Coffee Gold Mine

YESAB Project Proposal

Appendix 20-A Economic Conditions Valued Component Assessment Report

VOLUME IV

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ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	Definition
CPI	Consumer Price Index
Dawson	City of Dawson
EPCM	Engineering, Procurement, and Construction Management
FNNND	First Nation of Na-cho Nyäk Dun
FTE	full-time equivalent
GDP	gross domestic product
Goldcorp	Kaminak Gold Corporation, a wholly owned subsidiary of Goldcorp Inc.
HR	human resources
IC	Intermediate Component
IO	input-output
KDO	Klondike Development Organization
LAA	Local Assessment Area
MIHR	Mining Industry Human Resources
NAICS	North American Industry Classification System
NAR	Northern Access Route
NHS	National Household Survey
NOC	National Occupational Classification
Project	Coffee Gold Mine
Proponent	Kaminak Gold Corporation, a wholly owned subsidiary of Goldcorp Inc.
QMA	*Quartz Mining Act*
RAA	Regional Assessment Area
SEMS	(Goldcorp) Sustainability Excellence Management System
SFN	Selkirk First Nation
TH	Tr'ondëk Hwëch'in
TK	Traditional Knowledge
U.S.	United States
VC	Valued Component
WRFN	White River First Nation
YBS	Yukon Bureau of Statistics
YGED	Yukon Government Economic Development
YESAA	Yukon Environmental and Socio-Economic Assessment Act
YESAB	Yukon Environmental and Socio-economic Assessment Board
YGED	Government of Yukon Economic Development

SYMBOLS AND UNITS OF MEASURE

Symbol / Measurement	Definition
%	percent
km	kilometre
km^2	square kilometre

1.0 INTRODUCTION

Kaminak Gold Corporation, a wholly owned subsidiary of Goldcorp Inc. (Goldcorp or Proponent), is proposing to construct and operate a high-grade, open-pit gold mine in west-central Yukon on its property located approximately 214 kilometres (km) south of the City of Dawson (Dawson) by access road in the White Gold District. The proposed Coffee Gold Mine (Project) is located on Crown land within the established Traditional Territory of the Tr'ondëk Hwëch'in (TH) and the asserted territory of White River First Nation (WRFN). The Northern Access Route (NAR) is located within TH Traditional Territory, and portions are located within the shared Traditional Territories of Selkirk First Nation (SFN), the First Nation of Na-cho Nyäk Dun (FNNND), and the asserted territory of WRFN. The Project is scoped as an open pit gold mine using a cyanide heap leach process to extract ore. It consists of a 3-year Construction Phase and an 11-year mine life with an average Operation rate of 5 million tonnes per annum of heap leach feed, producing 2.5 million ounces of gold over the life of the mine.

The information provided in this assessment report supports the Project Proposal to be submitted to the Yukon Environmental and Socio-economic Assessment Board (YESