the Nordenskiold and Yukon Rivers, has long been an important place for the people of the Little Salmon Carmacks First Nation. The Carmacks area was important both for its fishing and as one of the places where Tlingit traders from the coast would arrive to meet and trade with interior First Nations.

The community is named after George Washington Carmack, an American who first came to the Yukon in 1885 to prospect. He remained in the territory and married Kate Carmack of the Tagish First Nation. In 1893 Carmack began working a coal seam near Five Finger Rapids and then another at Tantalus Butte where he built a cabin and operated a small trading post.

Following the gold rush, the settlement grew in size and importance as a stopping point for the paddle wheelers and for the Overland Stage Route from Whitehorse to Dawson. The construction of the Klondike Highway with its bridge over the Yukon in the early 1950s and then the development and operation of the Faro mine in the 1960s and 1970s cemented Carmacks as the central Yukon's transportation hub.

Following the rise in the price of copper, Western Copper Corporation came to an agreement with the Yukon Government (YG) in late 2004 to re-enter the permitting process for the project.

1.1 Purpose and Value of Socio-Economic Effects Assessment

This assessment has been prepared in accordance with the requirements of the Yukon Environmental and Socio-economic Assessment Act and to compile additional information for the Yukon Environmental Assessment Act. Socio-economic effects assessments have a broad value to the proponent, the community as a whole, and to the three governments most directly affected by the project.

The value of the assessment beyond meeting permitting requirements includes:

1. The First Nation, territorial, and municipal governments can use the effects assessment to assist in their own planning efforts to prepare for the project.
2. The socio-economic effects assessment can benefit the community through its use as a planning tool, helping prepare the community for the development.
3. Finally, the consultation process gives the proponent insights into the community and its concerns around the proposed project. The discussions can lead to outcomes that benefit both the community and the company.

1.2 Affected Communities

The proposed Carmacks Copper mine will have its greatest effect on the community of Carmacks as a whole and on the Little Salmon Carmacks First Nation. The site is well within the traditional territory of the Little Salmon Carmacks First Nation and there is easy road access between Carmacks and the mine site. However, the site also falls within the traditional territory of the Selkirk First Nation. This overlap means that the Selkirk First Nation also has an interest in the site and the community of Pelly Crossing will be affected — although to a lesser degree — by the development. Other Yukon communities will be affected by the development of Carmacks Copper largely to the degree to which their residents work at the site or local businesses are involved in the construction or operation of the mine.

1.3 Community Contacts and Consultation

Since re-entering the permitting process, Western Copper and its consultants have had numerous contacts — and some consultation — with both community residents and officials at all levels of government. Evidence of those contacts and consultations that relate to this socio-economic effects assessment can be found both in footnotes to the text and in Appendix C: Summary of Contacts attached to this document.

Community engagement plays a very important role in conducting a socio-economic effects assessment that meets both the letter and the spirit of the Yukon Environmental and Socio-economic Assessment Act. Ideally, communities help identify valued components of the local society and economy that may be affected, help in the characterization of likely effects on those valued components, share the lessons learned

by the community from other projects, provide feedback on possible mitigation or enhancement measures and implementation strategies, and generally act as a form of review body to ensure that local knowledge and experience informs the assessment throughout. The community engagement in the preparation of this socio-economic effects assessment is acknowledged to be less than the ideal.

Western Copper is committed to ongoing consultation and will continue to engage the community to gather necessary and valuable local and First Nation feedback for continued socio-economic assessment.

As of October 26, 2006:

1. The Selkirk First Nation has indicated that consultation for this project will be carried out through the Dooli/Traditional Law process. The first step of the Dooli process is the formation of a Steering Group made up of representatives of the SFN and the proponent as well as a number of Selkirk First Nation elders acting as advisors. The Steering Group will make recommendations on how the consultation process will proceed. In a letter sent to Western Copper, dated October 17, 2006, (see Appendix D) the Selkirk First Nation has indicated that they are presently too consumed with other projects to participate in the Carmacks Copper project at this time. The Company intends to continue to work with the SFN when they are prepared to participate in the project.

2. The Little Salmon Carmacks First Nation has informed Western Copper that they will contact the Company when a convenient time to discuss the socio-economic assessment has been decided. At this stage, preliminary meetings have been positive and a willingness to consult has been expressed, however a date or specific methodology to progress discussions has not been decided yet.

3. Members of the Carmacks business community have indicated they wish to meet with company representatives to discuss business and contracting opportunities. It has been suggested that such a meeting could be followed immediately by an open community meeting focussed on socio-economic issues in order to gather more input.

The continuing engagement and consultation with the affected communities will provide valuable local and First Nation input as the YESAA socio-economic effects assessment process moves forward.

2 Socio-economic Baseline — Carmacks

As the term implies, a socio-economic baseline is a summary of the existing social and economic conditions in the community. It is against this baseline that the anticipated effects of the development and operation of the Carmacks Copper Mine will be measured and assessed.

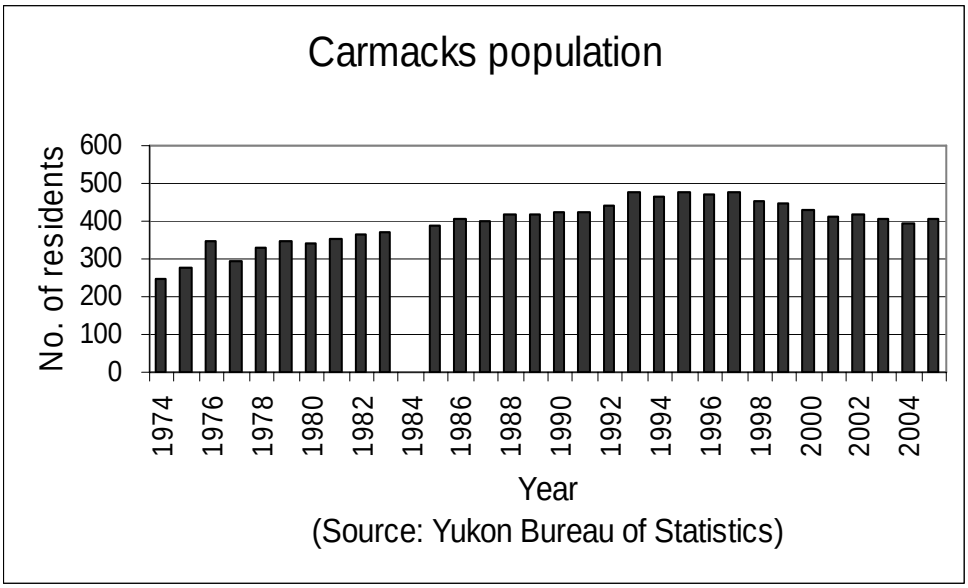
A broad range of existing socio-economic conditions in the community of Carmacks are summarized here. Whenever possible, numerical data has been put into graph or chart form with a key point summary immediately below the relevant figure. To view the data used to generate the graphs and charts please see Appendix A: Existing Socio-Economic Conditions Data. Appendix A also includes a discussion of the data sources used and their strengths and weaknesses.

2.1 Community Demographics

The basic outlines of a community's existing socio-economic conditions are set by its demographics — including overall population, patterns of population growth and decline, age and sex ratios, ethnicity, and family and household structure. The structure of families and households can give insights into the stability and vulnerability of a community to change.

2.1.1 Population

Figure 1 Population of Carmacks, 1974-2005



Key Points:

- The community's population doubled between 1974 and its peak in the late 1990s.
- Carmacks was home to about 480 people in 1997 when the Mt. Nansen mine was operating.
- The population of Carmacks was estimated at 408 at the end of 2005.

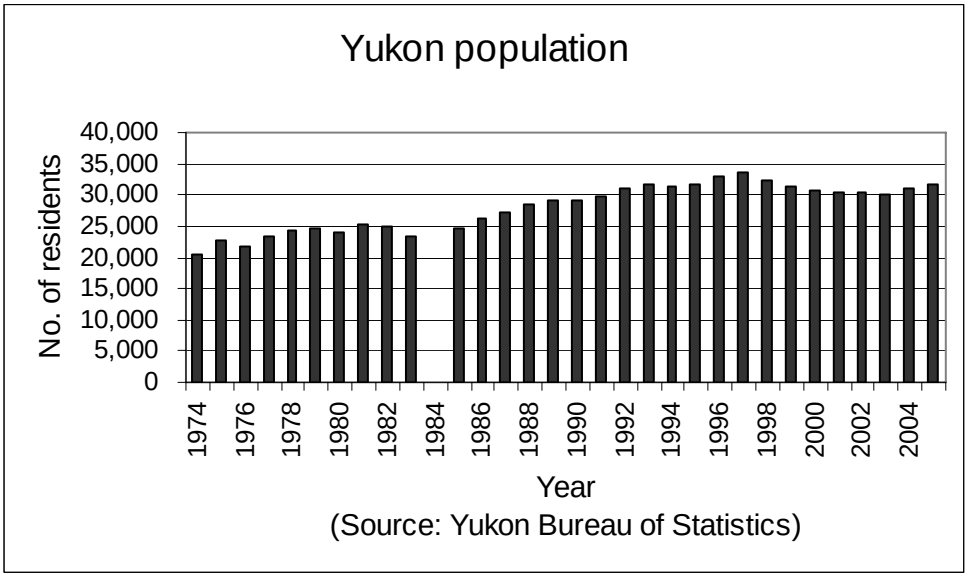
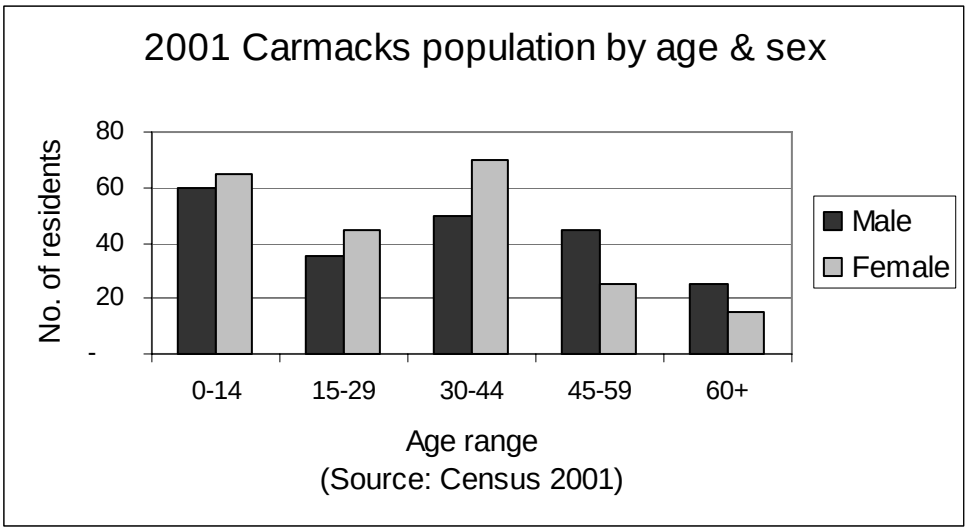


Figure 2 Population of the Yukon, 1974-2005

Key Points:

- Like Carmacks, the Yukon's peak population year was in 1997 when the territory had an estimated 33,586 residents.
- A comparison of Figure 1 and Figure 2 shows that the pattern of population growth and decline in Carmacks is very similar to that of the Yukon as a whole.
- The Yukon's population was estimated to be 31,587 at the end of 2005.

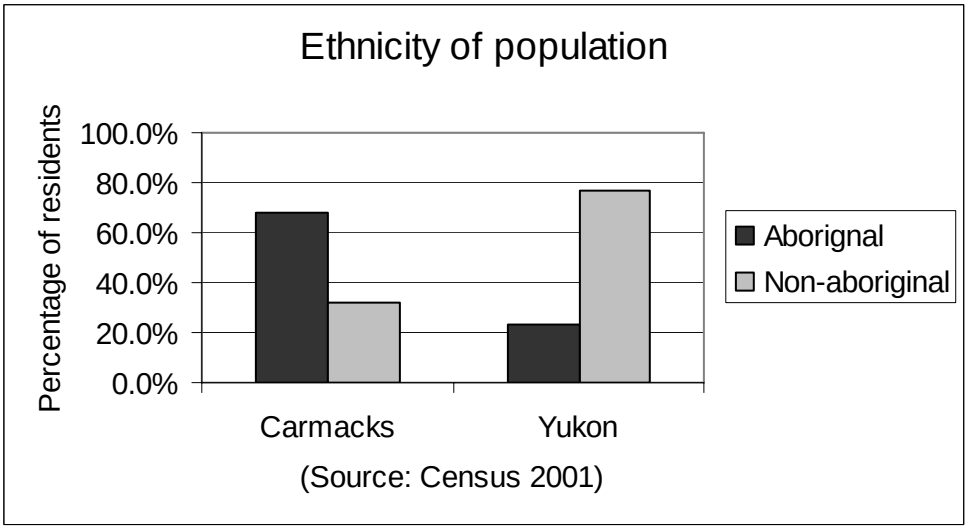
Figure 3 Carmacks population by age & sex, 2001



Key Points:

- The 2001 Census found roughly equal number of males and females in Carmacks overall.
- Women outnumber men in the younger adult age groups while men outnumber women in the older age ranges.
- Compared to the Yukon as a whole, Carmacks has a relatively young population with proportionately more children.

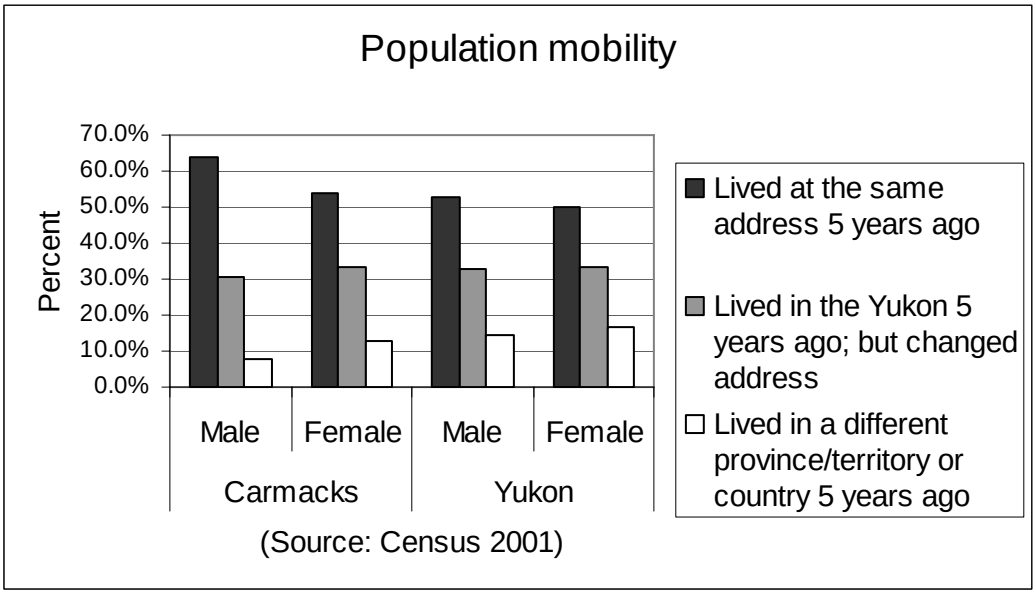
Figure 4 Aboriginal and non-aboriginal population, Carmacks and the Yukon, 2001



Key Points:

- In 2001, approximately 68% of Carmacks residents identified themselves as being of aboriginal origin.
- In the Yukon as a whole, 23% of residents identified themselves as aboriginal.

Figure 5 Population mobility, Carmacks and the Yukon by sex, 2001



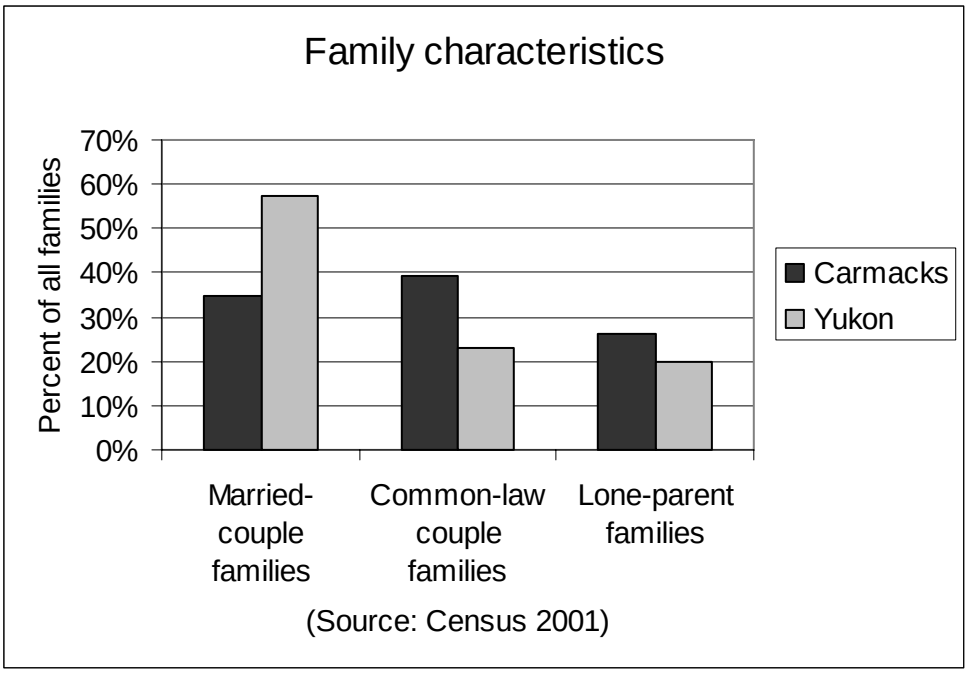
Key Points:

- On average, people in Carmacks are more solidly rooted in their community than are Yukoners as a whole.
- Men in Carmacks especially appear less likely to move.

2.1.2 Families & Households

The Census defines a family as either a couple (with or without children) or a single parent with a child or children living at home. This is the definition used in Figure 6 below.

Figure 6 Family characteristics, Carmacks and the Yukon, 2001



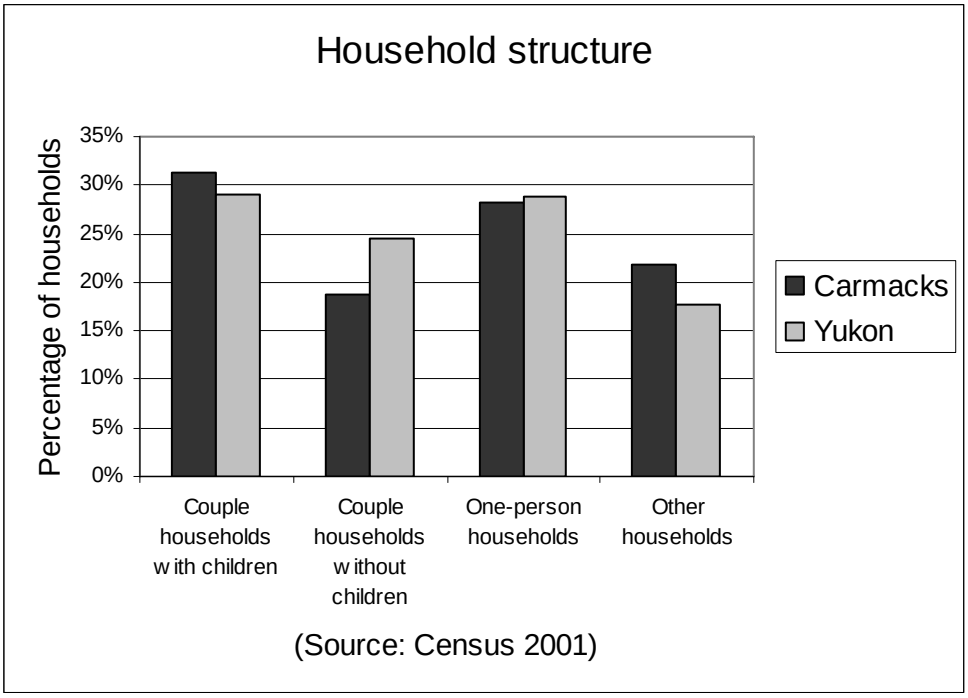
Key Points:

- Carmacks has a much lower proportion of married-couple families than the Yukon in general and a correspondingly larger proportion of common-law couple families. Because common-law families with children tend to be much less stable than married-couple families[1], these families may be more vulnerable to social and economic stresses.
- Lone-parent families — which tend to be more vulnerable to social and economic change — are more prevalent in the community than in the Yukon as a whole.

[1] See for example the Department of Justice Canada's *National Longitudinal Survey of Children and Youth* (http://www.justice.gc.ca/en/ps/pad/reports/2004-FCY-6/chap1.html). The survey found common-law couples with children were far more likely to separate than married couples with children.

In Figure 7 below, the Other Households category includes multiple-family households (including extended families), lone-parent family households and non-family households (e.g., roommates sharing a home).

Figure 7 Household structure, Carmacks and the Yukon, 2001



Key Points:

- Unlike family structure, household structure in Carmacks is not substantially different from the Yukon as a whole.
- The Other Households category is more prevalent in Carmacks than the Yukon as a whole. This may be due in part to more lone-parent households in the community and, perhaps, more people living with extended family.

2.2 Education & Knowledge

Levels of knowledge and education are fundamentally important in assessing the social and economic structure of a community. Higher levels of education are strongly correlated with both increased incomes and improved health.

> Health can be influenced by income and education… In 1996/97… Only 19% of people who had not graduated from high school said their health was excellent, whereas more than 30% of university graduates claimed they enjoyed excellent health.[2]

Determining current education levels allows for an assessment of a community's ability to take advantage of employment possibilities brought by a new development and, by extension, assesses gaps in education or skills.

2.2.3 Traditional Knowledge

YESSA defines traditional knowledge as:

> "… the accumulated body of knowledge, observations and understandings about the environment, and about the relationship of living beings with one another and the environment, that is rooted in the traditional way of life of First Nations… traditional knowledge may include knowledge about the historical and present social, cultural and economic environs that people have worked and lived in and provide understanding of the critical requirements of — and potential threats to — Valued Components."[3]

Traditional knowledge is dynamic — it incorporates new technologies & techniques and adjusts to changing conditions — and its dynamic nature makes a comprehensive definition difficult. Traditional knowledge arises from the profound knowledge of indigenous people acquired over many generations of living and depending on the land and what it provides.

The Mackenzie Valley Environmental Impact Review Board suggests three important elements of traditional knowledge should contribute to impact assessments:

> 1. Knowledge about the environment
> This is factual or "rational" knowledge about the environment. It includes specific observations, knowledge of associations or patterns of biophysical, social

[2] Statistics Canada, *Canada E-book*, Catalogue No. 11-404-XIE, available at http://142.206.72.67/02/02b/02b_007g_e.htm.

[3] Yukon Environmental and Socio-economic Assessment Board. 2006.06 *Guide to Socio-economic Effects Assessments*. Appendix A: p.6 Available at: http://www.yesab.ca/publications/documents/SEEAFinal2006.06.30.pdf

and cultural phenomena, inferences, or statements about cause and effect, and impact predictions. All are based on direct observation and experience, shared information within the community and over generations.

2. Knowledge about use and management of the environment
This is the knowledge that people have about how they use the environment and about how they manage their relationship with the environment. Examples include cultural practices and social activities, land use patterns, archaeological sites, harvesting practices, and harvesting levels, both past and current.

3. Values about the environment
This knowledge consists of peoples' values and preferences, and what they consider "significant" or valued components of the environment, and what they feel is the "significance" of impacts on those valued components. Aboriginal spirituality and culture plays a strong role in determining such values. This element of traditional knowledge includes moral and ethical statements about the environment and about the relationships between humans, animals, and the environment; the "right way" to do things.[4]

Traditional knowledge can substantially contribute to an assessment of a project's effects:

1. It brings forward the knowledge and perspectives of the aboriginal inhabitants of the region;
2. Traditional knowledge often covers long time periods and so adds valuable historical perspectives, including an understanding of how the environment, culture, and society adapted to changes in the past; and,
3. Those with deep traditional knowledge can often see links between seemingly unrelated issues.[5]

2.2.4 Levels of Schooling

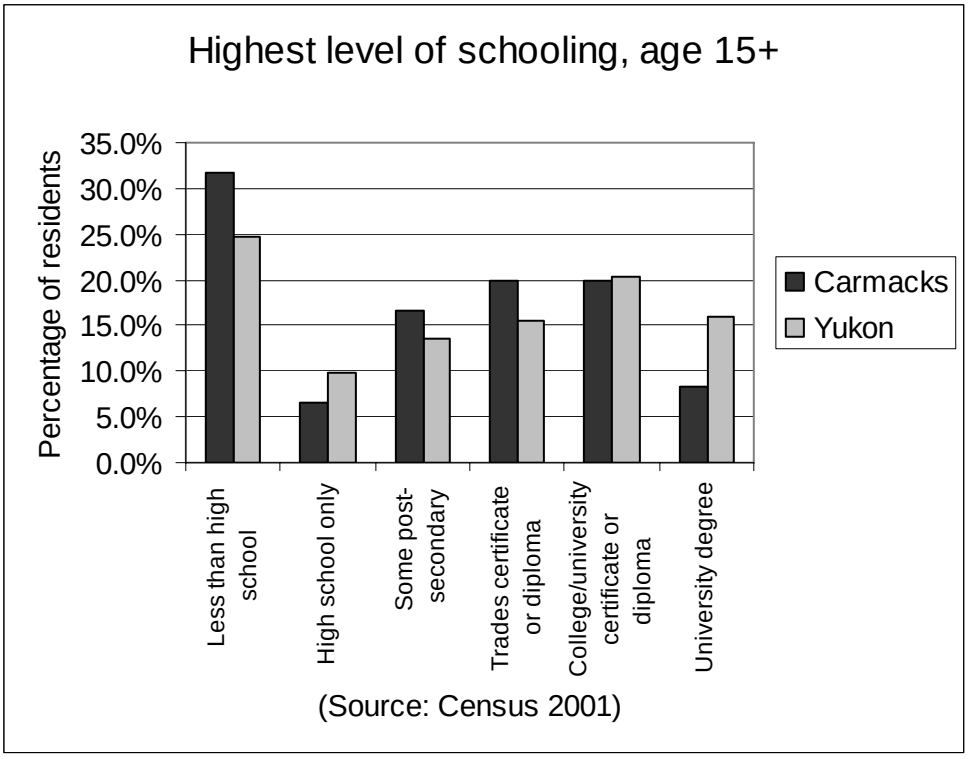
Individuals clearly gain economically from higher levels of education. Higher levels of formal education generally mean higher earnings. For example, the average wage of Canadian workers with four years of university education is two thirds higher than workers whose formal education ended with a high school diploma. And people who do not complete high school have dramatically fewer economic options and even lower average wages.

Wage differentials between different levels of schooling are due in part to specific skills or learning gained in the course of further education, and in part to the signal that

[4] http://www.mveirb.nt.ca/documents/toolkits/MVEIRB_TK_Guide.pdf p. 6
[5] http://www.mveirb.nt.ca/documents/toolkits/MVEIRB_TK_Guide.pdf p. 7

completing further education sends to prospective employers. Completing a higher level of education is crucial to send the signal that an individual is not only educated or skilled, but has the discipline and drive to stick to a long-term effort.

Figure 8 Highest level of schooling, age 15+ for Carmacks and the Yukon, 2001



Key Points:

- The 2001 Census found Carmacks to have proportionately more people aged 15 or older without high school diplomas than the Yukon as a whole.
- The community shows higher proportions of residents holding trades certificates and having some post-secondary education.
- University degrees are rarer in Carmacks than in the Yukon as a whole.

Figure 9 Highest level of schooling, females aged 20-34, Carmacks and the Yukon, 2001

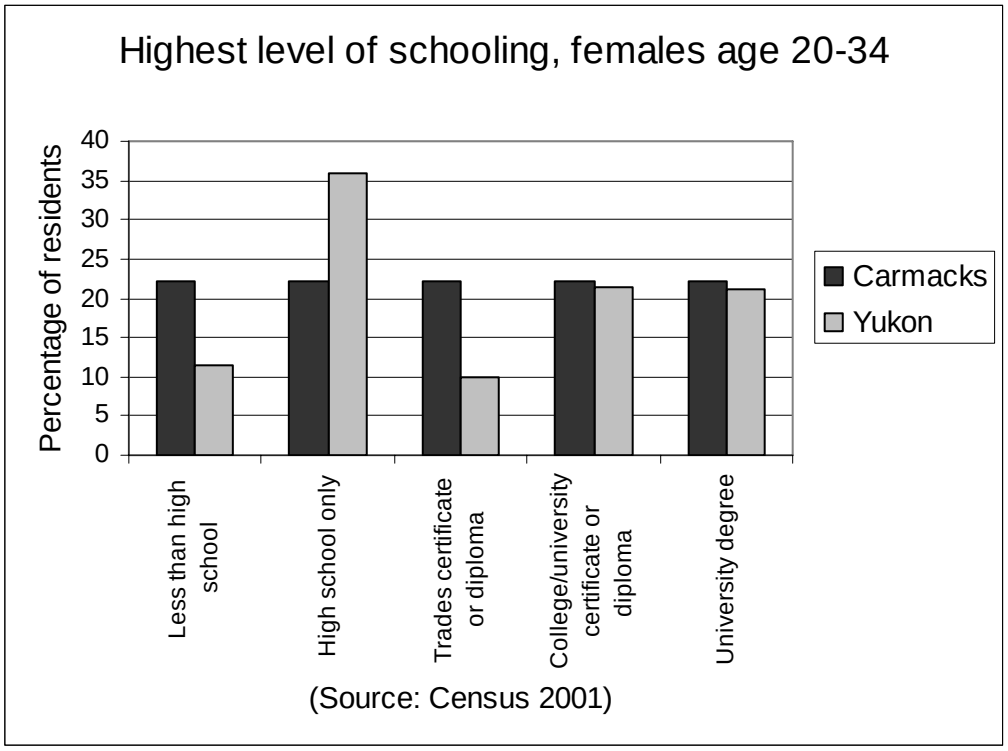
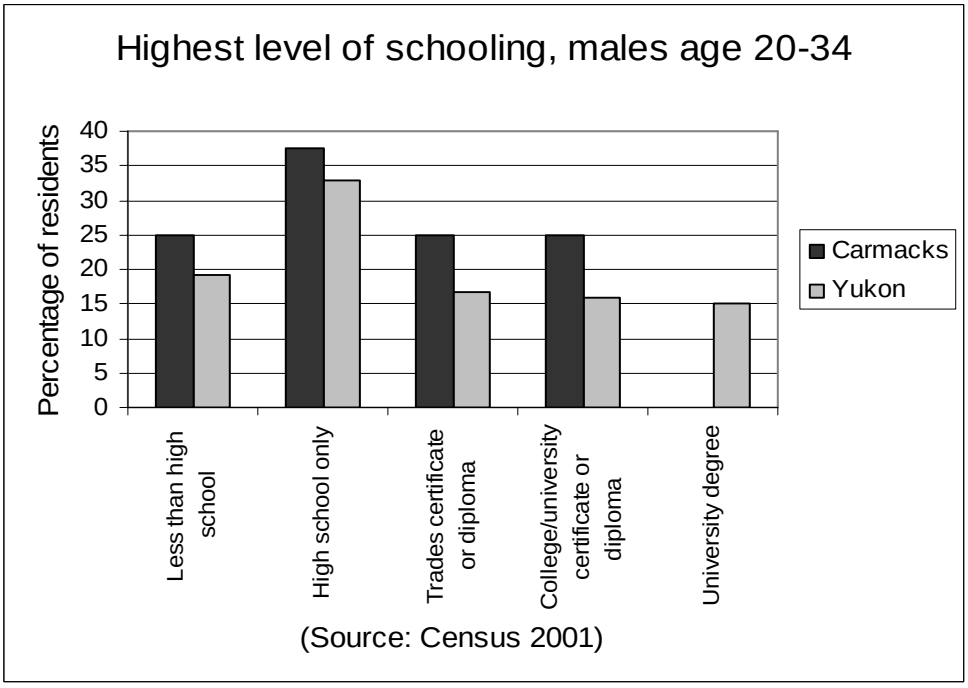


Figure 10 Highest level of schooling, males aged 20-34, Carmacks and the Yukon, 2001



Key Points:

- The 2001 Census indicates that young adult women in Carmacks are more likely to have not finished high school than 20-34 year old women in the Yukon as a whole.
- Carmacks women are more likely to hold a trades certificate and equally likely to have completed a college diploma or university degree.
- Like the community's young adult women, young men in Carmacks are more likely to have not yet completed high school than their Yukon peers.
- And, again like the women, Carmacks men aged 20-34 are more likely to hold a trades certificate than their Yukon peers.
- Young men in Carmacks are more likely to hold a college diploma than their Yukon peers, but far less likely to hold a university degree.

2.2.5 Educational Infrastructure & Opportunities

The Tantalus School offers classes from Kindergarten through to Grade 12. In the 2004/05 school year total enrolment was 103 for all grade levels. The school has 14 teachers — 3 of whom are native language teachers — plus two educational assistants and one remedial tutor. A new school building is currently under construction and is scheduled to open in September of 2007.

Given the overall lower numbers of high school graduates in Carmacks, increasing the graduation rate — and, by extension, decreasing the drop-out rate — of local high school students will bring long-term benefit to both the students and the community as a whole. And it appears that Tantalus School has been successful in retaining more of its high school students and increasing its number of graduates over the past several years. In the 2005/06 the school's principal reported[6] a 100% retention rate for all high school aged students in the community and that 6 students, including three LSCFN citizens, received their high school diplomas in the past two years.

Nearly all of the school's students are either citizens or beneficiaries of the Little Salmon Carmacks First Nation and the Tantalus School therefore has a role to play in the fostering of the Northern Tutchone language and traditional knowledge. All of the school's students are enrolled in the school's Northern Tutchone Language and Culture classes.

Yukon College operates a satellite community campus in Carmacks located in the First Nation Administration Building. The community campus provides academic upgrading courses, GED, computer training and various occupation-related courses in Carmacks. In 2005/06 for example, the campus offered a series of upgrading courses in English and math, a GED preparation course, first aid and workplace hazardous materials courses, a

[6] http://www.yesnet.yk.ca/schools/tantalus/message.html

food safe course for culinary workers, boat operator training courses, a radio broadcast training course, and Youth Employment Strategy courses. The College also provides nightly internet access and hosts various community events.

The Carmacks Training and Employment Society is the community training fund that acts as a conduit for the Yukon Government's community training moneys. Community training funds are designed to be community-based and community-driven means of ensuring that job-specific training happening in the community is designed to meet the needs of the local job market and the interests of community members. In the 2004/05 fiscal year YTG allocated a total of $1.8 million to the various community training funds across the Yukon. Carmacks received $75,000 that was primarily used for a Level I Carpentry apprenticeship program and a log building initiative.

2.3 Health

People's physical, mental, and emotional health is the single most important indicator of their well being. For an individual, poor health will override social and economic advantages such as a high level of education or good employment. And for a community as a whole, high rates of particular physical or mental illnesses or health-related issues such as poor water quality or substance abuse can easily outweigh positive local economic or social factors.

2.3.6 Health Status

As is the case for all small communities, no separate data on the health status of people in Carmacks is publicly available. Health status data for selected indicators is kept for the Yukon as a whole by Statistics Canada. Examples of those indicators include the Yukon's death rates by various cancers and other diseases and the general prevalence of clinical depression. However, there are two important points to bear in mind when looking at this data:

1. Even when looking at the Yukon as a whole, a small population makes the numbers subject to a lot of variability — just a few extra people diagnosed with a condition can move the overall rate by a lot. When using the Yukon-wide numbers as a proxy for a small community such as Carmacks, this variability increases so much the numbers become meaningless.
2. It has been shown in the past that there is often a big difference in health status between the rural Yukon and Whitehorse. In YTG's 1998 Health Status Report, for example, some illnesses were twice as prevalent in the rural Yukon.

In general, it is highly likely that the population of Carmacks has a similar overall health status as other rural Yukon communities.

However, the Yukon Government did publish a report in 2004[7] that looked at some selected health indicators. Some of the findings of that report are offered here as a very rough approximation of health status in Carmacks.

2.3.6.1 Self-reported Health, Diabetes, and Obesity

How people view and report their own overall health is a good general indicator of the health of the population as a whole. In 2003, 54.4% of Yukoners rated their overall health as "good" or "excellent" compared to 59.6% of Canadians. Only about 50% of Yukon women reported their health as good or excellent while nearly 60% of Canadian women did. Yukoners (and especially Yukon women), therefore, appear to be somewhat less healthy overall than the norm in Canada.

Diabetes is a chronic condition requiring careful management. It often leads to complications and further ill health. Between 1997 and 2000 it appears that the incidence of diabetes has been rising in the Yukon (from 3.1% to 3.8% of the population) but the illness is even more prevalent and is rising at a similar rate in Canada as a whole (from 4.1% to 4.8% of the population).

Obesity is another chronic condition that is linked to further ill-health. Significantly more Yukoners (19.2%) than Canadians (14.5%) are classified as obese. Yukon women are more likely to be obese than Canadian women, but Yukon men are not. The proportions of Yukoners and Canadians who are overweight (but not so obese) are roughly similar — 30.7% and 32.4% respectively — and there are no significant differences between men and women.

2.3.6.2 Health-related Behaviours

The 2004 Report to Yukoners on Comparable Health also highlights teenage smoking rates and overall levels of physical activity as important health indicators.

Teens who begin smoking are very likely to continue smoking — and suffer ill health over the long term. Overall teen smoking rates in the Yukon are very similar to those in Canada as a whole. In the 12-19 age group, 69.6% of Yukoners do not smoke compared to 70.6% of Canadians. Smoking every day is already a habit for 11.6% of Yukon adolescents compared to 9.1% of Canadian adolescents.

In 2003 58.8% of Yukoners reported themselves to be active or moderately active compared to 51.0% of Canadians. Yukon women in particular reported higher levels of physical activity.

[7] *Report to Yukoners on Comparable Health and Health System Indicators*. 2004. Yukon Government, Department of Health and Social Services

2.3.7 Health Infrastructure and Programs

The following summary of Carmacks' health infrastructure and programs was provided by the Yukon Government's Health and Social Services department[8]:

- Staffing complement at Carmacks Health Centre includes two Community Nurse Practitioners and a clerk.
- The health centre is open for business Monday to Friday to look after all acute care presentations and provides community health services.
- Programs include wellness clinics (e.g. well-child, well woman), school health programs, immunization clinics, surveillance of clients with chronic conditions (e.g. asthma, diabetes, cancer).
- Acute care services are basic and would include things like suturing of minor wounds, assessment and treatment of common conditions like abdominal pain, respiratory infections, and minor fractures.
- Severe conditions like MVA, crush injury, chemical exposure or a major trauma, once received at the health centre, can be stabilized pending medevac transfer to Whitehorse.
- Emergency response is available 24/7. The nurses take turns being on call to respond.
- EMS support is provided by volunteer ambulance personnel in the community. Resources for this are limited in numbers and sometimes in reliability.
- Whitehorse would be the back up to Carmacks.
- Calls for emergency response are routinely directed to the health centre phone number. Physician services are provided on an itinerant basis bimonthly by alternating physicians between Mayo and Faro.
- Request for medevac is made to Yukon Emergency Medical Services in Whitehorse, who transport of the patient from the community to the hospital by either road or air transfer.

The Little Salmon Carmacks First Nation provides a number of health programs to its citizens.

2.3.8 Health Issues

From discussions with residents of Carmacks to date, the two largest community health issues are substance abuse and ongoing problems with potable water supplies taken from shallow ground water wells. No data is available on the range and depth of substance abuse problems, but if the perceptions of some in the community are accurate, the use of illicit drugs such as crack cocaine is especially serious among local teens.

[8] Violet VanHees, September 1, 2006. Personal communication.

2.4 Local Economy

Detailed data on small local economies such as Carmacks is always scarce. The exception is for Census years when considerable data on employment and incomes becomes available.

Some general points on small local economies include:

- Small communities with relatively low average incomes provide little opportunity for local businesses to be viable.
- Increasing individual incomes is critical for developing the local economy. Local business activity depends very much on people's purchasing power. Higher incomes in the community create a larger market. This gives small businesses that provide services to community members a better chance of being profitable.
- Supplying goods and services to a large project or operation is another way that local businesses can be viable. However, overdependence on one buyer leaves that business highly vulnerable.

2.4.1 Traditional Economy

Traditional economic activities include hunting, fishing, gathering, and trapping. In the past, these activities provided all of life's material necessities for aboriginal people. Apart from the cultural or other benefit, traditional economic activities continue to provide economic benefit to both aboriginal and non-aboriginal people both as a supplement to economic well-being when incomes are low and in providing a degree of resilience and flexibility that allows people to better adjust to economic ups and downs.

At the community consultation meeting at the Village of Carmacks on July 6, 2006, flexibility in work schedules — and particularly as it relates to First Nation employment — was raised. Topics including four-day weeks, regulated break schedules and grief leave were highlighted as important considerations.

2.4.1.1 Hunting, Fishing, Gathering

The Yukon Bureau of Statistics has some general data on hunting in the Yukon from a hunter survey carried out in 2000.[9] Findings from that survey include:

- Moose is the most commonly hunted animal — 90% of hunters hunted moose.
- 26% of moose hunts were successful.
- Zone 8, east of Carmacks, was one of the two most popular areas to hunt moose.
- Caribou were hunted by 60% of hunters and 40% of those hunts were successful.
- Two thirds of hunters generally use a boat to hunt, and an even greater proportion of moose hunters prefer boats.

[9] http://www.gov.yk.ca/depts/eco/stats/onetime/hunter00.pdf

White and black spruce are the common conifer tree stands in the Williams Creek drainage, with some lodgepole pine occupying old burn areas. Commercial harvesting of these species in this region of the Yukon is not viable; therefore, commercial forestry values for the Williams Creek watershed are not significant.

Some of the indigenous plants of the region are used by members of the LSCFN for medicinal and traditional purposes. No known harvesting activities for this purpose occur within the project area.

2.4.1.2 Trapping

For many decades, trapping was the primary source of cash incomes for many Yukoners, both First Nation and non-First Nation.

Table 1 below shows the total fur harvest from a group of 14 traplines centered on the project site over a 20 year period.

Table 1 Total fur harvest, group of 14 traplines centered on project site, 1984 to 2004

Species	Total harvested
arctic fox	3
beaver	355
coyote	42
lynx	1,148
marten	891
mink	109
muskrat	364
otter	7
red fox	265
squirrel	10,064
weasel	207
wolf	62
wolverine	170
Grand Total	13,687

Source: Yukon Government records
Note: Traplines #136, 142-144, 146-52, 154, 155, 196

Trapping success is a usually a result of both trapping effort and, especially for lynx, on the abundance of animals.

The proposed Carmacks Copper mine site is located within Registered Trapline #147, held by a member of the LSCFN, Ms. Kathleen Sam of Carmacks. The Williams Creek watershed is trapped more than once a year during most years (Mr. J. Sam, pers. comm.). No known trapping cabins or camps are within the immediate project area. Western Copper has engaged in discussions with the affected trappers and will continue to work towards resolving any issues that may arise.

2.4.2 Gross Domestic Product (GDP) & Inflation

A common measure of aggregate economic output in an economy is gross domestic product (GDP), is not calculated by Statistics Canada at the community level. In its absence, a reasonably good indicator of the size of the local economy is aggregate personal income. In the 2002 tax year, residents of Carmacks reported a total of $7.08 million in income from all sources. Thus it can be inferred that the community's GDP is approximately $7 million. The Yukon's GDP in 2004 was $1.13 billion.

The Yukon Bureau of Statistics provides a comparison of the difference in cost of living between Whitehorse and Carmacks. In October of 2004 the survey[10] found that, for the items surveyed, it costs 10.4% more to live in Carmacks than to live in Whitehorse. A detailed breakdown of the items surveyed and their cost in Carmacks relative to Whitehorse is shown in Table 2 below.

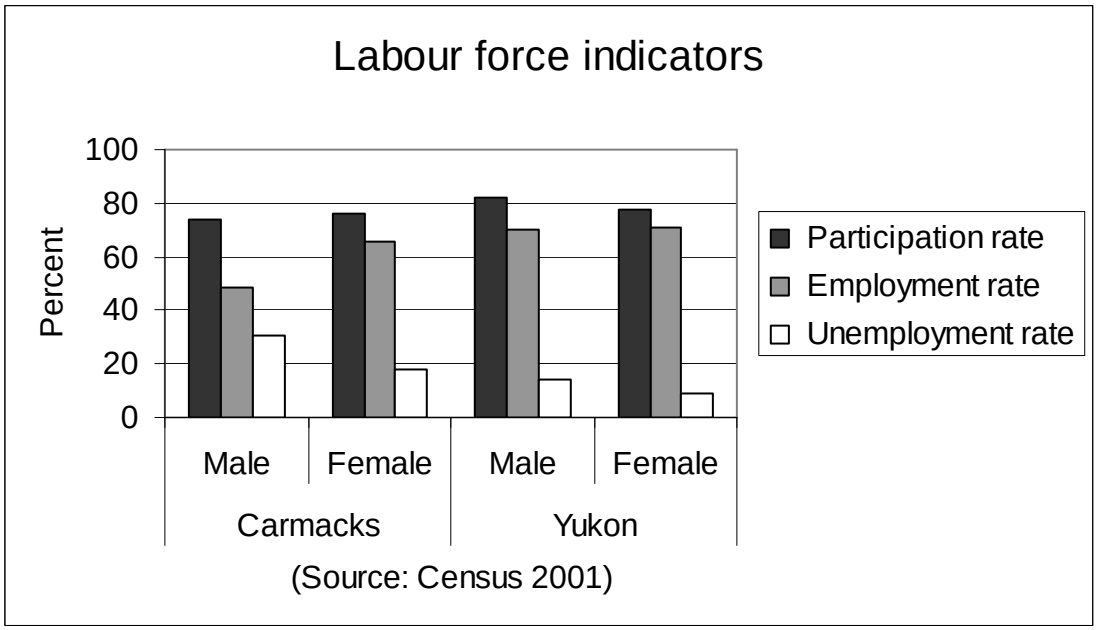
Table 2 Cost of living, Carmacks versus Whitehorse, 2004

Item	Cost in Carmacks versus Whitehorse
Meat	+4.9%
Dairy/eggs	+15.5%
Fruit/vegetables	+6.6%
Bread/cereal	+22.3%
Other foods	+21.3%
Household operations	+0.2%
Health & personal care	—
Gasoline	+2.3%
Cigarettes	+13.2%
Total	+10.4%

[10] http://www.gov.yk.ca/depts/eco/stats/annual/review04.pdf p.40

2.4.3 Employment

Figure 11 Labour force indicators by sex, Carmacks and the Yukon, 2001



Key Points:

- In 2001 the major labour force indicators show that women in Carmacks had a higher rate of participation in the labour force than men, had a distinctly higher employment rate and a much lower unemployment rate.
- However, when compared to the Yukon as a whole, Carmacks women do not fare so well, and men in Carmacks suffer a very high rate of unemployment and a very low employment rate.

Table 3 Employment by industry, Carmacks and the Yukon, Census 2001

	Carmacks		Yukon	
	No.	%	No.	%
Agriculture & resource-based industries	15	6.8%	865	4.9%
Manufacturing & construction industries	20	9.1%	1,780	10.1%
Wholesale and retail trade	10	4.5%	2,275	12.9%
Finance and real estate	10	4.5%	565	3.2%
Health and education	45	20.5%	2,765	15.7%
Business services	45	20.5%	2,800	15.9%
Other services	85	38.6%	6,610	37.4%
Total - Experienced labour force	220		17,665	

Key Points:

- The 2001 Census found that employment by industry in Carmacks did not differ substantially from that of the Yukon as a whole.
- It appears that Carmacks had proportionately more people employed in health & education and in business services, and, to a lesser degree, in resource-based industries than the Yukon.

Table 4 Employment by occupation, Carmacks and the Yukon, Census 2001

	Carmacks		Yukon	
	No.	%	No.	%
Management occupations	25	11.4%	2,255	12.8%
Business; finance and administration occupations	30	13.6%	3,135	17.7%
Natural and applied sciences and related occupations	10	4.5%	1,120	6.3%
Health occupations	0	0.0%	705	4.0%
Social science; education; government service and religion	30	13.6%	2,145	12.1%
Art; culture; recreation and sport	10	4.5%	640	3.6%
Sales and service occupations	55	25.0%	4,045	22.9%
Trades; transport and equipment operators and related occupations	45	20.5%	2,835	16.0%
Occupations unique to primary industry	15	6.8%	530	3.0%
Occupations unique to processing; manufacturing and utilities	10	4.5%	260	1.5%
Total - Experienced labour force	220		17,670	

Key Points:

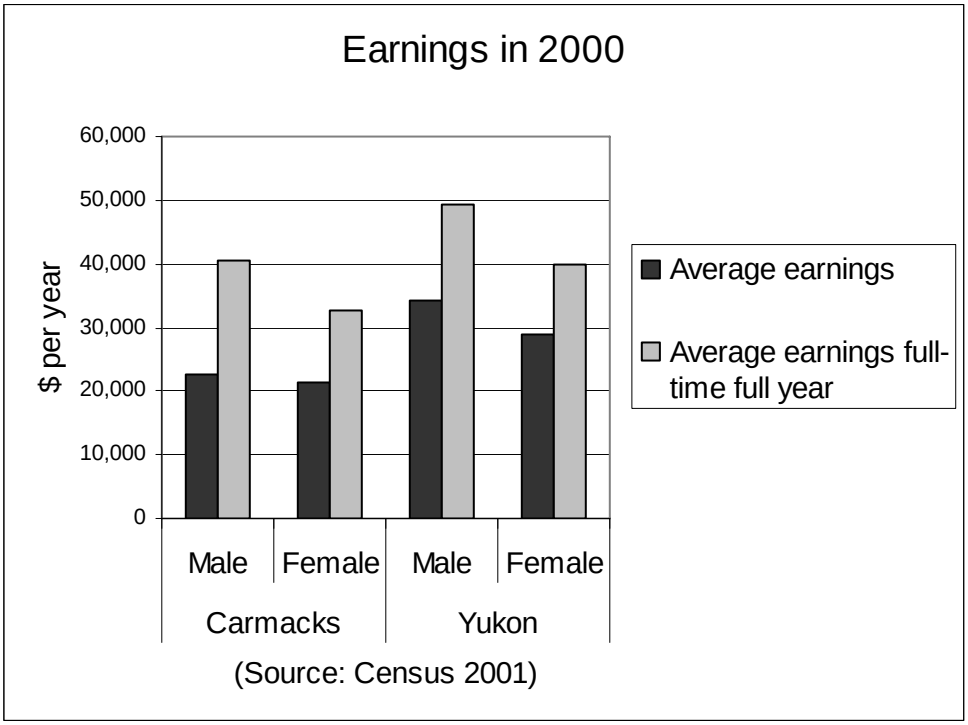
- The community's total experienced labour force in 2001 was approximately 220.
- Carmacks has proportionately more people employed in the trades and as equipment operators.
- The community also has more than double the percentage of people employed in primary industry occupations than the Yukon as a whole.
- The zero figure for health occupations is certainly a statistical artefact due to Statistics Canada's use of random rounding of figures to protect confidentiality (there are likely fewer than 5 people employed in these occupations in Carmacks).

2.4.4 Incomes

People with higher incomes can generally expect to live longer and healthier lives than those earning less. In 1996–97, only 47% of Canadians at the lowest income level rated their health as very good or excellent, compared with 73% in the highest income group.[11]

2.4.4.1 Sources, Ranges, and Earnings

Figure 12 Earnings by sex, Carmacks and the Yukon, 2000

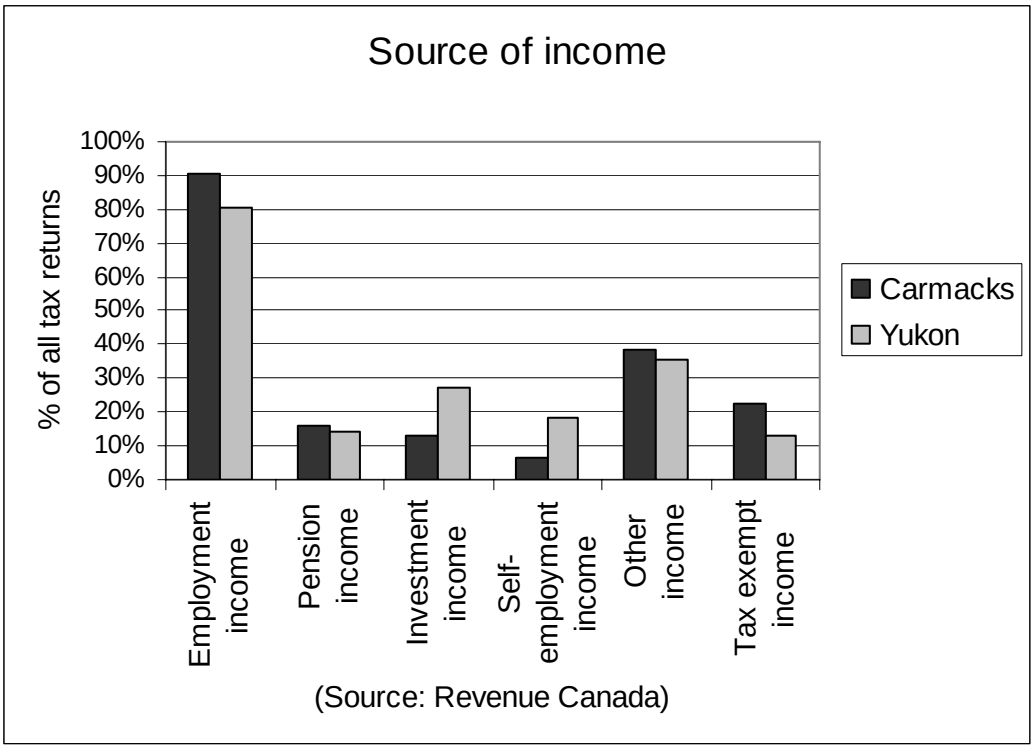


Key Points:

- Average earnings in Carmacks for both men and women —whether working full-time and year-round or not — are substantially lower than for the Yukon as a whole.
- On average men in Carmacks earn only 67% of what average Yukon men do while women in Carmacks earn 74% of the Yukon female average.
- For full-time, year-round work, both men and women in Carmacks earn 82% of the Yukon average.
- Yukon women continue to earn substantially less on average than men, 85% overall and 81% if they are working full-time year-round jobs.
- Women in Carmacks earn, on average, only 63% of what the average Yukon male earns.

[11] Statistics Canada, *Canada E-book*, Catalogue No. 11-404-XIE, available at http://142.206.72.67/02/02b/02b_007g_e.htm.

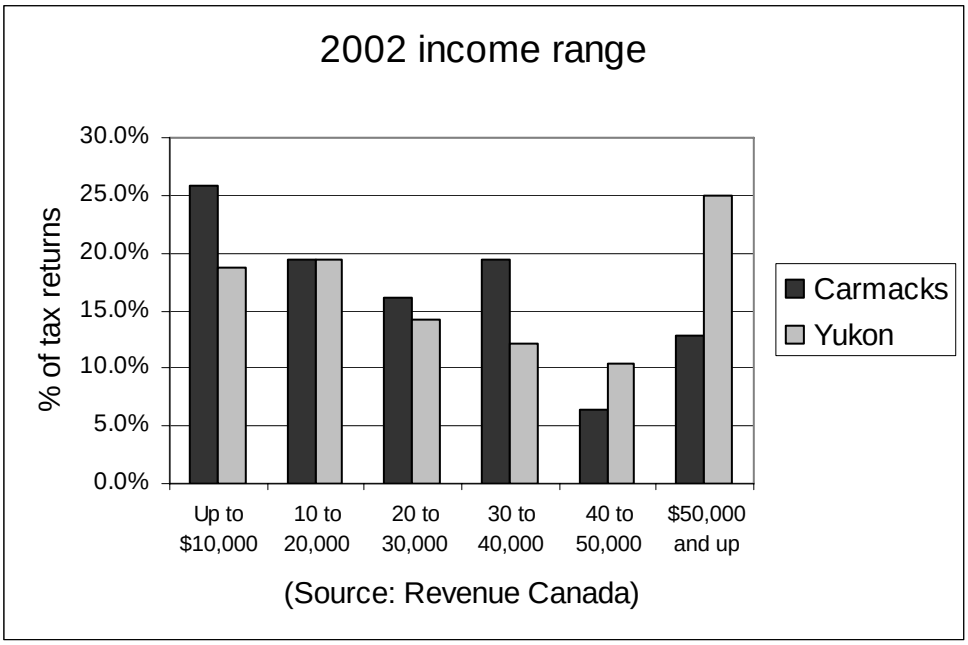
Figure 13 Sources of income, Carmacks and the Yukon, 2002 tax year



Key Points:

- More than 90% of Carmacks tax returns filed in 2002 reported at least some employment compared to 80% of Yukon tax returns reporting such income.
- Self-employment is much less common in Carmacks than in the Yukon as a whole given that only 6.5% of community tax filers reported self-employment income (about one third of the 18.5% Yukon-wide).
- Investment income also plays a much smaller role in community incomes with only 13% reporting such income compared to 27% Yukon-wide.
- People in Carmacks are proportionately more dependent on tax-exempt income (mostly Social Assistance and Workers' Compensation payments) than Yukoners as a whole (23% compared to 13%).
- Other income includes Employment Insurance (EI), disability income or benefits, training allowances, and child support payments and is not significantly different in Carmacks.

Figure 14 Incomes by range, Carmacks and the Yukon, 2002 tax year

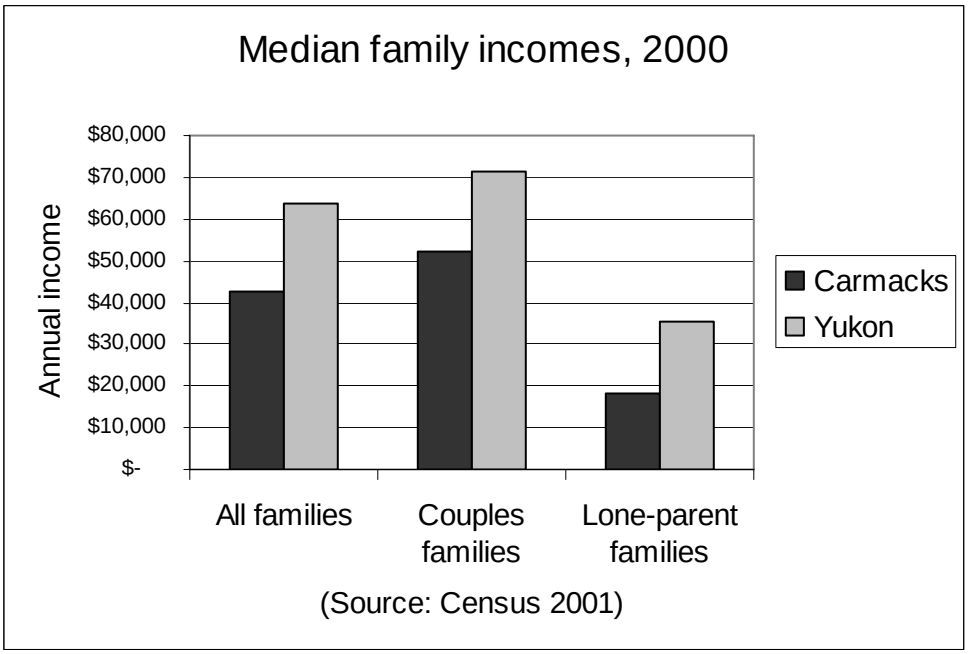


Key Points:

- Proportionately more people in Carmacks (25.8%) fall into the lowest income range of under $10,000 per year than people in the Yukon as a whole (18.7%).
- In contrast, proportionately far fewer people from the community earn $50,000 or more (13% versus 25%) or $40,000 to $50,000 (6.5% versus 10.4%).
- Given the much lower average earnings of both men and women in Carmacks (see Figure 12 above) the lack of high income earners and abundance of low income earners in the community is not surprising.
- The relatively high percentage of incomes in $30,000 to $40,000 range in Carmacks may reflect a greater reliance on relatively high-paying but seasonal work in the community.

2.4.4.2 Family and Household Incomes

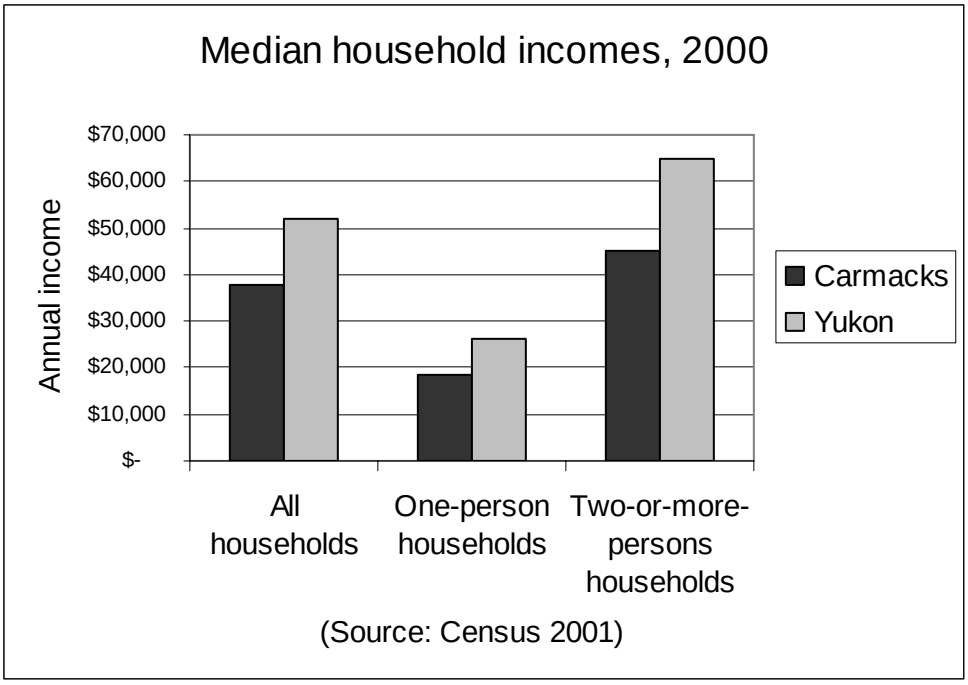
Figure 15 Median family incomes, Carmacks and the Yukon, 2000



Key Points::

- Median family incomes (the income where half of the families make more and half make less) are substantially lower in Carmacks than the Yukon as a whole for all family types.
- The median lone-parent family in Carmacks made only $18,000 in 2000 compared to the Yukon median of over $35,000 for lone-parent families.

Figure 16 Median household income, Carmacks and Yukon, 2000



Key Points:

- As with family incomes, the 2001 Census found that median household incomes in Carmacks are lower than the Yukon median for all household types.

2.4.5 Industries and Business Activity

The relative importance of different industries to a small community such as Carmacks can be inferred from Census employment data. Employment by industry division in Carmacks in 2001 is shown in Table 5 below. Note that this is a more detailed breakdown than similar data shown in Table 3 above.

Table 5 Employment by industry division, Carmacks, Census 2001

Industry division	Number employed	% of employed
Resource-based industries	15	6.7%
Construction	20	8.8%
Retail trade	10	4.4%
Transportation	15	6.7%
Professional & technical services	10	4.4%
Administrative & support services	20	8.8%
Educational services	25	11.1%
Health care & social assistance	20	8.8%
Arts, entertainment & recreation	10	4.4%
Accommodation & food services	15	6.7%
Public administration	65	28.9%
Total	225	100%

From Table 5 it is clear that government is by far the most important industry in Carmacks, as it is in the Yukon as a whole. When those working in public administration are added to health and education (almost entirely government endeavours) at least 50% of those employed were working directly for one of the levels of government in the community.

Construction and transportation are also significant parts of the community economy as is tourism, which is largely responsible for supporting jobs in accommodation and food services.

2.4.5.3 Businesses in Carmacks

The Village of Carmacks' website includes a list of businesses that have current local business licenses and describes the services they offer. That list is shown in Table 6 below.

Table 6 Carmacks based businesses, 2006

Business	Type of service
Carmacks Towing	Vehicle towing, services, storage and vehicle repair
Mukluk Manor	Bed and breakfast operations
Berdoe Enterprises	Construction and general maintenance
G&A Welding and Cartage	Welding and cartage (hauling)
Sunrise Service Centre	Auto service, fuel, RV park, retail sales, groceries
Carmacks Development Corp	Agency and general contracting
THWT Enterprises	Retail services and general contracting
Kando Enterprises Ltd	General contracting
Carmacks Hotel Ltd.	Hotel, RV park, and guest services
Tatchun Centre	General store and gas pumps
Gold Panner Restaurant	Licensed restaurant
Erik's Services	Auto service & repair, towing, general maintenance
Dunena Zra Sanchi Ku	Daycare
CSM Landscape Construction	Landscaping, Maintenance & General Contracting
Roydom Campgrounds	Camping, RV park and wash-house
Canadian Wilderness Travel	Wilderness tourism operator

The Carmacks Development Corporation — a wholly owned enterprise of the Little Salmon Carmacks First Nation — is currently in the process of developing a strategic plan for its current and future operations. Because that plan is not yet final, the corporation could not comment specifically on how, or in what way, it may wish to do business with Western Copper in the development and operation of the proposed mine. However, an official of the Corporation[12] did offer the following general observations:

- The mining sector will certainly be a key economic target for the corporation;
- Given that working in and with the mining sector will be a priority, the corporation will be looking to generate significant revenue for its shareholders in the sector;
- Currently, the Carmacks Development Corporation is open to a variety of means of achieving its business goals, including participating in joint ventures and in creating stand-alone firms; and,
- The corporation is interested in building relationships with key people in Western Copper in order to maximize any economic benefits from the project.

[12] James Wilson, CEO Carmacks Development Corporation. Personal communication, July 27, 2006.

2.4.5.4 Recreational Use and Outfitting

The Yukon River is central to Carmacks — in the community's history and in the present as it acts as a geographic divide, as a means of transportation, and as a route that visitors use to come to Carmacks.

The most significant recreation activity within the study area is summer canoeing on the Yukon River. Canoeists generally use the river between late May and September, with peak use in July and August. Dawson City is the usual destination, with people typically starting their journey in the Whitehorse area or Carmacks. Visitor records collected at Fort Selkirk on the Yukon River downstream of Carmacks and Williams Creek indicated that 693 canoeists used this section of the river during 1992. This figure represents an 11% increase over the 1991 visitor records. The usual time required to canoe from Carmacks to Dawson is 5 to 10 days, depending on flow conditions and other factors.

There is a designated campsite at Carmacks, which is used by most canoeists as an overnight stop while restocking provisions. On average, canoeists travel 35 to 50 km per day. Using these estimates, and assuming the majority of canoeists have used Carmacks as the last stopping point, it can be projected that canoeists leaving Carmacks would camp between the Williams Creek area and Fort Selkirk. Although designated campsites along the Yukon River route are often associated with tributary confluences examination of the fan area at the Williams Creek confluence indicated low usage by campers. There was no evidence of regular campsites or fire pits.

Recent survey data on the use of the Yukon River is not available. However, in 1997 the Yukon Government conducted a detailed survey[13] of river travellers between mid-June and mid-September of that year.

The survey collected information from 2,125 river travellers. Some of its findings include:

- 39% of river travellers are from Germany;
- Canadians make up about 23% of travellers;
- Yukoners were 8% of the total;
- Men outnumber women by a ratio of 3 to 1 on the river;
- Most travellers are young adults — 31% being 25 to 35 years old; and,
- 38% of respondents named Carmacks as their take out point.

The other significant recreational activity in the project area is the annual Yukon Quest Dog Sled race between Whitehorse and Dawson City. The Quest Trail parallels the west

[13] Highlights from the 1997 Yukon River Survey. Available at: http://www.gov.yk.ca/depts/eco/stats/onetime/riversurvey97.pdf

bank of the Yukon River and crosses lower Williams Creek approximately 150 m upstream of the Yukon River confluence.

The extent of other recreational activities such as hiking or skiing is not known. However, the Williams Creek area is not noted as a particularly popular or unique area for these activities. Access to the area is restricted by the seasonal road conditions.

The area of the proposed Carmacks Copper mine is within Yukon Registered Outfitting Concession #13 which covers approximately 10,000 square miles to the west of Carmacks. The outfit is operated by Mervyn's Yukon Outfitting based in Whitehorse. Mervyn's provides hunts for a variety of animals, including moose, caribou, dall sheep and grizzly bears in the fall and bison in the winter. In late fall hunts, the outfit uses a jet boat on the Yukon River to hunt for grizzly bears feeding on salmon. The outfit does not hunt any animals in the mine area; however, the development may have some indirect adverse effects on the business[14] (see Section 4.5.8).

2.5 Community Governance, Infrastructure & Services

How a community governs itself and the presence or absence of community infrastructure and services forms an important part of the socio-economic baseline.

2.5.1 Levels of Government

There are three levels of government in Carmacks, the Yukon Government, the Little Salmon Carmacks First Nation, and the municipal government.

2.5.1.1 Yukon

The Yukon Government has a highway maintenance station in Carmacks, operates the health centre, operates the Tantalus School, provides social services, and provides a territorial agent. Yukon Housing provides and maintains housing and Energy Mines and Resources also operates an office in the community. In total, the Yukon Government employs approximately 30 people in Carmacks, including the teachers at Tantalus School.

2.5.1.2 Little Salmon Carmacks First Nation

The Little Salmon Carmacks First Nation is a self-governing First Nation under the Umbrella Final Agreement. The First Nation provides a variety of services to its citizens and administers its lands and resources.

[14] Tim Mervyn, Owner/operator Mervyn's Outfitting. Personal communication October 24, 2006.

2.5.1.3 Municipal

Carmacks incorporated as the Village of Carmacks in 1984. The Village collects property taxes and has the authority to pass bylaws in the municipality. The municipal government is responsible for the following within its municipal boundaries:

- Operating and maintaining the sewage disposal pit;
- Operating and maintaining the landfill and associated recycling program;
- Maintaining the Nordenskiold cemetery;
- Road maintenance of local roads;
- Park maintenance;
- Maintaining fire department infrastructure;
- Operating and maintaining the recreation centre and swimming pool;
- Providing seasonal visitor information services; and,
- Enforcing the animal bylaw (dog control).

It is important to note that the area centred on the Little Salmon Carmacks First Nation administration building (and including most of the First Nation housing) is not the responsibility of the municipality.

The Village employs 7 full-time year-round staff and a variable number of seasonal people in the summer. Summer staffing of students and others on particular projects is often in the 10-15 range.

2.5.2 Community Infrastructure

A self-assessment of the community's infrastructure and its adequacy is currently underway as part of the Integrated Community Sustainability Plan (see Section 2.5.3 below). That assessment is not yet complete.

2.5.2.1 Sewer, Water, and Landfill

The current sewage system collects and treats wastewater from institutions, businesses and residences in the downtown area. Carmacks plans to build a new treatment plant for sewage and wastewater that will replace the current system and serve the same area of the community. An application for the new wastewater treatment facility was assessed by the YESAB Mayo Designated Office (Project #2006-0217) in fall 2006. Both the current system and the planned new system have been designed to handle a larger population than is currently living in the serviced area. The system serves approximately 200 people but has a 500-person capacity.[15]

Funding for the project is to be provided by the Canada Strategic Infrastructure Fund and was included in the Yukon Government's last budget. The Village announced in its

[15] Terry Bidniak. YTG Community Services. Personal communication. August 4, 2006.

April 2006 newsletter[16] that a contractor has been selected for the project and construction will begin as soon as funding is released.

Planning has begun on a water system for the community but has not advanced beyond the conceptual stage. Potable water is currently provided either by private wells or by water delivery.

The municipal landfill is open 4 days per week and it compacts and covers household waste. Brush and debris are burnt and metals and tires are sorted and hauled away at intervals. A recycling depot is open one day per week. The landfill has a design capacity and operations budget geared to provide adequate service to the community but does not have currently have the capacity to meet a surge in demand without planning for additional capital and operating expenses.[17]

2.5.2.2 Recreational Infrastructure

The Village of Carmacks[18] offers the following description of the community's recreation centre:

> "The Carmacks Recreation Centre is at the east end of River Drive between the nursing station and visitor centre, and is a community focal point for youth. There is a youth drop-in daily with computer access, video games, table games and other activities, often funded by Yukon grant programs. The gymnasium is host to adult floor hockey and other sports, and there is an attached curling rink and a covered outdoor skating rink. The newest addition to the Recreation Centre is a full set of fitness equipment, including weights and treadmills. Summer sees the opening of the swimming pool, usually from the Victoria Day weekend in May to the last week of August. A training site for the Carmacks Kings swim club, the pool also offers family and adult lessons and public swims."

Most of the recreation centres' facilities are in good shape and could easily handle an increase in community population and use. The exceptions are the skating rink which is suffering from ground movement and hence difficulties in preparing a good ice surface, and the curling rink which also relies on natural ice. That ice surface is often very difficult to create and maintain.[19]

2.5.2.3 Community Events, Organizations & Recreational Activities

Carmacks has a number of annual community events including the community's winter festival, Winterlude, which is held in early March. Winterlude 2006 included a variety

[16] http://www.carmacks.ca/content/21/36/default.aspx
[17] Elaine Wyatt. Deputy Mayor, Carmacks. Personal communication. August 24, 2006
[18] http://www.carmacks.ca/content/18/default.aspx
[19] Dennis Mitchell, Carmacks recreation director. Personal communication. August 24, 2006.

show, family curling, community supper and breakfasts, a snowmobile rally, and dogsled racing.

The Carmacks Curling Association runs the curling club and hosts the Sweetheart Bonspiel every February. The Carmacks Family Entertainment Society provides 4 television channels and radio, and hosts a variety of fundraising events — including bingos, sidewalk sales and community suppers — that act to bring the community together. The Carmacks Recreation Board acts as the community conduit for recreation funding for events and travel to sport activities.

The Carmacks Library is part of the territorial libraries system. Community libraries in the Yukon are funded by the Yukon Government but are operated by the community.

2.5.2.4 Community Services

Policing in Carmacks is the responsibility of the Royal Canadian Mounted Police. A corporal and two constables make up the community RCMP detachment.

Fire protection is provided by a volunteer fire department. The fire department is equipped with two tanker trucks, radio communication, and other emergency gear, all located at the Carmacks Fire Hall. The department has a complement of 12 trained volunteers. There is an agreement between the fire department, the municipality, and the Little Salmon Carmacks First Nation that the department covers First Nation lands and property within the community to avoid the need for the First Nation to duplicate this service. Ambulance services are also covered by the agreement.

Both the ambulance and search and rescue services in Carmacks are also provided by volunteer organizations. The ambulance is based at the Carmacks Fire Hall. Carmacks Search and Rescue is equipped with a vehicle, the jaws of life, and a boat for river rescues.

2.5.3 Plans and Priorities

The Village of Carmacks has an official community plan that is currently under review. The community, like the Yukon's other municipalities and First Nations, is also developing an Integrated Community Sustainability Plan. Creating an ICSP is a requirement of the new gas tax sharing agreement drawn up between the federal, territorial, First Nation, and municipal governments in the Yukon.

The official community plan states:

> "The central theme Village Council wishes to reflect in this OCP is that it is time to move forward and get the economy moving. Settlement of the Little Salmon/Carmacks First Nation land claim for example creates new opportunities for partnership in community development. Completion of the recreation

> complex, construction of the riverfront boardwalk, restoration of the roadhouse etc. are all municipal led initiatives and success stories that demonstrate the municipality's self-empowerment capacity. Construction of a new school and wastewater treatment plant in 2004-05 are all projects that help position the community to move ahead."[20]

The plan includes the following issues related to land development and infrastructure operating costs:

- Lands available for future development are both limited and will be difficult to service;
- But sufficient land either already exists or has been identified to meet immediate future needs (5-7 years) unless a major development occurs;
- The operating and maintenance costs of community infrastructure generally remain a municipal responsibility that must be supported by the municipal tax base. An unstable economy or declining population undermines the community's ability to operate and maintain its infrastructure.

The first draft of the Integrated Community Sustainability Plan[21] for Carmacks lays out the community's major development challenges as:

- The loss of population over the past 5-7 years coupled with a decline in regional economic development is eroding the community tax base and its ability to pay the capital and operating costs associated with long overdue infrastructure improvements;
- Yukon River geography splits the community in half limiting future land development opportunities and making a unified approach to planning, infrastructure location and servicing design more complicated and expensive;
- Effective community building and governance requires close cooperation between the Village and Little Salmon/Carmacks First Nation governments; and
- The community's size makes it challenging to provide an extensive range of services, public facilities, lifestyle and/or employment choices to compete with Whitehorse.

The community plans to overcome those challenges in order to support the things the community values:

- The natural environment that surrounds and sustains the community;
- A diverse and stable economy that supports residents and local governments in the long term;
- A physically and emotionally healthy population;
- Community pride and unity;
- The history, heritage and culture of the community.

[20] Village of Carmacks Official Community Plan, 2004. Draft #2 19 May 2004 p.45. Available at: http://www.carmacks.ca/content/21/114/default.aspx

[21] Available at: http://www.carmacks.ca/content/21/114/default.aspx

2.6 Community Stability, Vulnerability, & Resiliency

An industrial development near any small community creates social and economic change. How well the community adapts to that change — and perhaps benefits from it — is a function of community stability, vulnerability and resiliency.

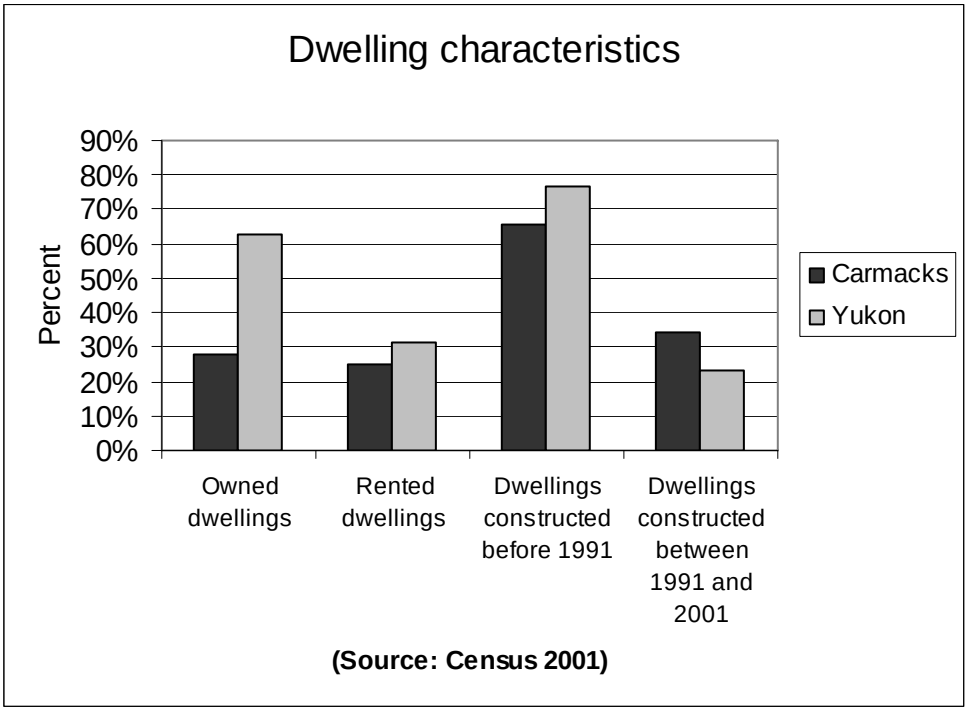
2.6.1 Cultural & Heritage Assets

The cultural and heritage assets of First Nation peoples include physical things and places such as traditional fish camps, burial sites, trails, traditional meeting & trading places, caribou fences, and the artefacts that are found at well used sites. Non-physical cultural assets — language, cultural practices, and ties to the land — however, are often even more important.

The arrival of Europeans in the Carmacks area brought a renewed focus on the region as a centre of transportation. Carmacks was a refuelling stop for riverboat traffic (and an exporter of coal to Dawson City) as well as a stop on the Overland trail. A prominent community heritage asset from that time is the restored roadhouse on the Nordenskiold River. It serves to anchor the riverfront boardwalk through the community where the history and heritage of the area are showcased.

2.6.2 Housing and Land Availability

Figure 17 Dwelling characteristics, Carmacks and the Yukon, 2001



(Source: Census 2001)

Key Points:

- The low level of home ownership in Carmacks compared to the Yukon is largely a function of the high proportion of First Nation people in the community, most of whom live in First Nation owned housing.
- The proportion of rented dwellings in Carmacks is comparable to that of the Yukon (note that First Nation housing is not included in the rented dwellings data).
- The 2001 Census found that the community's overall housing stock was somewhat younger than that of the Yukon.

2.6.2.1 Community Housing Quality

The Yukon Housing Corporation published a detailed survey of the Yukon's housing for each community in 2001.[22] That survey provides data on a wide range of housing quality issues. The key findings included:

- In general, houses in Carmacks were in relatively poor shape with 61% needing major repairs compared with 33% of Yukon houses needing major repairs.
- 62% of houses in Carmacks were found to have health and safety deficiencies — ranging from the lack of a kitchen exhaust system to lack of proper sewage disposal — a higher proportion than in the Yukon as a whole.
- Crowding was found to be an issue in Carmacks with 15% of houses not having enough bedrooms compared to 6% Yukon-wide.
- 15% of houses in Carmacks were found to have energy costs of $3.00 per square foot or more compared to a Yukon-wide figure of 10%.
- The survey found 44% of houses in Carmacks needed energy-related repairs, far higher than the 14% figure for the Yukon as a whole.

2.6.2.2 Land Available for Housing

As of July 31, 2006, the Yukon Government had a total of 29 lots ready for over-the-counter sale in Carmacks[23]. Of the 29, 5 were residential, 19 country residential, 4 commercial and 1 industrial. This does not present a complete picture of land availability, however, as it does not include lots already purchased but not yet built upon or existing properties that are suitable for subdivision.

In discussions with the municipality however, there was no knowledge of any available industrial land at all.[24] Other features of real estate in Carmacks is that there are normally very few, if any, housing units for rent in the community (apart from occasional availability of Yukon Housing units) and there are rarely any homes for sale.

[22] Yukon Housing Corporation. January 2001. *Community Housing Study: Carmacks Housing Report.*
[23] http://www.emr.gov.yk.ca/lands/lotsale_yukon.html
[24] Elaine Wyatt. Acting mayor. Personal communication. August 24, 2006.

2.6.3 Crime

The amount of crime — and the types of crime — a community experiences is a crucial indicator of social health. High crime rates instil fear and mistrust, create economic loss, and generally decrease the quality of community life.

The RCMP keeps very detailed records of reported incidents of crime for all of the Yukon communities. This data is available from the Yukon Bureau of Statistics[25] and a summary of some of the Carmacks data is provided below. However, the perception of crime — and people's response to that perception — is at least as important as the actual levels of reported incidents. It is also important that many crimes are not reported for a variety of reasons and those unreported crimes add to a community's perception of its crime level.

The following is a summary of some key reported crime statistics for Carmacks:

- The overall number of RCMP reported incidents of crime in Carmacks from 1995 to 2003 averaged 176 per year with a high of 245 in 2000 and a low of 104 in 1998.
- On a per capita basis, the reported crime rate in Carmacks is toward the middle of the range of Yukon communities — similar to rates in Carcross and Teslin, lower than Pelly Crossing, Ross River and Old Crow, and higher than Haines Junction, Dawson, and Mayo.
- The number of reported violent incidents (which are almost all assaults of different kinds) in Carmacks ranged from 23 in 1997 to 46 in 2000 with an average of 32 per year from 1995 to 2003.
- As with overall reported crime, Carmacks is in the middle range of Yukon communities for violent crime.
- An average of 20 break and enters per year were reported in Carmacks from 1995 to 2003.
- Almost half (about 85 per year on average) of all reported crimes in Carmacks fall into the category that includes vandalism, disturbing the peace, and violations of probation or bail conditions.
- Vandalism and disturbing the peace are the two most commonly reported crimes in Carmacks and in the Yukon as a whole. And reports of these two crimes have increased greatly in the Yukon, almost doubling between 1995 and 2003.
- Reported drug incidents in Carmacks averaged 3.5 per year between 1995 and 2003 with a high of 9 in 2000.

Some initial discussions with community members revealed the perception that there is a considerable amount of unreported crime in the community (this is likely true in every community, large and small) and that much of the crime tends to occur in waves, especially for vandalism and disturbing the peace. National victimization studies indicated that unreported crime may add 50% more to the crime rate if it were reported.

[25] http://www.gov.yk.ca/depts/eco/stats/annual/crimestats_95-03-l.pdf

2.6.4 Community Experience with Past Mining Projects

For Carmacks, the most recent experience with a nearby mining project was the Mt. Nansen mine which operated briefly in the late 1990s. From discussions with community members to date, the following themes emerged:

- The only lasting legacy of the Mt. Nansen mine is the environmental damage and potential for more damage. It is hoped that mining companies will be both responsible and professional, however, it is also critical that governments regulate and enforce the rules with no exceptions.
- The environmental bond must be sufficiently large right from the beginning of operations.
- BYG was seen as running a very loose operation in terms of drug and alcohol use. And the higher incomes did translate into more social problems like drug use.
- The mining activity created a very large increase in traffic along River Road and traffic speed was a constant problem.

The current development of a similar-scale copper mine at Minto provides a highly current and still evolving experience with a mining project. The Minto mine is having its largest effects on Pelly Crossing and the Selkirk First Nation. Some initial discussions with community residents point to some problems arising from the increased incomes leading to increased use of alcohol and drugs by younger single people in particular. However, there are also indications that the Selkirk First Nation and the employers at the site are working together to help mitigate these problems.

3 Economic Inputs and Outputs

This section is intended to provide an update of the analysis presented by the 1994 Hallam Knight Piesold report *Community Profile and Socioeconomic Impact Assessment*. Part of the update relies on data from a 1997 report by Kilborn SNC-Lavalin, *Carmacks Copper Project — 1997 Basic Engineering Report*.

Included here are the estimated expenditures that Western Copper will incur (the economic input) during the development, operation, and closure of the proposed Carmacks Copper mine. Note that all possible expenditures are not included; specific exclusions are noted. The estimated economic output of the project (gross revenues from the sale of copper) is also examined. In addition, this section contains details on:

- The main areas where the proponent will be seeking contractors to supply goods and services in all phases of the project;
- The expected levels of direct and indirect income arising from the project;
- The expected amounts of tax revenues produced by the project;
- The expected investments in human and physical capital by Western Copper in Carmacks; and,
- A discussion of some operational alternatives including development timelines, work scheduling, and housing alternatives.

3.1 Capital Costs

In 1997 Kilborn SNC-Lavalin prepared cost estimates for the construction and operation of the proposed Carmacks Copper mine. The estimated capital costs in 1997 are summarized in Table 7 below.

Table 7 Carmacks Copper Capital Cost Estimate, 1997, $ millions

Description	*Labour*	*Material*	*Sub-contracts*	*Equipment*	*Other*	*Total*
Site & infrastructure work	7.5	10.5	4.5	2.5	24.0	49.0
Mining, leaching, & other	2.5	5.5	0	3.0	16.0	27.0
Subtotal Direct Costs						**$76.0**
Subtotal Indirect Costs						**$17.0**
TOTAL COSTS						**$93.0**

Note: Approximate costs based on the 1997 Kilborn SNC-Lavalin report.

Cost basis:

- All costs are stated in fourth quarter 1997 Canadian dollars without allowance for escalation.
- 90 day firm price quotes were obtained from suppliers of process equipment.
- Budget quotes were received for refurbished used mining equipment.
- Budget quotations were received for the remainder of materials.
- Price for equipment sourced from overseas included freight to nearest point of entry.

Camp, duties, contingency, and pre-production mining:

- Construction camp sized for 210 people with new kitchen, core equipment units and bunkhouses along with used diner facilities.
- Camp catering costs estimated at $22.50 per person day with no allowances for owner's personnel or vendor's representatives.
- Applicable duties on imported equipment were estimated and included.
- Contingency was calculated at an assessed factor of 7% of the total capital cost estimate excluding process and mining equipment, pre-production mining, owner's costs, and start-up costs.
- The contingency did not allow for scope changes and was assumed to be spent.
- Cost of first fill lubricants, process reagents and capital spares were included.
- Pre-production mining of 2.0 million tonnes of waste and 200,000 tonnes of ore included.

Construction labour:

- Assumed standard work week of 54 hours, 9 hours per day, six days per week.
- Straight time for 40 hours per week and time and a half for overtime.
- Category A construction labour (e.g. journeyman trades) estimated to have pay rate of $22.00 per hour with a total payroll cost of $28.32 per hour.
    - Vacation pay and statutory holiday pay both estimated at 5%.
    - Allowances made for WCB, payroll taxes (UIC, CPP), a safety fund and union hourly check off (allowing for some union labour).

Construction indirect costs:

- General freight was estimated at 3.5% of process equipment, permanent material and construction equipment.
- Small tools estimated at 1.5% of direct labour costs.
- Consumables and supplies at 2.5% of direct labour costs.
- Scheduled premium overtime at 12.96% of direct labour costs.
- Contractor supervision at 4.8% of direct labour, material and equipment costs.
- Contractor home office expenses at 1.5% of direct labour, material and equipment costs.
- Construction field office expenses at 2.4% of direct labour, material, and equipment costs.
- Contractor's profit margin at 9% of direct labour material and equipment costs.

Owner's costs allowed for:

- legal, consultant, accounting and broker's fees
- course of construction insurance
- working capital
- owner's construction personnel and expenses
- reclamation bond
- environmental impact studies and permitting
- employee recruitment and training
- owner's travel and accommodation during construction
- owner's operating personnel costs and expenses during commissioning of process equipment and pre-production mining

Exclusions from the capital cost estimate:

- Cost of land acquisition, leases, easements, right-of-ways and water rights.
- Cost of federal and territorial development bonds and permits.
- Cost of reclamation bonds during mine life.
- Cost of finance during construction.
- Survey costs.
- Airstrip, helicopter pads and facilities.
- Property taxes during construction.
- Income taxes.
- GST
- Exploration costs.
- Standby equipment except as shown in the flow sheets.
- Owner's corporate office overhead costs.
- Owner's personnel housing in Carmacks
- Royalties on patented process equipment.

3.1.1 Updated Capital Costs Estimates

As noted above, the 1997 cost estimates were based on firm price quotes from suppliers of equipment and material. Yukon contractors were also consulted on construction and labour costs at that time.

Providing an assessment of the project's economic effects requires an updating of expected capital costs, but it is far beyond the scope of this assessment to seek out new price quotes from suppliers of equipment and material or to request construction bids from contractors. Instead, the update of capital costs shown in Table 8 below relies on a number of proxy cost escalation factors detailed below the table.

Table 8 Carmacks Copper Capital Cost Estimate, 2006, $ millions

Description	*Labour*	*Material*	*Sub-contracts*	*Equipment*	*Other*	*Total*
Site & infrastructure work	9.0	14.5	5	3.0	32.5	64.0
Mining, leaching, & other	3.0	7.5	0.5	3.5	21.5	36.0
Subtotal Direct Costs	12.0	22.0	5.5	6.5	54.0	**$100.0**
Subtotal Indirect Costs						**$24.0**
TOTAL COSTS						**$124.0**

The proxy cost escalation factors used to produce the figures shown in Table 8 from Kilborn SNC-Lavalin's 1997 estimate are:

Labour:
In the 1997 estimate, the base hourly wage rate for skilled trades people (Category A under the Yukon's Fair Wage Schedule) was assumed at $22.00 per hour. Additional pay and payroll costs included 5% vacation pay, 5% statutory holiday pay, plus allowances for payroll costs such as the Canada Pension Plan, Employment Insurance, Workers' compensation, a safety fund, and an allowance for union hourly check off payments. The total payroll cost for skilled trades people came to $28.32 per hour.

In 2006, the Fair Wage Schedule — which effectively acts as a floor for wages in the Yukon — requires that Category A workers receive $26.63 per hour. With this as the new base pay rate, other costs were adjusted as follows:

- 5% each for vacation and holiday pay were retained.
- The safety fund contribution was maintained at 1.1% of hourly rate.
- The current WCB contribution rate of 2.95% for construction was applied.
- The current, higher, employer's contribution rate of 4.95% to the CPP was applied.
- The current, lower, employer's contribution rate of 2.6% to EI was applied.
- A slightly higher (9% versus 7.6%) allowance for union check off payment was applied.

Based on these changes, the current hourly payroll cost for skilled trades workers is now estimated to be $34.79 per hour, 22.8% higher than the 1997 figure.

All labour costs in the capital cost estimate have therefore been increased by 22.8%.

Materials:
The materials category in the capital cost estimate consists of permanent construction materials, e.g. concrete, steel etc. The Statistics Canada non-residential building construction price index is used here as a proxy for the increase in material costs. (Note

that the index includes labour and materials in tracking construction costs, not just materials. However, it is a reasonable indicator for how average commercial, institutional and industrial project costs have increased).

Statistics Canada's non-residential building construction price index has risen by 38.6% from 1997 to the end of 2005. Material costs in the capital cost estimate have therefore been increased by 38.6%.

Subcontracts:
It is assumed that the costs of subcontracts will have increased in line with the increase in labour costs. Subcontract costs have therefore been increased by 22.8%.

Equipment:
As a proxy for the increase in the cost of equipment — from pumps to loaders to rock trucks — we are using the average change in rental rates for a variety of equipment as shown in the BC Roadbuilders and Heavy Construction Association's Blue Book between 1997 and 2005. Standard "bare" monthly rental rates reflect the ownership and maintenance costs including acquisition, insurance and major maintenance. "All found less operator" (AFLO) rates are hourly and include fuel and minor maintenance. Larger equipment is very rarely rented for longer terms and no bare rates are therefore available for it. Table 9 below shows the equipment selected for comparison and the increases in rental rates.

Table 9 Selected Blue Book Equipment Rental Rates, 1997 to 2005

	1996-97	2004-05	Increase
1,400 cfm compressor, bare	6,519	7,131	9.4%
150kw diesel gen set, bare	3,034	3,319	9.4%
Excavators 152,000lbs, AFLO	241	281	16.6%
Loaders, 8yd. AFLO	176	205	16.8%
12 inch trash pump, bare	2,460	2,833	15.2%
Bulldozer, 700FWHP+, AFLO	303	353	16.5%
Rock truck, 91 tonne, AFLO	228	310	35.7%
Average increase			**17.1%**

Note that some equipment has shown very low increases. This is apparently due to falling acquisition costs as new companies have begun to supply such equipment at lower prices. Very large rock haul trucks have seen very large increases and anecdotal evidence points to even higher costs in 2006.

The equipment category in the 1997 capital cost estimate was increased by the average increase of 17.1%.

Other costs:
The other costs category is largely made up of a variety of specialized process and mining equipment (along with some owner's costs that are not part of the intended scope of work for the construction contractors).

Because of the specialized nature of much of the equipment covered in this category — and the very limited number of suppliers of that equipment a 35.7% increased cost for 91 tonne rock trucks has been assumed.

Indirect Construction and Camp Costs
All of the indirect construction costs were originally calculated as percentages of estimated construction costs. These percentages have been retained unchanged in the update.

In the 1997 estimate, camp costs were set at a rate of $22.50 per person per day in camp. The current cost to supply and operate a camp in the Yukon is now far higher and the camp and catering estimate in the update is based on an estimate of $60.00 per person/day.

3.2 Ongoing Capital Costs

In Kilborn SNC-Lavalin's 1997 estimate of the expenditures required to develop, operate, and close the proposed Carmacks Copper mine are a category of ongoing capital costs. These are capital expenditures that will be required after plant start-up and include:

- Additional mining equipment;
- Additions to the leach pad loading conveyor system;
- Reclamation of disturbed areas and closure costs, including a research program, annual reporting, and flushing the heap and monitoring/ treatment of the encapsulated off heap solutions; and,
- Leach pad expansion.

Some of these ongoing capital costs begin in the first year of operation (e.g., purchase of additional mining equipment), others are spread throughout the life of the mine (e.g., the reclamation research program), and some are concentrated in the last year of operation and the following year (e.g., many of the reclamation costs).

Table 10 Carmacks Copper Ongoing Capital Cost Estimate, 1997, $ millions

	Cost
Mining & process equipment **Sub-total**	**$6.2**
Pad expansion & reclamation **Sub-total**	**$10.6**
TOTAL	**$16.8**

3.2.1 Updated Ongoing Capital Costs

As with the capital costs in Section 3.1 above, providing an assessment of the project's economic effects requires an updating of expected ongoing capital costs. The figures for mining and processing equipment shown in below have been updated using the proxy cost escalation factor of 35.7%. This is the estimated increase in the cost of large haul trucks between 1997 and 2005 (see Section 3.1.1 above). The pad expansion and reclamation costs have been increased by the estimated increase in the cost of labour (22.8%) between 1997 and 2006.

Table 11 Carmacks Copper Ongoing Capital Cost Estimate, 2006, $ millions

	Cost
Mining & process equipment **Sub-total**	**$8.4**
Pad expansion & reclamation **Sub-total**	**$13.0**
TOTAL	**$21.4**

3.3 Operating Costs

The 1997 Kilborn SNC-Lavalin engineering report provided a detailed operating cost estimate. The estimate was based on open pit mining of 13.3 million tonnes of ore and 61 million tonnes of waste rock over a project life of approximately 8 years. The estimate was based on suppliers quotes for major consumables and labour rates then in effect in mines in northern BC. A summary of average annual operating costs is shown in Table 12 below.

Table 12 Summary of Average Annual Operating Costs, 1997, $ millions

	Average annual cost
Labour	
Process labour	2.1
Mining labour	5.6
Sub-total	**$7.7**
Supplies & services	
Sub-total	**$14.1**
TOTAL	**$21.8**

The operating cost estimate includes the following:

- Administrative, operating and maintenance labour;
- Payroll burdens of 30% of payroll;
- Allowances for overtime;
- Operating supplies and their freight costs to the site;
- Copper cathode product transportation costs to buyers;
- Sulphuric acid production cost at the site;
- Cost of water supply;
- Maintenance of all production, process and support equipment;
- Leach pad piping materials;
- Equipment and vehicle operation;
- Fuel supplies;
- Mine haul equipment leasing in peak stripping years;
- Site access road maintenance up to the Freegold Road;
- On-site electrical power generation;
- Building utilities and maintenance;
- Communications;
- Insurance estimate;
- Auditing and legal fees;
- Employee training;
- A portion of employee accommodation costs; and,
- General and administrative costs.

Specific exclusions from the operating cost estimate are:

- Yukon and Canada taxes including GST;
- Property, mining licence and net profit taxes;
- Land payments prior to the date of the report;
- Escalation;
- Cost of living allowance;
- Exploration costs;

- Marketing of copper cathode product;
- Freegold road maintenance;
- Contingency not included (all personnel and supplies are defined);
- Reclamation costs, mining equipment additions, conveyor equipment replacements, and leach pad expansion are part of ongoing capital, not operating.

3.3.1 Operational Labour Requirements

Operational labour requirements were projected by Kilborn SNC-Lavalin to range from 113 positions in the first year (immediately pre-production) to a peak of 181 in the fourth year to sixth years of production. More people will be required in the third to sixth years of operation due to increased stripping requirements to expose the ore. The seasonal nature of the mining and pad loading part of the operation will result in peak labour requirements during the summer months of each year.

The operational schedule used by Kilborn SNC-Lavalin in their operating cost estimate was:

- The mine, crushing plant, ore conveying system, and SX-EW plant operating on two 12-hour shifts 7 days per week (on a 4 days on, 4 days off cycle for workers);
- Other areas and administrative personnel working 8 hours per day, 5 days per week;
- The mine operating 300 days per year;
- Crushing and pad-loading operating 200 days per year;
- Remainder of operations 365 days per year.

The labour requirements to operate the proposed mine are summed up in below. Table 13 shows the administrative staff requirements, which are all year-round, full-time positions that will remain constant throughout the operating life of the mine.

Table 13 General Administration Staff Requirements

	Number
Mine manager	1
Admin secretary	1
Chief Accountant	1
Payroll Clerk	1
Personnel/Safety Officer	1
Chief Purchasing/Warehousing	1
Purchasing/Warehouse Clerk	1
Environmental Coordinator	1
Total	**8**

Table 14 below summarizes the staffing requirements for the processing plant. As noted, most of the positions are year-round but the crusher will only be operated for 7 months per year.

Table 14 Process Plant Personnel

	Number
Operating Personnel (12 months/year)	
Process Superintendent	1
Process Metallurgist	1
Crusher	
Crusher Operator (7 months/year)	3
Crusher Labourer (7 months/year)	4
Heap Leach Pad	
Heap Labourer	4
SX/EW Plant	
Operator	8
Labourer	4
Acid Plant	
Operator	4
Labourer	2
Laboratory	
Laboratory Technician/EMT	4
Sub-total	**35**
Maintenance Personnel	
Journeyman	3
Apprentice	2
Electrician	2
Instrument Technician	1
Sub-total	**8**
Total	**43**

Table 15 below summarizes the personnel requirements for the mine itself.

Table 15 Mining Personnel Requirement

Year	PP	1	2	3	4	5	6	7	8
Staff									
Mine Superintendent	1	1	1	1	1	1	1	1	1
Chief Engineer	1	1	1	1	1	1	1	1	1
Mine Engineer	0	1	1	1	1	1	1	1	1
Mine Geologist	1	1	1	1	1	1	1	1	1
Mine Clerk	0	1	1	1	1	1	1	1	1
Mine Surveyor	1	1	1	1	1	1	1	1	1
Mine Technician	1	2	2	2	2	2	2	2	2
Pit Foreman	2	4	4	4	4	4	4	4	4
Maintenance Foreman	1	1	1	1	1	1	1	1	1
Maintenance Shop Foreman	0	2	2	2	2	2	2	2	2
Maintenance Planner	0	1	1	1	1	1	1	1	1
Subtotal Staff	**8**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**
Mine Operations									
Shovel Operator	4	4	4	4	4	4	4	4	4
Loader Operator	0	4	4	4	4	4	4	4	4
Haul-truck Operator	8	12	16	20	28	28	28	24	8
Water & Sand Truck Operator	4	4	4	4	4	4	4	4	4
Blast-hole Drill Operator	4	4	8	8	8	8	8	4	4
Grader Operator	4	4	4	4	4	4	4	4	4
Bulldozer Operator	4	8	8	8	8	8	8	8	8
Wheel Tractor Operator	1	2	2	2	2	2	2	2	2
Excavator Operator	1	2	2	2	2	2	2	2	2
Air-track Drill Operator	1	2	2	2	2	2	2	2	1
Blaster	1	1	1	1	1	1	1	1	1
Helper/Labourer	3	3	3	3	3	3	3	3	3
Subtotal Mine Operations	35	50	58	62	70	70	70	62	45
Mine Maintenance									
Mechanic - Heavy Duty	2	4	4	8	8	8	8	8	4
Mechanic - Light Duty	2	4	4	4	4	4	4	4	4
Field Mechanic	2	4	4	4	4	4	4	4	4
Apprentice Mechanic	4	4	4	8	8	8	8	8	4
Welder	2	2	4	8	8	8	8	8	2
Tireman	1	2	2	4	4	4	4	4	2
Fuel and Lube Serviceman	2	4	4	4	4	4	4	4	4
Tool Crib Attendant	4	4	4	4	4	4	4	4	4
Subtotal Mine Maintenance	19	28	30	44	44	44	44	44	28
TOTAL	**62**	**94**	**104**	**122**	**130**	**130**	**130**	**122**	**89**

3.3.1.1 Local Labour: Opportunities and Considerations

Recruiting local workers for the Carmacks Copper project will provide economic benefits to the region and its communities, but it will also benefit the company. Western Copper proposes to implement the project using the following strategies and philosophy:

- It is obvious that there are simply not enough people in Carmacks and Pelly Crossing available and qualified to fully staff the project and it will be necessary to supplement the available local labour force with people from elsewhere in the Yukon and Canada, especially in the project's early stages.
- The best outcome for Western Copper will be a stable (low turnover), qualified work force with strong ties to the local communities.
- The cost associated with recruiting, housing, and transporting imported labour represents a significant burden to the project. The extent to which local talent is available or can be developed to meet the project needs represents an important opportunity for both local residents and for the company.
- Any investment in training and personal development of individuals based in the local communities is likely to be of a more lasting benefit to the company than a similar investment in migrant workers.
- Recruiting, training and developing local employees will benefit the community at large while minimizing the dependence on in-migration and any adverse impacts of such in-migration.
- Western Copper's manpower requirements will grow over the first four years of operations. This growth is an opportunity to develop local talent to meet the increased requirements and/or fill vacancies arising from attrition within the migrant work force. There is an expectation that locally sourced employees will, over time, represent a growing percentage of the total workforce.
- Young persons graduating from high school or collegiate programs and entering the work force represent an important resource to meet Western Copper's staffing requirements.
- Western Copper will offer an attractive wage and benefits package to its employees.
- Western Copper will employ contractors or service providers where it is deemed to be cost effective or desirable to do so. The contractors and service providers will be encouraged to embrace the company's philosophy and strategy for maximising local employment through specific language contained within the contracts let by Western Copper.
- The extent to which a contractor embraces the objective of encouraging local employment and capacity development will be an important consideration in the evaluation, selection and award of any contract let by Western Copper.
- However, Western Copper is aware that heavily recruiting from a small labour pool can result in other local employers — both businesses and governments — may find it more difficult to find and keep staff. Western Copper therefore intends to hold further discussions with the community, First Nations, and local businesses in order

to arrive at the best balance between the labour needs of the company and the overall best interests of the community.

3.3.2 Updated Operating Costs

As with both capital and ongoing capital costs, the average annual operating costs calculated in 1997 need to be updated. The labour costs shown in Table 16 below have been updated using the 22.8% labour cost escalation factor used in capital costs. The supplies and services costs shown in Table 16 are the 1997 figures increased by the 17.1% average equipment cost escalation factor used in capital costs.

Table 16 Summary of Average Annual Operating Costs, 2006, $ millions

	Average annual cost
Labour	
Process labour	2.6
Mining labour	6.9
Sub-total	**$9.5**
Supplies & services	
Sub-total	**$16.5**
TOTAL	**$26.0**

3.4 Gross Revenues

Gross revenues for the mine are, of course, entirely dependent on the price of copper and other factors such as currency exchange rates through the production phase.

The mine is expected to produce an average of approximately 31.5 million pounds of cathode copper (99.997% pure copper) per year of operation. The TD Economics Unit price forecast for copper is a price of US$2.55 per pound in December of 2007.[26] The outlook for the exchange rate for December 2007 is $1.14 Canadian per US dollar.[27]

Given this level of production, price, and exchange rate, gross revenues from the sale of copper will total $91.6 million per year.

[26] http://www.td.com/economics/commodity/cpr0906.pdf

[27] http://www.td.com/economics/qef/qefsep06.pdf

3.5 Scale of Operation

Carmacks Copper is a small mine when measured against what has become the norm in the mining industry. However, the proposed mine will operate in the relatively small Yukon economy. Table 17 below summarizes the scale of operation relative to the Yukon's economy.

Table 17 Scale of Operation in the Yukon Economy

	Dollars ($) or Jobs	% of Yukon GDP or Labour force
Capital costs	$124.0 million	11.0%
Ongoing capital costs	$21.4 million	1.9%
Operating costs	$16.4 million	1.4%
Gross annual revenue	$91.6 million	8.1%
Peak employment	181 jobs	1.1%

Notes: Yukon GDP of $1.13 billion in 2004. Labour force of 16,200 in September 2006.

On the basis of personal incomes, the size of the Carmacks regional economy is estimated to be approximately $7.0 million and on the basis of the 2001 Census the community's experienced labour force was approximately 220 people. The proposed mine's costs, revenues, and employment requirements are vastly larger than the local economy. As a result, a significant amount of the project's economic effects are expected to spill over into the broader Yukon economy.

3.6 Construction Schedule

The 1997 Kilborn SNC-Lavalin engineering report laid out a schedule for building the proposed Carmacks Copper mine. The original schedule called for a total project time line of approximately 2.5 years from the beginning of detailed engineering work mid-way through 1998 to commissioning and plant start-up in late 2000.

Construction itself would be seasonal, with site works — including camp installation, site roads, utilities, installation of a batch plant, foundation excavations, and wells — being completed in 1999. Also scheduled for completion in the first construction season were the foundations for the solvent extraction building, the electro-winning building, and ancillary buildings. The crushing plant was to be fully installed and commissioned in the first season. The leach pad, along with its pumps and piping, was scheduled for substantial completion in the first construction season.

The second construction season, 2000, would see the completion of all buildings, installation of equipment, and the commissioning of the leach pad. The winter demobilization period from November 1999 through March 2000 between the two

construction seasons would be used to strip the overburden, construct the waste rock storage area, and begin pre-production mining of the ore body. Commissioning and plant start-up was scheduled for the end of 2000.

3.7 Procurement of Goods and Services

The 1994 Hallam Knight Piesold analysis estimated that, during construction, approximately 10% of projected capital costs would be sourced locally in the Yukon. On that basis, the updated capital cost estimate of $124.4 million will yield approximately $12.4 million in Yukon-sourced procurement of goods and services. Applying the same percentage to the updated ongoing capital cost ($21.5 million) yields a further $2.2 million in Yukon procurement.

During both the construction and operations of the Carmacks Copper project, Western Copper wishes to utilize local companies and individuals to provide needed goods and services. And while local firms must be reliable and reasonably competitive, the company is prepared to:

- Limit the scope of supply to better suit the capabilities of a local supplier;
- Provide flexible commercial terms where justified;
- Consider joint ventures or other appropriate business relationships between a local provider and an outside third party to meet Western Copper needs;
- Support local enterprise development through non-monetary means and, on a selective basis, offer financial support;
- Consider build, own, and transfer arrangements or other innovative approaches that encourage local investment and capacity building;
- Provide financial guarantees, under certain circumstances, to enable local business to get established or expand; and,
- Include specific language in purchase orders, contracts and agreements which clearly states Western Copper's expectations regarding participation of local residents and firms in the performance of any project-related work or services. Proponents will be advised that the extent of local participation will be a significant weighting factor in selection of the successful bidder.

3.7.1 Construction Phase

For construction, Western Copper will look to hiring an engineering, procurement and construction management (EPCM) Contractor who will be responsible for the construction project as a whole. That contractor will have extensive and specialized experience in overseeing the construction and commissioning of new mines and so will almost certainly be from outside the Yukon. However, much of the actual construction work — earth works, concrete foundations, structural steel work, mechanical and electrical — will be subcontracted to other construction contractors.

As noted immediately above, Western Copper is committed to make every reasonable effort to ensure that local firms, regional First Nation corporations and their joint ventures, and finally Yukon firms are given every opportunity to win construction-related contracts.

3.7.2 Operation Phase

There will also be ongoing contract work available through the life of the mine. Work to be contracted out may include:

- Camp catering and maintenance;
- Fuel sales and hauling;
- Supply of lubricants;
- Supply of explosives;
- Road maintenance and snow removal;
- Expediting and light delivery services;
- Analytical services;
- Personnel transportation from Carmacks, Pelly Crossing, and Whitehorse to mine site and return;
- Hauling contracts, e.g., cathode copper product;
- Garbage collection and disposal;
- Tire maintenance and service;
- Light vehicle servicing
- General maintenance
- Site security services;
- Equipment leasing services; and,
- Other, to be determined

For the operations phase, Western Copper intends to work very closely with the local business community in Carmacks and with the business arms of both the Little Salmon Carmacks First Nation and the Selkirk First Nation to maximize local participation in the procurement of goods and services. As noted above, the company is committed to ensuring local and regional firms will have every opportunity to supply needed goods and services and is open to making innovative arrangements to achieve this goal.

As a starting point, the company is aiming to secure a *minimum* of 10% of the value of goods and services required (approximately $8 million total) for operation in the region. The local value of goods and services will therefore be in the $800,000 to $1.0 million range. The capacity of local firms will be a determining factor in the final outcome.

3.8 Incomes

An updated estimate of incomes expected to flow from the project operations is provided in Section 4.1.1 below. Overall, project operations are expected to generate a total of 408 jobs annually and $171.7 million in direct and indirect wages and salaries

over a mine life of nine years (eight years of production and one year of immediate pre-production and post-production work).

Actual incomes will be dependent on the prevailing wage and salaries in the industry at the time of construction and operations. There is strong evidence that wages and salaries continue to rise substantially as demand for many mining-related occupations continues to exceed supply.

3.9 Tax Revenues

Yukon First Nation land claim agreements grant extensive taxation powers to self-governing First Nations. Specifically, clause 14.1.2 of the SGAs provides for the assumption of direct taxation powers by Yukon First Nation governments putting them on par in terms of authority to tax with Canada's provincial and territorial governments.

To date, self-governing First Nations in the Yukon, including the Little Salmon Carmacks First Nation, have occupied only two tax bases – personal income tax and the federal goods and services tax. With regard to personal income tax, approximately 81% of the tax paid by individuals resident on Settlement Land on December 31 of a taxation year is directed to the coffers of the First Nation that owns the settlement land. Seventeen percent of the tax revenue is retained by the federal government and the Government of Yukon collects 2% of the tax revenue. Note that the tax provision is land-based and not citizenship-based. Thus, it matters not whether an individual is a citizen of a Yukon First Nation.

In summary, three levels of government (federal, Yukon and First Nation) stand to benefit from increased personal income tax revenues associated with the proposed mine development. The actual allocation of those revenues between the various levels of government is a function of how many mine employees are resident in the Yukon and within that group how many are resident on settlement land.

The second tax base occupied by self-governing Yukon First Nations is the federal goods and services tax. Known as the First Nations Goods and Services Tax, it applies to the taxable supply of goods and services "brought onto settlement land" at a current rate of 6%. Thus, while the GST is a consumption tax which normally attaches at the point of purchase, the FNGST applies to not only goods and services purchased on settlement land but also to goods and services purchased off settlement land but consumed on settlement land.

Corporate income tax revenues will potentially flow to the governments of Canada and the Yukon. Resource royalties, should any be payable, will be due to the Government of Yukon, subject to the Chapter 23 resource royalty sharing provisions of the Umbrella Final Agreement and offset provisions of the Territorial Formula Financing Agreement between the governments of Canada and the Yukon.

As there is no territorial sales tax in the Yukon, no sales tax revenues associated with project will accrue to the Government of Yukon. The Village of Carmacks is incorporated under the Yukon's Municipal Act. As such, to the extent that the Village's property tax base increases through new construction and/or higher assessed values, the Village of Carmacks stands to benefit from increased property tax revenues.

An estimate of tax revenues from the project is presented in Table 25 in section 4.4.6 of this report.

3.10 Investment in Human Capital

In general the basic education requirement for employment at the Carmacks mine will be high school (with some flexibility on this requirement for some positions). Trades qualifications will also be a requirement for a number of positions. Other post-secondary education will be required for a limited number of positions.

Western Copper is committed to investing in the training and upgrading of its workforce. Such investment pays dividends to the company through more productive employees and a more stable workforce. It is envisaged that most, if not all, of the training and skills up-grading provided by Western Copper and through its contractors and vendors will provide lasting benefit to employees beyond their tenure with the company. Many of the skills acquired or developed through employment with Western Copper will be highly sought after (e.g. trades training) and will serve the individuals well in their post Western Copper careers, including non-mining employment opportunities.

Western Copper is committed to supporting individuals and agencies intent on developing or enhancing the skills of candidates seeking employment. As the project progresses through the design and construction phase and prior to the onset of operations, Western Copper will conduct a survey of the available labour resources and skills, identify specific skill gaps and training requirements, and develop a program to meet the project needs. It is envisioned that this program will be developed in concert with local agencies such as Yukon College, the Little Salmon Carmacks First Nation, the Selkirk First Nation, and local businesses.

Table 18 below lays out the range of training and skills upgrading that Western Copper sees as likely to be needed to meet the human resource needs of the project.

Table 18 Training and Skill Up-grading

Type of Training or Up-grading	By whom*
Site Induction & Safety Training	Western Copper
Cultural awareness and diversity training	Western Copper
Chemical dependency and substance abuse awareness	Western Copper
Driver safety (project specific)	Western Copper
Safety training – ongoing	Western Copper
Environmental compliance – ongoing	Western Copper
Financial planning & retirement	Western Copper
Operator Training – process	Western Copper/Vendor
Equipment Operator	Western Copper/Contractor
Heavy Equipment Mechanic	Western Copper/Contractor
Light Equipment Mechanic	Western Copper/Contractor
Welder	Western Copper/Contractor
Electrician	Western Copper/Contractor
Instrumentation Technician	Western Copper/Contractor
Serviceman	Western Copper/Contractor
Tire Serviceman	Western Copper/Contractor
Technician – mine	Western Copper
Technician – laboratory	Western Copper/Contractor
Surveyor	Western Copper/Contractor
Trade apprentices	Western Copper/Contractor & trades school

* In the context of the above, Contractor/Vendor refers to the entity performing the work on behalf of Western Copper or providing training services as may be the case.

3.11 Operational Alternatives

Western Copper is not closed to possible operational alternatives that may increase the benefits to local and Yukon people or decrease social costs and other problems. The potential costs of alternatives, however, must also be considered.

3.11.1 Alternative Construction and Operations Timelines

The construction timeline laid out by Kilborn SNC-Lavalin in 1997 (see Section 3.6 above) had construction of the mine occur over the course of two full construction seasons along with the winter stripping of overburden. An analysis of the project economics shows that extending the project construction phase from two years to three years reduces the project's net present value (using a 7.5% discount rate) by approximately 20%.

Reducing the mine and plant production capacity in order to extend the mine's life also has a marked negative effect on the project's financial viability. Extending the operating

phase of the project from 8 years to 12 years results in an approximately 40% decrease in the project's net present value (again using a 7.5% discount rate).

It is clear that choosing to extend either the construction period or the operations period will diminish the project financial returns significantly and might compromise the project development.

3.11.2 Alternative Work Schedules

There are a variety of work schedules that would allow for the efficient operation of the mine within the seasonal constraints of the pit operation and the pad-loading operation. Western Copper is open to consideration of alternative work schedules. However, any alternative work schedules must meet the need to balance a number of factors including safety, productivity, and the personal and family needs of employees. In general where shift rotations are required, the four days on/ four days off schedule has become the standard because it does strike a balance between those factors. For example, too many consecutive 12 hour shifts results in a decline in safety and productivity as fatigue sets in. A compressed effective work week (4 twelve hour shifts) provides the employee with frequent, regular extended days off (4 consecutive days off) to spend with family and to pursue leisure or other activities.

A basic outline of likely work schedules for the mine once it reaches its maximum employment is shown in Table 19 below.

Table 19 Basic Work Schedule

	# of employees
Monday to Friday 8hr shift	17
On rotation working 12 hour shift	47
On rotation on 12 hours off	39
Off rotation at home	78
Total	181

Within the basic work schedule structure, Western Copper is committed to providing as much flexibility to its employees as possible, especially in the following areas:

- Basic paid holiday leave for all employees;
- A flexible policy of unpaid leave of absence for all employees, including allowing employees to pursue traditional and cultural practices; and,
- Adequate bereavement leave, especially for First Nation employees.

3.11.3 Housing Alternatives

The construction phase of the development will rely on a standard on-site construction camp to house workers.

During the operation phase, there will be a need to house those employees who do not either already live in Carmacks or who will move to the community.

For the purposes of initial planning of housing alternatives, the following scenario for the mine once it reaches full employment of 181 is offered:

- 51 employees are living in existing housing in Carmacks;
- 13 employees are living in new family housing, either self-built or company supplied, in Carmacks; and,
- 117 employees live in other Yukon communities.

In this scenario, approximately 60 employees (half of the 117 living in other Yukon communities) will need to be housed while they are working their shift rotation. This housing — known as single-status accommodation — will operate on a hotel-like basis. That is, employees "check in" when their shift rotation starts, and "check out" (leaving any belongings they wish to have available for their next rotation) in a locker when their rotation ends and they travel back to their home community.

Two basic options for the required single-status accommodation are currently being considered by Western Copper: locating the complex on the mine site itself, or building the complex in, or near, the community of Carmacks. Each of these options has potential positive and negative effects for employees, the community, and the company but both are considered viable alternatives. (See Section 4.7 for an assessment of the likely effects).

Western Copper wishes to further work with the community on which option is considered best for all parties. Potential locations for the single-status accommodation building within the Village of Carmacks is shown on the Official Community Plan Future Land Use Map provided within Appendix E. The accommodation building is likely considered a seasonal staff bunkhouse/staff quarters, which is a conditional use (requires approval from Village Council) within the following zones: community use, commercial, airport, and industrial. If the accommodation building was to be considered an apartment complex by the Village of Carmacks, it would be a permitted use within the commercial zones and a conditional use in the urban residential zones. (Cory Lynn Bellmore, CAO Village of Carmacks, pers. comm., Jan. 23, 2007). Although no specific lot has yet been identified, the Company's preference would be to locate the building on land close to the start of the Freegold Road to reduce travel time and reduce traffic through the Village of Carmacks.

There is also the possibility that the Little Salmon Carmacks First Nation may be interested in accommodating such a structure within their lands. This issue has been

raised with the LSCFN Development Corporation but no response has yet been received.

4 Socio-Economic Effects Assessment

Appendix B: Summary of Socio-Economic Effects at the end of this document provides a summary of the socio-economic effects associated with the project. Socio-economic valued components are presented and the direct and indirect effects noted. Planned mitigation and enhancement measures are summarized. The residual effects are then assessed and ranked. The descriptors for assessing effects were taken from the YESAB "Assessor's Guide to the Assessment of Environmental Effects." The descriptors are: magnitude, geographic extent, duration and frequency, reversibility, ecological context, economic and social context, risk characterization, and direction. A likelihood determination and a significance determination are included.

The summary assessment presented Appendix B: Summary of Socio-Economic Effects was arrived at by means of pooling the best professional judgment from a group workshop drawn from both the company and the consulting team.

4.1 Economic Effects: Employment

During the *construction* phase of the project, it is expected that the Carmacks Copper mine will employ up to 300 people seasonally over two construction seasons. During the *operations* phase of the project, employment is expected to vary from 115 positions in the first year to a peak of 181 in years four through six, with an average of approximately 150.

Census data from 2001 indicates that the total experienced labour force in Carmacks numbered 220 at that time. With only 60 of those 220 indicating experience in occupations relevant to mine construction (trades, transport, equipment operators, occupations unique to primary industry) the demand for labour will significantly exceed local supply. This result remains true even if the total potential labour supply in Pelly Crossing is included where an additional 55 individuals indicated experience in occupations relevant to mine construction (trades, transport, equipment operators, occupations unique to primary industry) in the 2001 Census.

A potentially sufficient supply of mine construction labour exists in Whitehorse where 1,750 individuals indicated experience in occupations relevant to mine construction (trades, transport, equipment operators, and occupations unique to primary industry) in the 2001 Census. However, to the extent that the current labour market situation in the British Columbia mining industry is illustrative what may also be the case for the Yukon, actual supply will not be sufficient to meet demand.

Analysis undertaken by the British Columbia Ministry of Economic Development on the supply and demand balance for occupations in the mining industry indicates that a wide

variety of mining-related occupations are facing shortages. The occupations identified by the analysis which accounted for aging-related withdrawals from the labour force, entry by new graduates and apprentices and people leaving provincial income assistance, are shown in Table 20 below.

Table 20 Mining Related Occupation with Demand Likely to Exceed Supply

- Senior Managers - Goods Production, Utilities, Transportation And Construction
- Human Resources Managers
- Facility Operation and Maintenance Managers
- Primary Production Managers (Except Agriculture)
- Financial And Investment Analysts
- Executive Assistants
- Purchasing Agents And Officers
- Storekeepers And Parts Clerks
- Dispatchers And Radio Operators
- Geological And Mineral Technologists And Technicians
- Industrial Instrument Technicians And Mechanics
- Engineering Inspectors And Regulatory Officers
- Ambulance Attendants And Other Paramedical Occupations
- Contractors & Supervisors, Electrical Trades & Telecommunications Occupations
- Contractors And Supervisors, Mechanic Trades
- Contractors And Supervisors, Heavy Construction Equipment Crews
- Steamfitters, Pipefitters And Sprinkler System Installers
- Industrial Electricians
- Stationary Engineers And Auxiliary Equipment Operators
- Machinists And Machining And Tooling Inspectors
- Ironworkers
- Welders
- Construction Millwrights And Industrial Mechanics
- Heavy-Duty Equipment Mechanics
- Heavy Equipment Operators (Except Crane)
- Public Works Maintenance Equipment Operators
- Truck Drivers
- Railway Conductors And Brakemen/Women
- Supervisors, Landscape And Horticulture
- Supervisors, Mining And Quarrying
- Underground Production And Development Miners
- Underground Mine Service And Support Workers
- Logging Machinery Operators
- Mine Labourers
- Supervisors, Mineral And Metal Processing
- Supervisors, Petroleum, Gas And Chemical Processing And Utilities
- Machine Operators, Mineral And Metal Processing
- Concrete, Clay And Stone Forming Operators
- Water And Waste Plant Operators
- Machining Tool Operators
- Labourers In Mineral And Metal Processing

Source: J. Mansfield, Manager, Labour Market Policy, BC Ministry of Economic Development,
Adapted from the Galore Creek Socio-economic Impact Assessment, prepared for NovaGold Resources Inc. by Rescan Environmental Services Inc., March 2006.

According to the NWT and Nunavut Chamber of Mines, aboriginal participants in the northern mining industry have faced multiple challenges, related to a variety of factors , all of which result in barriers to employment, advancement and retention, including:[28]

- cultural differences;
- variances in educational qualifications;
- lack of experience in mining;
- discrimination at the workplace;
- difficulty in making adjustments to a non-traditional lifestyle;
- limited opportunities for gaining employment-related skills;
- segregation at mine sites;
- extended time away from home and family;
- employment in lower level activities for lower wages;
- social consequences of shifting to a non-traditional lifestyle;
- preference for intermittent or seasonal work which allows continued participation it in the traditional economy;

Western Copper recognizes that the barriers listed above may also face potential employees on the Carmacks Copper project and is committed to working with local communities and their governments to remove or minimize the barriers.

In general terms, Western Cooper intends to apply the adjacency principle in the development of its labour force. Application of the adjacency principle will provide qualified residents of Carmacks and Pelly Crossing with first opportunity for employment at the Carmacks Copper project during both the construction and operations phases of the project.

The specific philosophy and strategies Western Copper will use to remove barriers, invest in human capital, and maximize local employment are detailed in Section 3.3.1.1, Section 3.10, Section 3.11.2, and Table 18 above.

4.1.1 Jobs, Wages and Salaries

4.1.1.1 Construction Phase

It is expected that the Carmacks Copper mine will employ up to 300 people seasonally over two construction seasons during the *construction* phase of the project. Assuming that three hundred seasonal jobs over two years is equivalent to 300 full time jobs over one year, application of the updated Hallam Knight Piesold average salary figure indicates that construction-related incomes will total $14.9 million. Using Hallam Knight Piesold's employment multiplier of 2.0 yields an indirect and induced employment

[28] *Sustainable Economies: Aboriginal Participation in the Northwest Territories Mining Industry 1990 - 2004*, NWT and Nunavut Chamber of Mines, undated, pp. 10-11.

figure of 400 jobs. The labour income associated with those 400 jobs, calculated using the same Hallam Knight Piesold average salary figures, totals $27.2 million.

4.1.1.2 Operations Phase

The 1994 Hallam Knight Piesold analysis estimated that *direct employment* during the operating phase of the project would total 136 jobs at an average salary of $38,235 per year. If a labour cost scaling factor of 29.6% (the scaling factor of 22.8% used to update the project's capital costs over the ten year period from 1997 to 2006, increased by a further 6.8% to account for the additional three years between 1994 and 1997) is applied, the updated average salary is $49,553. Corresponding total salaries from direct employment are estimated at $6.7 million annually, resulting in $60.7 million in salaries over the estimated nine year life of the project (eight years of production plus immediate pre and post production work).

The 1994 Hallam Knight Piesold analysis also estimated that *indirect and induced employment* from the project would total 272 jobs at an average salary of $35,000 per year. Applying the same labour cost scaling factor of 29.6% as used above brings the average salary for indirect and induced employment to $45,360. Total salaries from indirect and induced employment are estimated at $12.3 million annually, resulting in $111.0 million in salaries over the estimated nine year life of the project.

On this basis, the Carmacks Copper project is expected to generate a total of 408 jobs and $171.7 million in direct and indirect salaries over a mine life of nine years.

4.2 Economic Effects: Business Activities

The 1994 Hallam Knight Piesold analysis estimated that, during construction, approximately 10% of projected capital costs would be sourced locally in the Yukon. On that basis, the updated capital cost estimate of $124.4 million will yield approximately $12.4 million in Yukon-sourced procurement of goods and services. Applying the same percentage to the updated ongoing capital cost ($21.5 million) yields a further $2.2 million in Yukon procurement.

As noted in Section 3.7 above, during both the construction and operations of the Carmacks Copper project, Western Copper wishes to utilize local companies and individuals to provide needed goods and services. And while local firms must be reliable and reasonably competitive, the company is prepared to:

- Limit the scope of supply to better suit the capabilities of a local supplier;
- Provide flexible commercial terms where justified;
- Consider joint ventures or other appropriate business relationships between a local provider and an outside third party to meet Western Copper needs;
- Support local enterprise development through non-monetary means and, on a selective basis, offer financial support;

- Consider build, own, and transfer arrangements or other innovative approaches that encourage local investment and capacity building;
- Provide financial guarantees, under certain circumstances, to enable local business to get established or expand; and,
- Include specific language in purchase orders, contracts and agreements which clearly states Western Copper's expectations regarding participation of local residents and firms in the performance of any project-related work or services. Proponents will be advised that the extent of local participation will be a significant weighting factor in selection of the successful bidder.

Again as noted in Section 3.7 above, as a starting point, Western Copper is aiming to secure a *minimum* of 10% of the value of goods and services required (approximately $8 million total) for operation in the region. The local value of goods and services will therefore be in the $800,000 to $1.0 million range. The capacity of local firms will be a determining factor in the final outcome.

To provide an indication of the extent to which *existing* businesses in Carmacks may meet Western Copper's demand for contracted services, the list of functions and activities which Western Copper may out-source to local enterprises was cross referenced with the list of businesses (and the services they offer) that have current local business licenses according the Village of Carmacks' website. The results of the cross-referencing exercise may also be found in Table 21 below.

Table 21 Potential for Existing Local Supply of Contract Services

	Existing supply in Carmacks?
Bussing services	no
Light delivery service	yes
Bulk fuel delivery	yes
Road maintenance and snow ploughing	no
Taxi services	no
Site security services	no
Garbage collection and disposal	yes
Welding repairs	yes
Light vehicle servicing	yes
General maintenance	yes
Camp catering and operations	no
Tire maintenance and services	no

As noted in Section 2.4.5.3, the Carmacks Development Corporation — a wholly owned enterprise of the Little Salmon Carmacks First Nation — is currently in the process of developing a strategic plan for its current and future operations. Because that plan is not yet final, the corporation could not comment specifically on how, or in what way, it may wish to do business with Western Copper in the development and operation of the proposed mine. However, again as previously noted, the Corporation is very interested

in building a mutually beneficial relationship with Western Copper and will be pursuing business opportunities connected to the mine.

4.2.1 Business Competition

With a planned ore production of 9,782 tonnes per day for 230 days per year, the Carmacks Copper project will be a relatively small-scale copper producer. The mine will operate using well-tested technologies and common production inputs. With the exception of free sulphur, all key production inputs – fuel oil, reagents, explosives, etc. – are currently available from Yukon suppliers. And as noted previously, labour for the project (including contract labour) is expected to be sourced largely from within the Yukon.

Therefore, given the size of the project, it is expected that the level of competition faced by local and territorial businesses from business located outside the Yukon will be relatively small. In terms of business competition within the Yukon, Western Copper intends to follow an approach of cascading adjacency whereby business opportunities will first be made available to businesses, to the extent that they are qualified and capable, located in closest proximity to the project area. See Section 3.7 and Section 4.2 above for more detail.

4.2.2 Economic Diversification

Economic diversification refers to the breadth of variety of goods and services that are produced in a given economy. An economy is said to be diverse if it produces a wide span of goods and services. In contrast, an economy said to lack diversity if it has a narrow economic base. The Carmacks Copper project holds significant potential to broaden the economic base of the Carmacks regional economy through the tendering of contracts with local firms. With the tendering approach detailed in Section 4.2 immediately above, Western Copper will be encouraging both existing local businesses to expand and encouraging new local start-ups.

As noted earlier in this assessment, Western Copper intends to secure a *minimum* of 10% of the value of goods and services (approximately $800,000 to $1.0 million) required for operations from local suppliers on an annual basis. The broadening of the Carmacks regional economic base will also serve to promote post-development economic stability.

The Carmacks Copper project is relatively small in economic terms when compared to the size of the Whitehorse regional economy. As a result, the purchase of goods and services from Whitehorse suppliers is not expected to increase the diversification of the Whitehorse regional economy by a significant amount.

4.3 Economic Effects: GDP

As noted in Section 3.1.1, updated capital costs for construction of the Carmacks Copper project are in the order of $124.0 million over two years. On the basis of Statistics Canada Input-Output multipliers (using 2002 as the base year), $124 million in capital spending will result in a Yukon-wide[29] direct gross domestic product (GDP) impact of $48.0 million. The inclusion of indirect GDP impacts results in a total Yukon-wide impact of $59.0 million.

As noted in 3.4, gross revenues from the sale of copper are estimated to total $91.6 million per year. On the basis of Statistics Canada Input-Output multipliers (using 2002 as the base year), project revenues will result in a Yukon-wide direct GDP impact of $57.6 million per year. The inclusion of indirect GDP impacts results in a total Yukon-wide impact of $65.5 million per year.

4.4 Economic Effects: Governments' Costs & Revenues

Different levels of government will incur costs in connection with the Carmacks Copper project. For example, increases in community population, both temporary and permanent, will likely lead to increased health care costs for the Yukon Government. However, currently no government or government department contacted was able to provide a dollar estimate of those costs.

4.4.1 Health and Social Services

At the territorial level, the Yukon Government's Department of Health and Social Services offered the following anticipated effects of the proposed development on local health care infrastructure and programs[30]:

- With local hire practices, there will be an increase in the demand for pre-employment medicals and other health surveillance activities, which may include chest x-rays, blood work or other lab tests. Chest x-rays can be done in Carmacks.
- This may require additional doctor clinics in order to meet the initial demand for pre-employment medicals and to maintain the annual review.
- This also increases the administrative work load required to process the billing for these services as they are not insured services covered by YHIS. The employer is expected to pay YTG for the facilitation of the exam, pay the lab for the blood work, pay Community Nursing for the x-ray and pay the doctor for his service. Activities provided directly by the health centre would probably be rolled into the outpatient services fee that YHIS sets. The cost of the doctor is a private issue. There would

[29] Gross domestic product impacts were calculated at the territorial level since multipliers are not available at the sub-territorial level for the Yukon. Impacts were calculated using "S-level" multipliers for construction.

[30] Violet VanHees, September 1, 2006. Personal communication.

probably be the added burden of facilitating the collection of lab, packaging and arranging transportation.

- It may also include pre-employment or random drug testing. Community Nursing would prefer to not be involved in this process without discussion ahead of time as there are consent and liability issues attached.
- Any worker that requires medical attention will have to be provided with first aid at the site and depending upon the nature of the injury, referred for further medical care or assessment. This should involve the employer escorting the injured worker to town to see the nurse. In an after-hours case this will impact our operating budget as it will incur overtime costs.
- Bringing money into the community is a two-edged sword. As well as bringing prosperity it also brings turmoil as it is the vehicle for escalating the use/abuse of drugs and alcohol which has a direct impact on the services being provided by the health centre.
- The health centre would need to be apprised of the safety protocols that the company would be establishing in order to identify where H&SS responsibility meets the employers responsibility.
- The health centre would also need to be aware of the work related risks – use of chemicals for example, as we would need to ensure that antidotes are known and available. Western Copper will ensure coordination between its safety department and the local nursing station.
- The company needs to develop its own emergency plans and share them so that we know what they are capable of and prepared to do.
- Nursing has no direct involvement in the camp, however Environmental Health Services would need to be involved from a food handling/potable water/sewage disposal/living arrangement perspective.
- Nursing may become involved if there was a public health issue develop (e.g. Tuberculosis, or other communicable disease) that required surveillance/treatment/contact tracing or other follow-up.
- Mostly, what nursing needs to know is that the company has worked out plans and shared them with the various medical providers – Carmacks Health Centre and Yukon Emergency Medical Services – to make sure that everyone knows what the process is for getting workers to the right facility for their injury.
- One other consideration would be mode of transportation to the mining site. If by road, could anticipate a possible increase in MVA's.

Western Copper will work closely with both the Carmacks Health Centre and Yukon Emergency Medical Services to ensure that all health and safety protocols are fully worked out and known to all parties. Specific workplace risks — any chemicals in use at the site for example — will be clearly documented and shared.

4.4.2 Justice and Policing

The Yukon Government's Department of Justice[31] offered some general input on how a development like the Carmacks Copper mine may affect crime in the local community. The Department's general input (indicated in italics), and potential implications for justice-related costs, are presented below:

- *The crime rate is highest for males in the 15-24 age group.* To the extent that the project will result in a change in the proportion of this age group in the Carmacks area, the crime rate may also change.
- *Higher unemployment rates tend to increase the crime rate.* Conversely, lower unemployment rates tend to decrease the crime rate. As noted previously, Carmacks Copper intends to follow the adjacency principle in project hiring which will maximize the hiring of local individuals with the ultimate intention of reducing local unemployment.
- *Crime is greater where there is a preponderance of one-person households.* As noted previously, Carmacks Copper intends to follow the adjacency principle in project hiring which will maximize the hiring of local individuals. Western Copper hopes that increased local employment will contribute to social stability in the affected communities.
- *Crime is lower in areas where there is higher social capital, i.e. social networking, volunteering and participation in community events.* Western Copper intends to work closely with the affected communities and stakeholders (such as Crime Prevention Yukon) to establish initiatives which focus on raising social capital, such as recreational programs for local youth.
- *The existence of gang activity and organized crime has an effect on the crime rate.* Gang or crime-related activity will not be permitted by Western Copper on the work site or other company facilities.
- *There is very little information on the present level of substance abuse in Carmacks, but any measures aimed at preventing mine employees engaging in substance abuse (either alcohol or drugs) would obviously be advantageous.* Western Copper intends to strictly enforce its policy of barring workers from the worksite while under the influence of alcohol or drugs.

4.4.3 Municipal Services and Emergency Response

Increased demand for emergency services (fire, police, ambulance) is expected to be incremental and within current capacity. In the event that the single-status housing complex is constructed within the Village of Carmacks, the scale of the facility (suitable for 60 individuals) is not expected to result in excess demand on the existing local sewage system.

[31] Carole Williams. September 1, 2006. Personal communication.

At the municipal level, the Village of Carmacks will likely face increased costs from the start-up and operation of the mine. Western Copper will enter into discussions with the Village on the likely effect of the project on the landfill and will work with the Village to mitigate that effect. That effect will be dependent in part on the location of the single-status accommodation, although the increased load from this facility would represent a very modest increase in the load on the landfill. No significant effects to River Road are expected that will not be mitigated through routine maintenance (typically done by YG Highways and Public Works) as any increase in traffic attributable to the Project will still result in an overall traffic loading that is well within the design parameters for a road of this category and speed limit.

Mine traffic travelling north on the Klondike Highway (#2) will access Freegold Road by driving through the Village of Carmacks to River Road, leading to Freegold Road. A number of different routes through Carmacks are possible as follows (please refer to Appendix F for a map):

- Route 1 (via Rowlinson Drive) travels mainly through a residential area, but has the least interaction with the school zone;
- Route 2 (via Nansen Road) passes near the school zone; and
- Route 3 (Freegold Road) passes mainly through a commercial area but has a longer distance to travel through town and school and playground zones.

This was discussed with the Village of Carmacks (Cory Lynn Bellmore, CAO, pers. comm., Jan. 23 and Feb. 2, 2007) and considerations for each of the proposed routes were provided. However, if the single-status accommodation building is located near the Freegold Road, such traffic through town will be minimized and limited to shift change times. The Company is flexible and will work with the Village of Carmacks to determine which route/s to travel through the Village.

4.4.4 Education

The project is expected to have limited impact on the demand for school services in Carmacks. While some mine employees will likely relocate to reside in the community of Carmacks, they are expected to number 10 to 15 families at most. With the senior mine management personnel expected to be in the later stages of their careers many of those families may no longer have school age children residing with them. If it is assumed that five families will have school age children, and each family has two school-aged children, an additional 10 children may require schooling in Carmacks. This amount is likely well within the design capacity of the new elementary/secondary school in Carmacks currently under construction.

4.4.5 Roads and Road Maintenance

The largest single known government expense directly connected to the project will likely be the increased road maintenance — primarily winter maintenance — that will be

required on the Freegold Road. However, it is assumed the roads have been constructed to minimum design standards and no significant effects to the roads are expected that will not be mitigated through routine maintenance. An analysis of material and personnel needs for construction (2 years) and operations (years 1 to 8) have yielded the estimates of traffic to the site shown in Table 23 and Table 22 below. Table 24 shows traffic projections for closure and post closure phases (years 9 to 23).

Travel time between the Village of Carmacks and the Carmacks Copper Property (~46 km) is approximately one hour. Traffic projections are generally the same for both summer and favourable winter conditions. In the event of adverse weather conditions, travel time will be adjusted to suit those conditions. It is not possible to generalize how adverse conditions will affect travel time.

Table 22 Traffic Estimates for Operations Phase (Years 1 through 8)

Vehicle Type	Direction of travel	Shift change		Shift change	Shift change	
		6am-8am	8am-4pm	4pm-6pm	6pm-8pm	8pm-6am
Light Trucks (< 1 ton) and Autos	To mine	10			5	
Buses	To mine	2			1	
Heavy Trucks (> 5 ton)	To mine		6			
Light Trucks (< 1 ton) and Autos	To Carmacks			7	8	
Buses	To Carmacks	1		1	1	
Heavy Trucks (> 5 ton), bulk materials	To Carmacks		6			
Round trips per day	**24**					

Notes on operations traffic estimates:

- Warehouse receiving and shipping normally confined to hours between 8:00 AM and 4:00 PM. This will minimize heavy truck traffic during shift changes. Normally no heavy truck deliveries on night shift.
- Bulk materials includes fuel, reagents, materials and supplies, and includes copper from production.
- The values shown in Table 22 are considered typical of daily traffic anticipated during operations. Variations up to 50% are possible on any given day.

Table 23 Traffic Estimates for Construction Phase

Traffic Type	Load Category	Year 1				Year 2			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Mobilize pioneer mining equipment	H		10						
De-mobilize pioneer mining equipment	H				10				
Construction camp installation	H		20						
Construction camp de-mobilization	H								10
Mobilize mass earthworks equipment	H		10						
De-mobilize mass earthworks equipment	H				10				
Initial permanent mine fleet mobilization	H			10					
Import cement	H		2	18				5	
Mobilize construction support equipment	H		4	6			4	8	
De-mobilize construction equipment	H				10				12
Import structural steel, plate work, rebar	H		2	4	10		30	50	4
Major mechanical & Electrical Equipment	H				2		4	10	2
Bulk materials	H		2	4	4		4	4	2
Bulk liquids (fuels, lubricants, etc.)	H		10	20	15	3	15	15	5
Miscellaneous	H		5	5	5		5	8	3
Sub-total - Heavy > 10 tons		**0**	**65**	**67**	**66**	**3**	**62**	**100**	**38**
Personnel transport (pickups, autos)	L		2,400	3,000	2,400	1200	1800	3600	3000
Buses	L		20	40	30	20	60	90	60
Light Trucks (< 10 t)	L		250	450	250	250	600	800	450
Sub-total - Light < 10 tons			**2,670**	**3,490**	**2,680**	**1470**	**2460**	**4490**	**3510**
Grand Total			**2,735**	**3,557**	**2,746**	**1,473**	**2,522**	**4,590**	**3,548**
Average daily round trips			**30**	**40**	**31**	**16**	**28**	**51**	**39**
Importation of sand, aggregate, structural fill from < 10 km of site			50	200	150		50	100	50

Table 24 Round Trip Traffic Estimates Projected per Day During Closure and Post Closure Phases (Years 9 through 23)

Traffic Type	Year														
	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	Closure								Post Closure						
Light Trucks (< 1 ton) and Autos	5	5	5	5	5	5	5	5	1	1	1	1	1	1	1
Buses	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Heavy Trucks (> 5 ton), bulk materials	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1
Round Trips per Day	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**2**	**2**	**2**	**2**	**2**	**2**	**2**

Note: Heavy trucks will typically be smaller than those used during the construction and operations phases.

The 2005 traffic counts on the Freegold Road provided by YG Highways and Public Works[32] show an annual average daily traffic count of 31, or the equivalent of about 15 round-trips over 181 days in the year. The average daily count in the summer is slightly higher, at 34.

The expected average daily mine-related traffic of 24 round-trips per day during operations (five to seven of which are heavy trucks) will increase overall traffic on the Freegold Road from 15 round-trips to 39 round-trips per day. This is a very modest amount of traffic, the majority of which would be associated with the single-status accommodation, which if located in the Village would be closer to the Freegold Road entrance. During the two years of construction, the increase in average number of daily round-trips will mean a total of approximately 60 round-trips daily. During mine closure (years 9 through 16) and post closure (years 17 through 23) the increase in average number of daily round-trips will result in a total of approximately 24 and 17 round-trips daily, respectively for each phase.

Western Copper will develop a formal Traffic Management Plan for both the construction and operation phases of the Carmacks Copper Project. Mine traffic will follow highway regulations and posted speed limits to ensure public safety. The

[32] Available at http://www.hpw.gov.yk.ca/pdf/traf2003.pdf

Company will take proactive measures to ensure mine traffic abides by traffic regulations including the monitoring of company vehicles and disciplining of mine employees (including employees of contractors working at the mine) who are reported for unsafe driving. The Freegold Road is a public highway with posted speed limits and is designed to take a significantly larger traffic volume than is anticipated by the Carmacks Copper project.

Mine traffic travelling north on the Klondike Highway (#2) will access Freegold Road by travelling through the Village of Carmacks to River Road, leading to Freegold Road. Please refer to Appendix F for a map showing potential traffic routes through the Village of Carmacks.

A YG planned highway bypass south of the community was contemplated; however, the bypass is not required for the project. The community has mixed views on the highway bypass. Although potential safety concerns and noise would be reduced with truck traffic bypassing the residential area, local economic opportunities are expected to be missed with reduced traffic.

4.4.6 Tax Revenues

Table 25 below shows the projected tax revenues during the construction and operations phases of the Carmacks Copper project. Direct employment created by the project during the construction phase will generate an estimated $2.2 million in personal income tax revenue. Project spending received by supply and service providers during the construction phase of the project is expected to generate an additional $0.3 million in personal income tax revenues as well as $0.4 million in corporate income tax revenues and $0.1 million in goods and services tax revenues. Total construction phase tax revenues are estimated at $3.0 million.

Direct employment created by the project during the each year of the operations phase will generate an estimated $1.7 million in personal income tax revenue. Western Copper has estimated that annual corporate tax and royalty payments from the operation will average about $7 million per year. This figure is based on current estimates of capital and operating costs and projections of the long term price of copper and is therefore sensitive to any variations in these estimates and projections.

Project spending received by supply and service providers during each year of the operations phase of the project is expected to generate an additional $0.9 million in personal income tax revenues as well as $0.6 million in corporate income tax revenues and $0.4 million in goods and services tax revenues. Total operations phase tax revenues are estimated at $10.6 million per year. Operation phase tax revenues are estimated at $95.3 million over the nine year life of the mine.

Table 25 Estimated Tax Revenues

	($ millions)
Construction Phase	
Western Copper	
Personal income tax	2.2
	2.2
Supply and Service Providers	
Personal income tax	0.3
Corporate income tax	0.4
Goods and services tax	0.1
	0.9
Total construction phase	3.0
Operations Phase (per year)	
Western Copper	
Personal income tax	1.7
Corporate income tax, mining taxes	7.0
	8.7
Supply and Service Providers	
Personal income tax	0.9
Corporate income tax	0.6
Goods and services tax	0.4
	1.9
Total operations phase (per year)	10.6
Total operations phase (over mine life)	95.3

Three levels of government (federal, Yukon and First Nation) stand to accrue increased personal income tax revenues as a result of the mine development. The allocation of those revenues between the various levels of government is a function of how many mine employees are resident in the Yukon and, within that group, how many are resident on settlement land. Table 26 below presents three scenarios for the sharing of personal income tax revenues during the operation phase of the Carmacks Copper project.

Under the first scenario, where 10% of the operating workforce is assumed to reside on LSCFN settlement land, $0.21 million will accrue to the LSCFN, $0.75 million will accrue to the Government of Yukon and $1.64 million will be received by the Government of Canada. Under the second scenario, where 20% of the operating workforce is assumed to reside on LSCFN settlement land, $0.42 million will accrue to the LSCFN, $0.67 million will accrue to the Government of Yukon and $1.51 million will be received by the Government of Canada. Under the third scenario, where 30% of the operating workforce is assumed to reside on LSCFN settlement land $0.63 million will accrue to

the LSCFN, $0.59 million will accrue to the Government of Yukon and $1.38 million will be received by the Government of Canada.

Table 26 Personal Income Tax Revenue Sharing, Operations Phase, (per year, $ millions)

	Percentage of work force resident on Settlement Land		
	10%	**20%**	**30%**
Little Salmon Carmacks First Nation	0.21	0.42	0.63
Government of Yukon	0.75	0.67	0.59
Government of Canada	1.64	1.51	1.38
Total	2.60	2.60	2.60

4.5 Distribution of Economic Effects

The potential for upward pressure on the cost of living (as measured by a price inflation index such as the consumer price index CPI) in Carmacks and area will derive from two demand streams: a) increased demand as a result of direct spending by the proponent on project inputs and b) the spending of employment income by project employees. The only Yukon community for which CPI data is available is Whitehorse. As a result, data considerations do not allow for the examination of historical changes in the cost of living in the context of other mine developments in other small Yukon communities.

Price inflation in Carmacks would constitute an adverse socio-economic effect in the circumstance that increased demand for goods and services resulted in higher prices *and* not all local residents were in receipt of higher labour incomes as a result of the project. While it is true that not all local residents will be in receipt of higher labour incomes as a result of the project, the close proximity of Whitehorse means that most local residents will continue to purchase much of their consumer goods in Whitehorse. This possibility will be bolstered by rotational work schedules (4-days on, 4-days off) which will facilitate 'shopping commutes' to Whitehorse on a regular basis. The likelihood of upward pressure on the cost of living Yukon-wide as a result of the project is expected to be negligible.

Increased demand as a result of direct spending by the project proponent is not expected to contribute to increases in the cost of living in the project area. The bulk of project inputs are industrial in nature rather than consumer-related. A possible exception to this is demand for home heating fuel (diesel). However, the increase in demand for fuel products will likely be significant enough such that the local supply of fuel will also increase.

A potential positive socio-economic effect of the project is that access to goods and services will be improved as a result of the project. Such improved access could take the

form of a wider variety of stores at which to shop and/or a better variety of goods and services at existing and/or new stores. As noted earlier, the close proximity of Whitehorse will likely mean that most consumer-type purchases will continue to be made in the Yukon capital. A possible exception relates to demand for goods and services in convenience-based markets (e.g., bread, milk, videos) where individuals are more likely to make purchases locally rather than in Whitehorse. With an existing convenience-type store/supermarket already well-established in the community of Carmacks, however, it is not expected that increased convenience-based demand will result in a significant alteration in existing access to goods and services.

Benefits which accrue to the local community of Carmacks from the Carmacks Copper development will be primarily in the form of employment and business opportunities. The employment opportunities will be taken up by individuals of working age (generally those between the ages of 15 and 65). Business related opportunities will likely similarly be taken up by individuals generally between the ages of 15 and 65.

Experience has shown that the many of the positive economic effects of major resource development projects tend to accrue outside of the project area at the same time as negative social effects are concentrated at the community level. Western Copper intends to continue to engage the local community to identify potential project effects and ensure that, at the local level, positive project effects are maximized and negative social effects are minimized. This will be achieved, with respect to project benefits, through application of the adjacency principle to employment and business opportunities created by the project. Socio-economic lessons learned at Sherwood Copper's Minto Project, scheduled to commence production in advance of the Carmacks Copper Project in the second quarter of 2007, will be applied to the Carmacks Copper Project.

4.5.7 Economically Vulnerable Groups and Post-closure Economic Stability

Because the economic benefits of the project will generally flow to those of working age, to the extent that the development will result in adverse socio-economic effects, individuals who are younger than 15 years of age and older than 65 years of age are more likely to be adversely affected by the project.

Individuals with higher levels of human capital (combinations of education, training, on-the-job skills development and experience) are the most likely to be beneficiaries of the employment and business-related opportunities associated with the project. Thus, to the extent that the development will result in adverse socio-economic effects, individuals with lower levels of education are more likely to be adversely affected by the project. Further, to the extent that education levels are lower among certain social groupings in the community (see Section 2.2.4), those social groupings are more likely to be adversely affected by the project. Western Copper's training strategies for its

workforce and potential workforce — see Section 3.10 — will help reduce negative effects on this vulnerable group.

The primary measure to be used by Western Copper to ensure local post-development economic stability will be its efforts to afford local residents opportunities to develop lifelong and transferable workplace skills. As the eventual close of the mine will be a planned event, with mining operations ceasing before milling operations, Western Copper will endeavour to minimize the number of layoffs required through proactive management of attrition-related changes in the mine workforce. Where appropriate, Western Copper will undertake transition programs including provision of outplacement services.

The Carmacks Copper project will be developed in full accordance with the Yukon Mine Site Reclamation and Closure Policy for New Mines. As a result, the cost of reclamation and closure will be fully funded by Western Copper. Reclamation and closure activities will provide employment opportunities estimated at six full time equivalents in the first two years after closure and an estimated two full-time equivalents in subsequent years. In addition, contract opportunities for work related to mine reclamation and monitoring will be made available according the adjacency principle. All of this together will serve to promote post-development economic stability in the local area.

4.5.8 Economic Effects: Outfitting

Mervyn's Outfitting, based in Whitehorse, operates the outfitting concession that includes the site of the proposed Carmacks Copper mine. The outfitter[33] does not use the area of the mine to hunt and so is not expecting to suffer any direct negative effects from the development. However, the following possible indirect effects on the outfitting business have been identified:

1. Conflicts between bears and the mine site that result in bears being killed. Any bear that becomes a "problem bear" and is shot results in the outfitter losing one bear from his quota. If that bear is a grizzly, the outfitter stands to lose a valuable hunt sale that season. Good site management — and especially garbage management — is the crucial means of mitigating this possible negative effect. If bears do become a problem, it may be possible to use electric fences to keep them away from the site.
2. Improved roads and improved maintenance — including winter snow clearing — inevitably leads to easier access by both First Nation and non-First Nation hunters. Increased hunting pressure may create an indirect effect on the outfitting business through the reduction of overall wildlife populations. Policies already planned by Western Copper such as a complete ban of all private firearms at the site and the bussing of most employees into the site will help mitigate this effect by reducing "opportunistic" hunts by employees coming off shift and driving back to Carmacks.

[33] Tim Mervyn, Owner/operator Mervyn's Outfitting. Personal communication, October 24, 2006

3. The outfit uses the Freegold Road to assist in the set-up and removal of its seasonal camps and to move horses when required. Increased traffic on the road will have a minimal effect on this use. The already planned means of keeping project traffic to a minimum will help mitigate this already very small effect.

4.5.8.3 Visual Aesthetics

As the project area will not be visible from existing public roads, impairment of visual aesthetics by mining operations will be minimal. Garbage will be regularly collected and removed from site during the operating phase of the project. As part of reclamation activities, infrastructure, equipment and any remaining refuse will be removed from the project area. A reclamation and re-vegetation plan will be finalized for the project and re-vegetation will be undertaken using indigenous flora where native vegetation has been removed or destroyed. Natural re-vegetation of the roads, leach pad, and waste rock area will be promoted

4.6 Economic Effects: Lessons Learned

A key lesson learned from similar mining developments in the Yukon and the North relates to closure and reclamation requirements. In instances where reclamation security was not required, economic benefits from mine closures have ceased to flow immediately upon mine closure. One such example is the Mount Nansen mine. In contrast, where mine properties have been fully secured, reclamation efforts have resulted in a more orderly cessation of economic benefits. One such example is the Brewery Creek mine.

While one legacy of the Mount Nansen mine for the community of Carmacks is environmental damage, the project generated positive economic benefits in the form of employment and labour income during the period the mine was in operation. As part of its community engagement efforts over the years, Western Copper has endeavoured to inform the affected communities about the financial cycle that accompanies a mine development as it progresses through the stages of exploration, development, production and reclamation.

A second key lesson from other similar mining developments is the crucial role that solid, mutually beneficial project participation agreements between the company and the area's First Nation plays in ensuring maximum economic benefit to the region. Western Copper well understands the importance of having an economic participation agreement on place which addresses the fair distribution of economic benefits from the project. This understanding is evidenced by the participation agreement which was discussed in the mid 1990s by Western Copper and the Little Salmon Carmacks First Nation.

Western Copper is committed to providing employment opportunities to the Little Salmon Carmacks First Nation, Selkirk First Nation and the broader Carmacks

community on a fair and equitable basis. The company is equally committed to supporting individuals and agencies intent on developing or enhancing the skills of candidates seeking employment. As the project progresses through the design and construction phase and prior to the onset of operations, Western Copper will conduct a survey of the available labour resources and skills, identify specific skill gaps and training requirements, and develop a program to meet the project needs. This program will be developed in concert with local agencies and with input from LSCFN, Selkirk FN and local businesses.

While agreements between Western Copper and the LSCFN or the Selkirk FN are not currently in place, an agreement was drafted in the mid 1990s. Discussion on the draft agreement ceased when the project was suspended in 1998. It is Western Copper's intention, in the near future, to enter into discussions which have as an objective the fair and equitable participation in the project by Yukon First Nations.

4.7 Social Effects: Population, Demographics and Accommodation

A common concern in small communities near a proposed development such as the Carmacks Copper mine is that the mine will bring an influx of outsiders and migrant workers who will change the composition and character of the community and have an overall negative social effect.

Western Copper will employ up to 181 people at the peak of its anticipated nine year total operating life. It is obvious that Carmacks — with its total experienced labour force of about 220, most of whom are currently employed — cannot possibly supply all of those employees. Western Copper has committed to maximizing the number of local hires both for its own benefit (see Section 3.3.1.1) and to maximize economic and social benefits to the community. However, the remainder will have to come from elsewhere.

It is not reasonable to expect that all, or even many, of the people (and their families) employed by Western Copper will move to Carmacks if they do not already live there. First, there is simply not enough housing or building lots available to absorb the influx (see Section 2.6.2). Second, and more important, a mine with an anticipated operating life of nine years in total (eight years of production) simply does not give sufficient incentive for many people to relocate themselves and their families away from their home communities. And finally, Carmacks is close enough to Whitehorse, Pelly Crossing, and Faro for example, to make it relatively easy for shift workers to live elsewhere and only be at the mine for their rotations.

The mine will employ about 17 people who will be working a regular 8 hours per day, 5 days per week schedule. These employees, if they do not already live in the community, will have a strong incentive to relocate to Carmacks. Some of these positions require

highly specialized mining experience — the mine manager and chief mining engineer for example — and these employees, along with any family, will almost certainly become new residents of Carmacks. It is anticipated that Western Copper will build some homes to house those employees that must be recruited from elsewhere and must be based in Carmacks.

From the above, it appears highly unlikely that Carmacks will see a significant increase in population. An estimate of somewhere between 10 and 20 employees and their families appears reasonable. This would likely result in a population increase of 20 to 60 people. Carmacks currently has a population of approximately 400 but did have about 480 people in 1997. Given that the estimated increase in population would still leave it below the 1997 peak, and that there are sufficient building lots currently for sale to build housing for the new arrivals, the increase is unlikely to cause any strains on community infrastructure or housing. A small population increase is also not likely to significantly change the demographics of the community.

The total number of employees who will live elsewhere and will only be in the area while on their shift rotation will largely depend on how many local residents are working at the site. A current working estimate is that Western Copper will need to provide single-status accommodation for up to approximately 60 shift employees at a time during the operation of the mine. The single-status accommodation will operate on a hotel-like basis. That is, employees “check in” when their shift rotation starts, and “check out” (leaving any belongings they wish to have available for their next rotation) in a locker when their rotation ends and they travel back to their home community. The workers will be on alternate shifts and so about 30 will be in residence in the single-status accommodation while 30 are working. (Another similar sized group will be off rotation and back in their home communities).

Western Copper is considering two alternative locations for the needed single-status accommodation: on-site and in, or near, Carmacks itself. The on-site option would involve the construction of a more permanent camp-style accommodation with catered meals. Employees would be bussed in at the start of their rotation and would remain on site until they returned to their home communities at the end of the rotation. The in-town option would mean the construction of a permanent complex of about 60 rooms with some common areas and kitchen and eating facilities. Water for the facility would likely be obtained from a new well and treated onsite as there is no community water supply for the Village. This is typical for the Village where individual residents in commercial buildings are supplied by local groundwater wells. As the community is located next to the Yukon River, local groundwater supply will be adequate. Wastewater would be discharged into the Village of Carmacks sewer system and treated at the wastewater treatment plant. Solid waste from the facility would be disposed of at the Village of Carmacks solid waste disposal facility. Employees would be bussed to and from the site for each shift and would return to their home community at the end of

the rotation. Meals could be provided either within the facility or through service contracts with local restaurants or a combination of the two.

Likely effects of the on-site option include:

- eliminates much shift change travel for employees (less bus time);
- reduces employees' recreational and social opportunities;
- reduces possible negative social effect of having shift workers in town;
- reduces traffic on Freegold Road;
- reduces expenditures in local businesses by shift workers;
- reduces use of community services and infrastructure; and,
- slightly reduces employment/business opportunities by reducing bussing requirements.

Likely effects of the in-town option include:

- possible other uses/benefits of the structure after mine closure (possible social/economic benefit to community);
- increased traffic on Freegold Road;
- approximate water consumption rate of 200 L/day per person (typical rate used by Yukon Government, Environmental Health Services) – for 60 people water consumption would be about 12,000 L/day or 12 m^3/day;
- the normal per capita wastewater flow range is between 230 and 420 L/c/d (WEF Manual No. 8, 1998) – for 60 people wastewater production would range between approximately 13.8 and 25.2 m^3/day. It is expected that with modern water saving fixtures installed during construction, wastewater production would be closer to the low end of the production range, particularly as the building will primarily be used as sleeping quarters for mine staff. The existing average wastewater flow rate is between 49 and 67 m^3/d (Village of Carmacks Wastewater Treatment and Disposal Predesign Study, 2005). According to the Village's water use licence MN00-034, the existing treatment plant has the capacity to treat up to 110 m^3/day; therefore, the addition of the above flows would still be well within the design capacities of the plant. The proposed Village of Carmacks wastewater treatment system is designed to treat an average day summer flow of 104 m^3/day (and maximum daily flow of 208 m^3). Wastewater production between 13.8 and 25.2 m^3/day represents about 13-24% of the average day summer flow to the wastewater treatment plant. Depending on the ultimate location of the single-status accommodation within the Village, it may not be practical to connect to the community's wastewater system, in which case site specific disposal arrangements would be made in accordance with regulations.
- assuming household garbage is generated at a rate of 0.35 tonnes per capita per year (Village of Carmacks Solid Waste Management Plan, 2003), approximately 21 tonnes of household garbage will be generated by 60 people over the course of a year, which will be disposed of at the Village of Carmacks solid waste disposal facility. 21 tonnes from the single status accommodation building represents about 9% of the

total refuse generated per year in Carmacks (247 tonnes - Village of Carmacks Solid Waste Management Plan, 2003);
- increase in property tax base;
- increased use of currently under-used community services and facilities (e.g., Recreation Centre);
- likely greater social well-being for workers (more social and recreational options);
- catering done locally, either in building or by service contracts with local restaurants or both;
- service opportunities and personnel likely to be locals (more jobs locally); and,
- more expenditures in local businesses by shift workers.

Western Copper considers both these options to be viable alternatives, each with possible positive and negative effects for the employees and for the community. The company will look to further discussions with the community to help decide which option to select.

4.8 Social Effects: Lessons Learned and Community Wellness

Experience with other similar mining projects in the Yukon and elsewhere has repeatedly shown that the mine, and particularly the increased employment and incomes that it brings in to the local community, has both positive and negative effects on employees, their families, and the community as a whole.

On the positive side, increased incomes help alleviate poverty and reduce financial stresses within families. In the long term, increased incomes are strongly correlated with overall better health and greater longevity. And the company believes a general 4-day-on 4-day-off work schedule with a policy of flexible leave will help employees spend adequate time with their families, in traditional pursuits, or in general leisure.

But increased incomes can also produce unintended negative effects including:
- increased alcohol and drug abuse by employees leading to greater family and community social problems; and,
- poor money management practices by those unaccustomed to their increased incomes.

Western Copper is committed to minimizing any alcohol and drug abuse among its employees through the following means:
- Western Copper will not tolerate any alcohol or drug use on the site at any time.
- The company will have a program of both pre-employment drug testing and random testing during employment. Such drug testing has now become largely standard and is accepted by employees and potential employees. Experience in

northern communities has often seen strong community support for such testing as a means of reducing overall substance abuse problems.

- All employees will be required to take substance abuse and chemical dependency awareness training.
- In the event of an employee being found consuming alcohol or drugs on site, or failing the drug test, Western Copper intends to follow a system of graduated response. That is, the employee may be given the opportunity to address a substance abuse problem through a treatment program, for example, and then offered an opportunity to return to work. The company hopes to work closely with the Yukon Government, the Little Salmon Carmacks First Nation and the Selkirk First Nation on assisting any employee who wishes to access a substance abuse treatment program offered by those governments. The current example of the Minto mine's arrangement with the Selkirk First Nation may be a good model to follow.

To help mitigate any negative effects from poor money management by employees, Western Copper is committed to:

- Offer all employees financial and money management training sessions; and,
- Offer all employees retirement planning training.

As part of its general approach to minimizing negative social effects, Western Copper will provide the community with regular updates on its operation and will provide a regular public forum to allow any community concerns to come forward.

4.8.1 Community Services

There are a number of community services that may need to be developed or enhanced to better serve the needs of the community and Western Copper's prospective employees. Western Copper envisages working in collaboration with the agencies and institutions currently providing these services to provide support where it is most needed. In some instances Western Copper may directly engage outside professionals to perform the required services in conjunction with existing community services and Western Copper's personnel department. Western Copper proposes to enter into detailed discussions with the local communities and relevant government departments during the project design phase and continuing through the construction phase to determine which community services potentially need to be established or require augmenting and how this might best be accomplished. Community services which may require company support are listed below:

- Daycare services
- After school supervised activities
- Chemical dependency programs
- Youth drop-in centre and crisis line
- Community athletic and leisure activities programs

- Family life improvement and financial management workshops
- Post secondary training and scholarships
- Others, to be determined

Western Copper support for the above may be in the form of direct financial support, provision of qualified personnel to perform various functions, and provision of facilities or services or a combination of the above as befits the particular program and as determined in consultation with the affected communities.

4.8.2 Education

The overall effect of the Carmacks Copper project on levels of education and training is expected to be positive. Apart from the direct effects of the training and skill upgrading that will be offered to employees (see Section 3.10) the basic requirement for high school completion for most jobs at the mine will provide an added incentive for local students to at least achieve that level of formal schooling.

4.9 Social Effects: Heritage Resources

As noted in Volume I of the Carmacks Copper Project submission, an archaeological impact assessment was conducted in the Williams Creek Valley for the proposed project by Antiquus Archaeological Consultants Ltd. (AAC) in August 1992. AAC also conducted "An Archaeological and Heritage Resource Overview Assessment of the Proposed Carmacks Copper 138 kV Transmission Line Project Route Options Near Carmacks, Yukon Territory" in September 1994.

No archaeological sites were identified within the areas proposed for the open pit mine, leach pads and waste rock dumps. However, two historic archaeological sites were identified and recorded during the 1992 assessment. One at the confluence of Williams Creek and one of its tributaries about 1.25 km from the Yukon River, and a second on the Yukon River approximately 1.25 km from the mouth of Williams Creek. These sites are known and documented and will not be disturbed.

There are three locations near the proposed mine access road considered to have medium heritage site potential. One large medium heritage site potential area is located on both sides of Crossing Creek between the bridge over the creek on the existing Freegold Road and the turnoff to the mine access road. The remains of prehistoric or historic camps may be located in this area. The other two medium heritage site potential areas are located where the mine access road crosses Merrice and Williams Creeks. Western Copper will conduct a further archeological investigation of these medium potential sites before beginning road construction. If any sites are discovered, appropriate actions will be taken. For example, if the planned Merrice Creek crossing point contains a significant heritage site, the road could be re-routed to avoid damaging the site.

If any significant heritage resource or site is discovered during the construction or operations phases of the project, Western Copper will follow accepted protocols. Work will stop immediately and both the Little Salmon Carmacks First Nation and the Heritage Resource Unit of the Yukon Government will be contacted immediately.

4.10 Social Effects: Land, Wildlife and Traditional Uses

With a projected area of disturbance of 171 hectares at the end of an estimated nine year mine life, the ecological footprint of the Carmacks Copper Project will be relatively small. The project area is located away from established traditional use areas along the Yukon River and downstream from a Category A land selection of the Little Salmon Carmacks First Nation where traditional pursuits have been documented. The project area avoids key wildlife, fish and fur bearing habitat.

Issues concerning the study area have been presented in the "Community-Based Fish and Wildlife Management Plan – Little Salmon Carmacks First Nation Traditional Territory 2004-2009." The main issue in the study area was managing critical moose habitat and wetlands along the Yukon River downstream from Carmacks to Minto. Unmanaged river traffic is the main disturbance to habitat, camps, and fishing nets. Moose numbers are thought to be low here, while both grizzly and black bear populations are thought to be high. Wolf management around communities is an ongoing issue.

The Fish and Wildlife Management Plan states that in the "old days," near the end of August, people would leave from Carmacks, travel with dogs and packs to the other side of Big Salmon Lake, build rafts, and float down the Yukon River to Carmacks with two or three moose dried. People have changed the way they hunt, from river hunting to travelling into the mountains to find moose.

The Fish and Wildlife Management Plan indicates year-round access to the BYG mine site provided by the Mount Nansen road contributes to increased hunting of moose and caribou, as well as increased disturbance of wildlife. Access to the Carmacks Copper property could potentially have the same effects.

Specific mitigation measures are planned as part of the Carmacks Copper project to address potential concerns with increased access to the area for wildlife harvesting and will be discussed with the LSCFN.

Western Copper intends to strictly enforce its policy of no wildlife harvesting within the project area; hunting weapons will not be permitted at the mine site. Policies barring harassment of wildlife and recreational use of off-road vehicles (including all terrain vehicles) will also be put into effect. Speed limits within the project area will be posted

and enforced. In addition, employees will be bussed from Carmacks. In consequence, the project is not expected to induce pressure on traditional economy resources (wildlife, fauna, fish and fur bearing animals).

As a result of the policy of no wildlife harvesting within the project area, the quantum of land available for wildlife harvesting in the Yukon will be diminished. However, as the project area comprises less than one half of one thousandth of one percent of the total land area (excluding freshwater) of the Yukon, the loss of land available for wildlife harvesting by First Nation and non-aboriginal individuals during the nine-year time frame of the project is insignificant.

Chinook and chum salmon runs in the Yukon River support important commercial and native food fisheries. Escapement and catch data for the commercial and First Nation fisheries on these species is presented in Appendix 4 of the IEE Volume 1, "Biophysical Assessment of the Williams Creek Mine Site" prepared by P.A. Harder and Associates in 1994. Adult Chinook salmon migrate up the Yukon River past the Williams Creek confluence between August and October. Salmon spawning does not occur in Williams Creek. Please refer to Western Copper Corporation's Carmacks Copper Project Proposal Revision No.2 (2007) for further details on aquatic resources.

Members of the LSCFN harvest adult Chinook and chum salmon from the Yukon River during the late summer and fall months. Catch records are not maintained specifically for the Carmacks area. Interviews with First Nation members and village elders indicate that salmon fishing activities take place at many sites along the Yukon River between Carmacks and Fort Selkirk. Sites upstream of Carmacks are also used. Five seasonal fish camps were observed on the banks of the Yukon River between Carmacks and Williams Creek during the October 1991 survey. Three other fish campsites were identified downstream of the Williams Creek confluence. Locations of the fish camps change annually depending on flow conditions in the river (Chief Fairclough (1993), pers. comm.).

Other species of importance with respect to First Nation and sport fisheries include Arctic grayling, inconnu, round and broad whitefish, burbot and northern pike. Small numbers of these species may be found at the confluence of Williams Creek and the Yukon River at certain times of the year. It is suspected that some sport fishing may occur at the mouth of Williams Creek during the summer months as recreational canoeists pass the creek on route to Dawson City. The extent of the First Nation fishery for these species in the Williams Creek area is not known. It is suspected that most fishing for these species would occur in the Yukon River. Historically, there have been reports of some fishing by First Nation members in the backwaters of the Williams Creek confluence (Chief Fairclough (1993), pers. comm.).

As measures implemented by Western Copper are not intended to limit access by Yukon First Nations to traditional use areas located in proximity to the project area, Western Copper will work with Yukon First Nations to ensure access to traditional use areas is not unreasonably impeded. This will include access for the purposes of trapping. As appropriate, Western Copper will consider entering into discussions on the topic of trapper compensation with potentially affected individuals.

As encouraged by the Yukon Mine Site Reclamation and Closure Policy for New Mines, the 170 hectare project area will be reclaimed with the benefit of input from the Government of Yukon, affected First Nations and local community stakeholders. The intent of the closure and reclamation efforts will be to return the project area to a state which does not impair future traditional uses of the area.

4.11 Social Effects: Public Health and Safety

Public health and safety issues identified include:

- unauthorized access to site;
- public traffic on the Freegold Road conflicting with mine traffic;
- heavy traffic on River Road through the community of Carmacks and especially excessive speed on that road.

Western Copper plans to control access to the property itself, but has no legal means to control or restrict access to the public roads up to that point. However, mine-related traffic will be radio-controlled and safe driving rules will be emphasized and enforced. Specific plans for reducing traffic and traffic safety hazards include:

- It is anticipated that employees will be bussed to the site for their shifts meaning that commuting in personal vehicles will be kept to a minimum.
- The company will institute driver training and community awareness courses as required.
- The public will be discouraged from using the mine access road through signage, although the Company does not have the right to prevent such use.
- A staffed gatehouse with security gate and property fencing will be installed at the immediate mine property boundary to restrict unauthorized personnel from entering the mine site. This will ensure that the public is not allowed to stray unintentionally onto the property and be exposed to mine operations resulting in potentially serious accidents.

In the late 1990s a bypass route around the community was identified and the right of way for it cleared. The bypass would allow access to the Freegold and Mt. Nansen roads without driving through Carmacks itself. Western Copper is in agreement that a bypass and accompanying associated bridge over the Nordenskiold River would be desirable since it will better serve all public users, the community of Carmacks as well as Western Copper. However, traffic projections prepared by Western Copper indicate that the

construction of a bypass is not a necessary requirement for the project to proceed within the bounds of accepted public safety practices.

4.12 Socio-economic Monitoring

There are a number of socio-economic indicators that Western Copper will monitor on an ongoing basis in order to adaptively manage its socio-economic effects on the community.

These indicators will include but not be limited to:

- The number of local residents employed in the operation;
- The number of (self-identified) aboriginal employees;
- The value and percentage share of goods and services that are sourced locally;
- The level of training or education, and changes in that level, of employees;
- A measure of success of treatment of employees for substance abuse problems and addictions; and,
- The number of local high school graduates.

These indicators may be shared by Western Copper with both First Nation and territorial government departments as deemed appropriate but will not necessarily be made publicly available due to privacy and business confidentiality issues.

As part of its socio-economic monitoring efforts, Western Copper will provide the community with regular updates on its operation and will provide a regular public forum to allow any community concerns to come forward. The public forums will provide the affected communities with an opportunity to identify and discuss changes in traditional harvesting success and worker/community health and wellness perceived to be a result of the project.

4.13 Closure and Reclamation

The Carmacks Copper project will be developed in full accordance with the Yukon Mine Site Reclamation and Closure Policy for New Mines. As required by the Policy, a reclamation and closure plan will be prepared before mine operations begin.

From a socio-economic perspective, there are two broad closure and reclamation alternatives — progressive reclamation and strictly post-closure reclamation. Progressive reclamation involves, as the name implies, undertaking some of the required reclamation work while the mine is still in operation. The largest benefit of progressive reclamation is that it allows for an on-going learning process for site-specific issues and allows at least a limited number of approaches to be tested during mining. One possible negative effect of progressive reclamation from a community socio-economic perspective is that there will be marginally less work done post-closure and therefore marginally less post-closure employment and spending.

Western Copper wishes to use the progressive reclamation approach in order to test and prove the approaches and methodologies to be used. Benefits beyond the testing of techniques include:

- allowing the training of some employees or contractors in reclamation and remediation work as it will be carried out over a longer period than would be the case in a strictly post-closure approach; and,
- progressive reclamation allows the community and the public at large to see progress toward the final reclaimed site.

The post-closure reclamation process itself — and the bonding in place to ensure that it is done — plays a part in helping the community adapt to the post-closure economic environment and in helping provide a measure of post-development economic stability through some continued employment and continued purchase of locally sourced goods and services.

Other factors in the process of adapting to the post-closure economic environment include:

- Western Copper's commitment to providing local residents opportunities to develop lifelong and transferable workplace skills throughout the course of the project;
- Western Copper's efforts to minimize the number of layoffs required through proactive management of attrition-related changes in the mine workforce; and,
- the provision of transition programs — including outplacement services if required — at closure.

5 Cumulative Socio-economic Effects

Western Copper recognizes that the Carmacks Copper project does not exist in isolation. In a socio-economic context it, along with other development projects in the region, can create cumulative socio-economic effects.

There is a reasonable expectation of a number of other projects in the region that may, along with Carmacks Copper, have cumulative socio-economic effects including:

- The Minto Mine completing construction and coming into production by mid 2007;
- Big Creek placer operations ongoing, perhaps expanding somewhat;
- The possible construction of a Carmacks-to-Stewart transmission line; and,
- The possible construction of a new sewer plant in Carmacks.

Other projects, such as the new Tantalus School in Carmacks, will be complete before work begins on the Carmacks Copper project.

Simultaneous development projects stretch the availability of local labour and so reduce overall employment benefits by compressing work available rather than extending it over more years. More migrant workers are therefore needed and a greater influx of such workers stresses the social fabric of small communities and stretches their ability to adapt. However, these potential cumulative effects tend to be mitigated by temporal and geographic dispersion of developments and the expected regional developments are not all expected to be constructed simultaneously and they are somewhat dispersed geographically.

One of the expected cumulative effects of development projects in the region is to likely reduce the overall participation of First Nation peoples in traditional pursuits. Experience has shown that increased wage employment, and especially longer term wage employment, inevitably leads to people spending less time on the land and therefore somewhat weakening connections to the traditional culture and cultural pursuits. Western Copper hopes to minimize this effect through both its work scheduling and its flexible policy on leave from the job to allow for traditional pursuits.

Western Copper is cognizant of the cumulative effect its use of the Freegold Road may have on other users. The company's road use policies, which will include speed control, traffic minimization through the bussing of personnel, driver and hazards awareness training, as well as radio managed traffic will reduce the potential effect. In addition, a positive outcome of Western Copper operations will be more regular and frequent road maintenance and snow clearing which will enhance driving safety.

6 Appendix A: Existing Socio-Economic Conditions Data

6.1 Data sources and limitations

Economic and social data on small rural communities is sparse. Of particular importance is the Census, which is conducted every five years and contains information on a number of important economic and social indicators.

6.1.1 Census data

Economic data available includes information on population, education, labour force, employment and unemployment, income, occupational information, and employment by industry. The censuses also have a number of different social indicators including religion, age and sex distribution, education, family composition and housing.

Starting in 1971, Statistics Canada began publishing community profiles. At first profiles were only available for communities over 5,000 people, but beginning in 1981 profiles have been done on all communities. However, very little economic data is published for communities with fewer than 200 people to protect the confidentiality of Census respondents.

There is another source of population information for Yukon communities. The Yukon Bureau of Statistics keeps track of the number of people with Health Care cards with addresses in each community. Available population data goes back to 1974 for some communities. The Health Care population data differs from the Census. The Census is often considered to be an underestimate, as was shown recently by a revision of population data that resulted in the Yukon Government getting $25 million more in transfers from the federal government because of an undercount in the 1996 Census. However, the Health Care population numbers are acknowledged to be an over count. It can take up to a year before someone moving out of the Yukon is removed from the Health Care roll, while people moving to the Yukon normally register after three months.

Another major difference is that the census only counts people residing within community or municipal boundaries, while the Yukon Bureau of Statistics counts people who may live in the outskirts outside the boundaries but who have a postal address in the community.

6.1.2 Income tax data

Another useful source of information is the Canada Customs and Revenue Agency which publishes income tax statistics for every community in Canada. However, for

small communities both the Census and the income tax data is not complete to protect people's confidentiality.

6.1.3 Data on business and tourism

Data on businesses is even more limited. The only source of information on small Yukon communities is the Yukon Business Survey done periodically by the Yukon Bureau of Statistics. But even then, the available data is limited to protect the unintentional revealing of confidential business data. Historical data is practically non-existent. The Census is again useful in giving the number of people employed in each industry and in different occupational groups.

The various Visitor Exit Surveys (1989, 1994, 1999) conducted by the Yukon Bureau of Statistics and commissioned and published by the Yukon Department of Tourism provide some information on tourism in the Campbell region of which Carmacks is part.

7 Appendix B: Summary of Socio-Economic Effects

For definitions of assessment figures, see Table 27 Socio-economic Assessment Descriptors immediately below this summary.

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
CULTURAL RESOURCES														
Direct Effect - loss, damage, or alteration of heritage sites or sites of archaeological / historical interest or cultural artifacts.	HLP, AR, AF	Existing trails and disturbed areas will be used where suitable to minimize environmental effect.	-	1	1	1	2	2	3	1	1	NS	1	3
	All	A heritage site survey was completed. Known sites located off the project area (Yukon River) will be avoided. Medium potential sites will be investigated prior to construction.												

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
	All	Should any archaeological or palaeontological sites be discovered during construction or operations, work will be suspended at that location until permission is sought and granted to continue operations.												
	All	In the event previously unknown heritage resources are discovered during mining operations, staff of the YG Heritage Branch and LSCFN will be notified and consulted for advice on mitigation.												
Direct Effect - loss or damage to traditional use areas or pursuits by First Nations.	HLP, AR, AF	Existing trails and disturbed areas will be used where suitable to minimize environmental effect.	-	2	2	2	2	2	3	2	2	NS	2	3

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
Indirect Effect - alienation of traditional uses or pursuits by First Nations.	All	Previous vegetation, wildlife, fisheries, and traditional use surveys and studies were conducted to identify local areas of interest. Area is generally used for traditional hunting and gathering, however no known unique areas identified.	-/+	2	1	2	2	2	3	2	2	NS	2	3
	All	Local trapper uses area for trapping and traditional life style. Identification of trapping trails and relocation, re-establishment of trapper trails if required. Compensation for loss of income during active mining operations, if required.												
Direct Effects - conflicts with wildlife harvesting due to project activities.	HLP, AR, AF	Existing trails and disturbed areas will be used where suitable to minimize environmental effect.	-	2	1	2	2	2	3	2	2	NS	2	3
Indirect Effect - alienation of traditional uses or pursuits by First Nations.	All	Public consultation with all local communities has been undertaken to notify communities of operations and timing.	-	2	1	2	2	2	3	2	2	NS	2	3

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
	AR, AF	Posting of warning signs on roads and mine site areas.												
	AR, AF	Identification of trapping trails and relocation, re-establishment of trapper trails if required.												
Conflicts with trap line operations.	HLP, AR, AF	Existing trails and disturbed areas will be used where suitable to minimize environmental effect.	-	2	1	2	2	2	3	2	2	NS	2	3
Indirect Effect - alienation of traditional uses or pursuits by First Nations.	All	Public consultation with all local communities has been undertaken to notify communities of operations and timing.	-	2	1	2	2	2	3	2	2	NS	2	3
	All	Notification will alert trappers and land users to operations and timing.												
	All	Work with local trappers to ensure effects to traplines are minimized.												

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
	All	Identify work or hazardous areas with signage.												
	All	Compensation for loss of income during active mining operations.												
Direct Effect - loss or damage to existing cabins / structures along the roads.	AR	No specific cabin/structures have been identified. Appropriate site-specific mitigation measures will be discussed with any identified cabin / structure owners in the project area.	-	1	1	2	3	2	3	1	1	NS	1	3
SOCIOECONOMICS														
Social														
Demographics														
Direct Effect - increase in population and composition	All	Emphasis on local hire, training to minimize the effects of influx.	+	2	2	3	1	2	3	2	2	P	2	3
		Work with local government on anticipated minor population influx.												

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
		Non resident workers return to point of origin on scheduled time off.												
Community Wellness														
Direct effects - increase in substance abuse and therefore family violence	All	Ongoing community dialogue.	-	2	2	3	2	2	3	2	2	NS	2	3
	All	Consumption of alcohol and 'recreational' drugs will not be allowed on site. Employees will be required to undergo drug testing.												
	All	Graduated response in partnership with social agencies to assist employees to overcome addictions.												
	All	Chemical dependency and substance abuse awareness training.												

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
	All	Cultural awareness and diversity training.												
	AR	Driver safety training (project specific).												
Direct effects - inappropriate expenditure of income	All	Financial planning & retirement.	-	2	3	3	2	2	3	2	2	NS	2	3
Direct effects - effects on workers and family mental, physical and cultural health	All	Favorable work schedule.	-/+	2	3	3	2	2	3	2	4	NS		
	All	well paying jobs to reduce financial stress on family.												
	All	Suitable bereavement leave.												

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
	All	Flexible approach to employee leave to accommodate cultural activities.												
	All	Skills upgrading that are life long and are transferable outside of project.												
	All	Work collaboratively with community to identify issues and provide support.												
	AR	Traffic through Village of Carmacks residential areas day time hours only.												
Direct Effects - impairment of visual aesthetics by mining	All	Project area will not be visible from public roads.	-	1	1	2	2	2	3	1	1	NS	1	3

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
operations.														
	All	Equipment and infrastructure will be removed at end of program. Garbage will be regularly collected and removed from site.												
	All	A reclamation and revegetation plan will be finalized for the project. Revegetation using indigenous flora for AR, AF, HLP, and WR where native vegetation has been removed or destroyed. Natural revegetation of the roads, leach pad, and waste rock area will be promoted.												

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
	All	All equipment and refuse will be removed or buried by the end of the project.												
Justice														
Direct Effect - possible change in local crime rate	All	Company sponsored programs for After school supervised activities; youth drop-in centre and crisis line; community athletic and leisure activities program.	-/+	2	1	2	2	2	3	2	2	NS	2	2
	All	Graduated response in partnership with social agencies to assist employees to overcome addictions.												

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
	All	Chemical dependency and substance abuse awareness training.												
Education														
Direct Effect - change in individuals' skill and education levels	All	Minimum requirement for high school diploma encourage high school completion.	+	2	3	3	5	2	3	1	4	P	2	3
	All	Training and skills upgrading provided by company and contractor's.												
	All	Enhanced employment opportunity through local training program.												
Indirect Effect - lasting life long skills		Training and skills upgrading provided by company and contractor's.	+	2	3	3	5	2	3	1	4	P	2	3
SOCIOECONOMICS														
(Economic)														

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
Employment														
Direct Effects - project activities generate economic benefits and growth for individual, families and community.	All	Participation Agreement will be negotiated with local First Nations and community.	+	2	4	4	4	2	3	3	4	P	2	3
	All	Preferential hire of local residents to the benefit of company.												
	All	Provide stable qualified workforce.												
	All	Provide attractive wage and benefits package to employees.												
	All	Training and skills upgrading provided by company and contractor's.												

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
	All	Participate in local meetings and information sessions, and take other appropriate steps to promote consultation and communication with the community. The company will actively consult in an ongoing manner with communities, individuals, groups, and stakeholders, so that local people are kept informed regarding project activities.												
	All	Ensure that subcontractors agree to the company's commitments and policies for employment of northern residents.												
Indirect Effects - economic benefits will reduce community unemployment, and/or create financial inequality in community.	All	Ongoing community dialogue.	-/+	2	3	2	2	2	3	2	3	NS	2	2

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
	All	Measures to include local hire and business opportunities through project life (see above).												
		*Participation Agreement will be negotiated with local First Nations and community.												
Indirect Effect - lasting life long skills	All	Training and skills upgrading provided by company and contractor's	+	3	3	4	5	2	3	1	4	P	2	3
		Provides work experience and transferable skills.												
Business Opportunity														
Direct Effects - increased business opportunities and business growth potential locally and regionally.	All	Utilize local companies and individuals to provide services to the extent practical and where the services offered are considered to be reliable and competitive.	+	2	3	4	4	2	3	3	4	P	2	3

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
Direct Effects - increased business diversification potential locally and regionally.	All	Utilize local companies and individuals to provide services to the extent practical and where the services offered are considered to be reliable and competitive.	+	2	3	4	4	2	3	3	4	P	2	3
Indirect Effects - expanded territorially economy.	All	Opportunities not fulfilled at community level will be communicated to business at regional level.	+	2	3	3	4	2	3	2	4	P	2	3
	All	Participate in local meetings and information sessions, and take other appropriate steps to promote consultation and communication with the community. The company will actively consult in an ongoing manner with communities, individuals, groups, and stakeholders, so that local people are kept informed regarding project activities.												
	All	Ensure that subcontractors agree to the company's commitments and policies for employment of northern residents.												

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
Infrastructure and Community Services														
Direct Effects - increased demand on services and infrastructure - local community and regionally.	All	Provide information on requirements to enable local community to effectively plan.	-	2	3	3	3	2	3	2	2	NS	3	3
	All	Work with YG highways to plan Freegold road use (traffic projections) and maintenance.												
	All	Work in collaboration with the agencies and institutions currently providing these services to provide support and to better serve community needs.												
Direct Effects - greater utilization and cost effectiveness on existing infrastructure,	All	Work in collaboration with the agencies and institutions currently providing these services to provide support and to better serve community needs.	+	2	3	3	3	2	3	2	2	P	3	3

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
locally and regionally.														
	All	Work with YG, Village of Carmacks, and First Nations to ensure that measures are undertaken to ensure that local infrastructure and accommodations are planned												
Direct Effects - increase in tax base and revenue.	All	Work with communities to achieve the most favorable tax and revenue distribution from community perspective.	+	3	3	4	2	2	3	2	4	P	1	3
Human Health and Safety														
Direct Effects - accidents or malfunctions cause inability to work.	All	Safety meetings will be held for all staff at the beginning of each work assignment period.	-	2	2	3	3	2	3	2	1	NS	2	3

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
	All	Medical equipment and trained personnel will be on site 24 hours a day during operations.												
	All	Occupational health and safety standards will be enforced for all personnel on the site.												
	All	Consumption of alcohol and 'recreational' drugs will not be allowed on site. Employees will be required to undergo drug testing.												
	All	Emergency Response Plan will be implemented as necessary.												
	All	Employees will be eligible for Workers Compensation.												

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
	AR, AF	Transportation crews will be instructed on traffic safety. Traffic will be controlled on mine access road. Communication and notification of hazardous materials transport to the site.												
	AR, AF	Vehicles will be equipped for winter travel and will carry emergency first aid kits.												
	AR	Posting of warning signs on the highways and access road.												
	AR	Traffic through Village of Carmacks residential areas day time hours only.												
	All	Project engineering designs with appropriate factors of safety, containment systems, and redundant systems to minimize accidents and malfunctions.												

Potential Effect on VECC Direct or Indirect Effects	Project Component	Proposed Mitigation & Enhancement Measures	Residual Effects									Significance	Likelihood	
			Direction	Duration	Geographic Extent	Magnitude	Reversibility	Ecological Context	Economy & Social Context	Risk	Frequency		Probability of Occurrence	Uncertainty
	All	Monitoring and maintenance programs to ensure facility and worker safety and equipment integrity.												

Table 27 Socio-economic Assessment Descriptors

Descriptor	Direction	Duration	Geographic	Magnitude	Reversibility*	Ecological Context	Economic & Social Context	Risk Characterization**	Frequency	Significance
Very low	+ = Beneficial Effect	<1 to 5 years	<1 ha	negligible effects to surrounding environment	95-100%	community with very good ecological fitness and a very high degree of resilience	community with very good economic and social fitness and a very high degree of resilience	negligible risk (1) : negligible to high hazard assessment; negligible to very low exposure assessment; and negligible consequence assessment	Occurs once	Not significant adverse environmental effect
-1		-1	-1	-1	-1	-1	-1		-1	(NS)
Low	n = neutral effect	5 to 10 years	1-75 ha	low effects to surrounding environment	75-95%	community with good ecological fitness and a high degree of resilience	community with good economic and social fitness and a high degree of resilience	very low risk (2) : negligible to high hazard assessment; negligible to very low exposure assessment; and negligible consequence assessment	Occurs Rarely and at Sporadic Intervals	Positive environmental effect
-2		-2	-2	-2	-2	-2	-2		-2	(P)
Moderate	- = negative effect	10 to 25 years	75-200 ha	moderate effects to surrounding environment	60-75%	community with moderate ecological fitness and a moderate degree of resilience	community with moderate economic and social fitness and a moderate degree of resilience	low risk (3): very low to high hazard assessment; low to medium exposure assessment; and very low to low consequence assessment	Occurs on a regular basis and a regular interval	Significant adverse environmental effect
-3		-3	-3	-3	-3	-3	-3		-3	(S)
High	+/- = beneficial and negative effect	25 to 100 years	200-300 ha	extreme effects to surrounding environment	40-60%	community with poor ecological fitness and a low degree of resilience	community with a poor economic and social fitness and low degree of resilience	medium risk (4) :	Continuous	

-4		-4	-4	-4	-4	-4	-4	low to high hazard assessment; medium to high exposure assessment; and low to medium consequence assessment	-4	
Very High (5) -5		100 years-permanent -5	>300 ha -5	catastrophic effects to surrounding environment -5	<40% -5	community with very poor ecological fitness and a low degree of resilience -5	community with very poor economic and social fitness and a low degree of resilience -5	high risk (5): low to high hazard assessment; medium to high exposure assessment; and medium to high consequence assessment		

Notes: Numbers in parenthesis ( ) equals numerical weighting value. * Descriptors for reversibility are opposite to the effects descriptors.
** Risk characterization adapted from Van Zyl, Koval and Li (1992).

Likelihood:

Probability of Occurrence:

Based on professional judgment

1 = None
2 = Low probability of occurrence
3 = Medium probability of occurrence
4 = High probability of occurrence

Uncertainty:

Based on scientific information, social research or professional judgment

1 = Low level of confidence
2 = Medium level of confidence
3 = High level of confidence
NA = Not Applicable

8 Appendix C: Summary of Contacts

Contact Date	Method of Contact	Parties Represented	Individuals Involved	Topics	Project Comments / Issues
13/07/2006	Telephone call	Bill Slater Environmental Research Northwest	Bill Slater Malcolm Taggart	Current status of LSCFN's planned participation in YESSA SE process from FN's consultant's view	Suggested contacting Susan Davis of the LSCFN for permission to read 3 background/position papers prepared for the FN then contact Doug Urquart and Alan Young (LSCFN consultants on community consultation and socio-economic issues respectively). LSCFN looking to having a meeting week of July 24, 2006 to plan further response.
19/07/2006	Telephone call	Doug Urquart Research Northwest	Doug Urquart Malcolm Taggart	LSCFN position on community consultation, best route forward?	Advised contacting Susan Davis for permission to read background/position paper on community consultation
25/07/2006	Telephone call	Carmacks Development Corp Research Northwest	James Wilson, CEO Malcolm Taggart	Carmacks Development position on SE issues around proposed mine development	Asked to be called back July 26, 2006
26/07/2006	Telephone call	Carmacks Development Corp Research Northwest	James Wilson, CEO Malcolm Taggart	Carmacks Development position on SE issues around proposed mine development	Postponed discussion to July 27, 2006
27/07/2006	Telephone call	Carmacks Development Corp Research Northwest	James Wilson, and Chris Ballard Malcolm Taggart	Carmacks Development position on SE issues around proposed mine development	Considerable interest in economic opportunities expressed but could not be very specific as Corporation is in the midst of strategic planning exercise

28/07/2006	E-mail correspondence	LSCFN Research Northwest	Susan Davis Malcolm Taggart	Request for permission to read 3 background/position papers prepared for LSCFN on: community consultation, SE effects, and environmental effects of Carmacks Copper project	No response
01/08/2006	Telephone call	LSCFN Research Northwest	Susan Davis Malcolm Taggart	Request for permission to read 3 background/position papers prepared for LSCFN on: community consultation, SE effects, and environmental effects of Carmacks Copper project	Left voice mail message
03/08/2006	Telephone call	LSCFN Research Northwest	Susan Davis Malcolm Taggart	Request for permission to read 3 background/position papers prepared for LSCFN on: community consultation, SE effects, and environmental effects of Carmacks Copper project	Voice mail box full
03/08/2006	Telephone call	Carmacks Recreation Research Northwest	Dennis Mitchell Malcolm Taggart	Recreation infrastructure baseline information and capacity of that infrastructure to handle an increase in population	Left message
04/08/2006	Telephone call	LSCFN Research Northwest	Susan Davis Malcolm Taggart	Request for permission to read 3 background/position papers prepared for LSCFN on: community consultation, SE effects, and environmental effects of Carmacks Copper project	Voice mail box full
04/08/2006	E-mail correspondence	LSCFN Research Northwest	Susan Davis Malcolm Taggart	Request for permission to read 3 background/position papers prepared for LSCFN on: community consultation, SE effects, and environmental effects of Carmacks Copper project	No response

04/08/2006	Telephone call	YTG Community Services Research Northwest	Terry Bidniak Malcolm Taggart	Baseline data on nature and status of planned sewage system for Carmacks	The type of system to be built is not yet known, two possibilities still under consideration. Funding through CSI fund tied to other community's projects. Current system serves downtown area only and is designed to handle a population of approximately 200.
16/08/2006	Telephone call	LSCFN Research Northwest	Susan Davis Malcolm Taggart	Request for permission to read 3 background/position papers prepared for LSCFN on: community consultation, SE effects, and environmental effects of Carmacks Copper project	Left message
16/08/2006	E-mail correspondence	LSCFN Research Northwest	Susan Davis Malcolm Taggart	Request for permission to read 3 background/position papers prepared for LSCFN on: community consultation, SE effects, and environmental effects of Carmacks Copper project	No response
16/08/2006	Telephone call	Yukon Justice Research Northwest	Dan Cable Malcolm Taggart	Request for information/feedback on how YTG Justice percieves possible effects of development and the department's planned response	Dan will circulate questions in department
17/08/2006	Telephone call	RCMP Research Northwest	Russ Millward Malcolm Taggart	Request for information/feedback on how RCMP percieves possible effects of development and the department's planned response	Left message
17/08/2006	Telephone call	Carmacks Recreation Research Northwest	Dennis Mitchell Malcolm Taggart	Recreation infrastructure baseline information and capacity of that infrastructure to handle an increase in population	Left message

17/08/2006	Telephone call	YTG Health Research Northwest	Caitlin Kerwin Malcolm Taggart	Request for information/feedback on health infrastructure in Carmacks and how YTG Health percieves possible effects of development and the department's planned response	Caitlin will circulate questions in department
17/08/2006	Telephone call	YTG Environment Research Northwest	Helen Slama Malcolm Taggart	Request for trapping data around mine site	Data forthcoming
22/08/2006	Telephone call	Selkirk First Nation Research Northwest	Roger Alfred Malcolm Taggart	Arrange meeting in Pelly Crossing to discuss consultation protocol	Meeting arranged for August 23, 2006
22/08/2006	Telephone call	Selkirk First Nation Research Northwest	Beverly Brown Malcolm Taggart	Discuss possible consultation with Selkirk First Nation	Of the opinion that a Dooli process will be required for consultation
23/08/2006	Meeting	Selkirk First Nation Research Northwest	Roger Alfred Malcolm Taggart	Discuss possible consultation with Selkirk First Nation	Of the opinion that a Dooli process will be required for consultation. Provided extensive information on how Dooli process works and what it costs.
24/08/2006	Meeting	Carmacks Recreation Research Northwest	Dennis Mitchell Malcolm Taggart	Discussion of likely impacts on Carmacks recreation infrastructure	See report.
24/08/2006	Meeting	Village of Carmacks Research Northwest	Elaine Wyatt and Cory-Lynn Bellmorer Malcolm Taggart	Wide ranging discussion of likely impacts on Carmacks municipal infrastructure and the wider community	See report.

24/08/2006	Meeting	LSCFN Research Northwest	Susan Davis Malcolm Taggart	Very brief discussion	Received permission to read 3 background papers prepared fro the LSCFN. Was informed that the LSCFN would contact Western Copper to discuss moving forward in the YESAA process sometime in the next few weeks.
25/08/2006	Telephone call	LSCFN Research Northwest	Alan Young Malcolm Taggart	Left message requesting copy of socio-economic effects background paper prepared for LSCFN	
25/08/2006	Telephone call	LSCFN Research Northwest	Doug Urquart Malcolm Taggart	Left message requesting copy of consultation background paper prepared for LSCFN	
28/08/2006	E-mail correspondence	LSCFN Research Northwest	Doug Urquart Malcolm Taggart	Received copies of socio-economic effects and consultation background papers prepared for LSCFN	
29/08/2006	Telephone call	YTG Environment Research Northwest	Carole Domes Malcolm Taggart	Expected fur data will be delayed	
29/08/2006	Telephone call	Yukon Justice Research Northwest	Dan Cable Malcolm Taggart	Response from YTG Justice is delayed	
29/08/2006	Telephone call	YTG Health Research Northwest	Violet Van Hees Malcolm Taggart	Response from YTG Health is delayed but will be forthcoming	
01/09/2006	Telephone call	YTG Environment Research Northwest	Carol Domes Malcolm Taggart	Expected fur data will be delayed further	

01/09/2006	E-mail correspondence	YTG Health Research Northwest	Violet Van Hees Malcolm Taggart	Received written response from YTG Health	
01/09/2006	E-mail correspondence	YTG Justice Research Northwest	Carole Williams Malcolm Taggart	Received written response from YTG Justice	
08/09/2006	E-mail correspondence	YTG Environment Research Northwest	Carol Domes Malcolm Taggart	Received trapping data from YTG Environment	
24/10/2006	Telephone call	Mervyn's Outfitting Research Northwest	Tim Mervyn Malcolm Taggart	Potential effects on outfitting business	Little to no direct effects expected. Some possible indirect effects, see report.
23/01/2007	E-mail correspondence	Village of Carmacks Access Consulting Group	Cory-Lynn Bellmore Nichole Speiss	Mine related road traffic routes through Carmacks; Zoning for single status accommodation building	Feedback on possible routes but no preference at this time. Appropriate zones provided, see report.
02/02/2007	Meeting	Village of Carmacks Western Copper	Cory-Lynn Bellmore Jonathan Clegg	Mine related road traffic routes through Carmacks; Zoning for single status accommodation building	Further feedback on possible routes through the Village and potential locations for accommodation building west of downtown.

9 Appendix D: Selkirk First Nation October 17, 2006 Letter

Selkirk First Nation

P.O. Box 40, Pelly Crossing, Yukon Territory Y0B 1P0
Phone: (867) 537-3331 Fax: (867) 537-3902

- Envelope post marked 27 Oct.
- Received Van office 1 Nov
- Opened 6th Nov. (In Inuvik 1–3 Nov)

October 17, 2006

Jonathan Clegg
Western Copper
2050-1111 West Georgia St.
Vancouver, BC

Dear Mr. Clegg:

Re: Western Copper Carmacks Copper Project

We are in receipt of your letter dated October 11, 2006 in which you request Selkirk First Nation's views in relation to the Carmacks Copper Project.

At this time, SFN is unable to participate with your needs for the YESAB application. In general, SFN is fully involved with the other mining interest on our Settlement Land and this neighboring project is consuming our entire energy in regards to staff, resources and time. Consequently, we regret to express that Selkirk First Nation is presently unable to meet with you anytime in the foreseeable future.

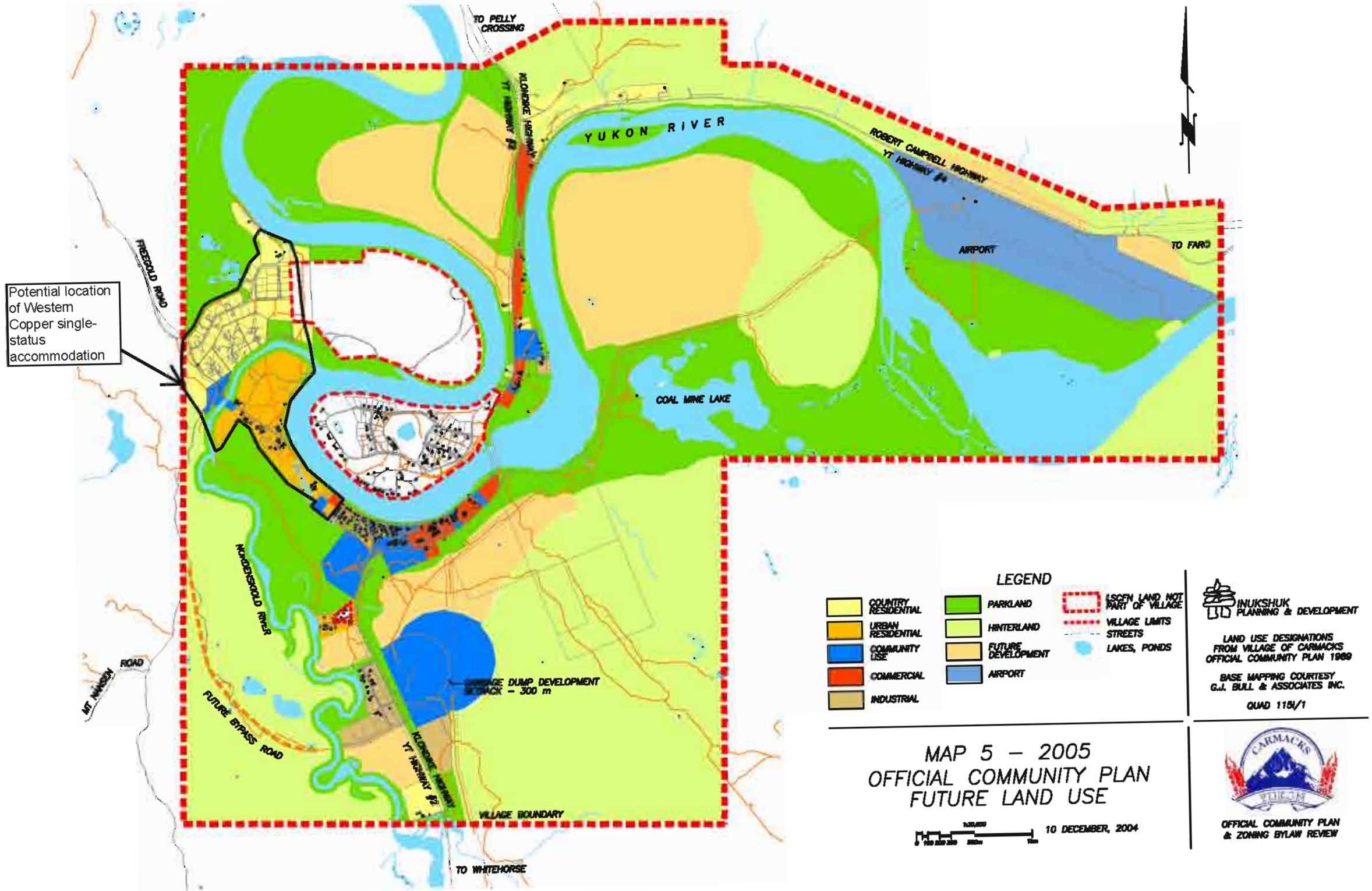
In addition, please be aware that SFN is wary of your interpretation of your "presentation" at the SFN General Assembly. Our recollection is that we had invited Western Copper to set an information booth at the GA grounds. This was done by your company by hanging posters for a few hours in the dining hall and answering random questions from the general public. This is not to be interpreted as a presentation to our membership. Our consultation process is clear as to how information is to be presented to the membership.

Sincerely,

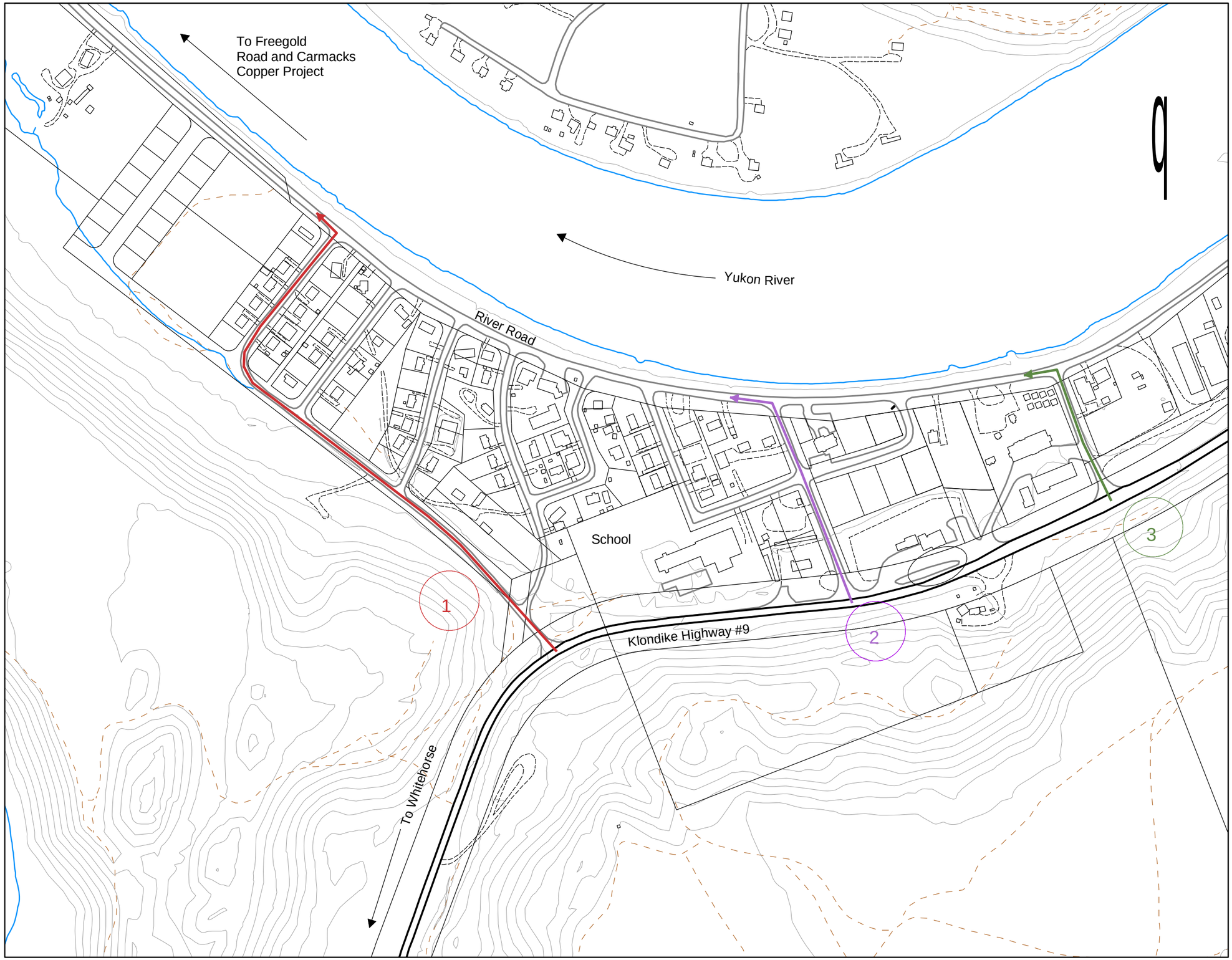
Chief Darin Isaac

cc LSCFN Chief Eddie Skookum

10 Appendix E: Village of Carmacks Official Community Plan Future Land Use Map


TO PELLY CROSSING
KLONDIKE HIGHWAY
YT HIGHWAY #2
YUKON RIVER
ROBERT CAMPBELL HIGHWAY
YT HIGHWAY #4
AIRPORT
TO FARO
FREEGOLD ROAD
Potential location of Western Copper single-status accommodation
COAL MINE LAKE
NORDENSKOLD RIVER
MT. HINDEN ROAD
FUTURE BYPASS ROAD
GARBAGE DUMP DEVELOPMENT SETBACK - 300 m
KLONDIKE HIGHWAY
YT HIGHWAY #2
VILLAGE BOUNDARY
TO WHITEHORSE
LEGEND
COUNTRY RESIDENTIAL
URBAN RESIDENTIAL
COMMUNITY USE
COMMERCIAL
INDUSTRIAL
PARKLAND
HINTERLAND
FUTURE DEVELOPMENT
AIRPORT
LSCFN LAND NOT PART OF VILLAGE
VILLAGE LIMITS
STREETS
LAKES, PONDS
INUKSHUK PLANNING & DEVELOPMENT
LAND USE DESIGNATIONS FROM VILLAGE OF CARMACKS OFFICIAL COMMUNITY PLAN 1999
BASE MAPPING COURTESY G.J. BULL & ASSOCIATES INC.
QUAD 115I/1
MAP 5 – 2005
OFFICIAL COMMUNITY PLAN
FUTURE LAND USE
10 DECEMBER, 2004
CARMACKS YUKON
OFFICIAL COMMUNITY PLAN & ZONING BYLAW REVIEW

11 Appendix F: Proposed Industrial Traffic Routes Through the Village of Carmacks



Carmacks Copper Project
Yukon Territory

Western Copper Corporation

Legend

- Paved Roads
- Gravel Roads
- Trails
- Contours
- Waterbodies
- Wetlands

Proposed Industrial Traffic Routes

1. Rowlinson Drive
2. Nansen Drive
3. Freegold Road

Proposed Industrial Traffic Routes Through the Village of Carmacks

1:4,000

0 50 100 150 200 m

ACCESS CONSULTING GROUP

Drawn by: NS	Checked by: DDC
Date: January 23, 2007	Figure 1

Our File: D:\Project\AllProjects\WCH-01\gis\mxd\route_thru_VoC\Routes_thru_VoC.mxd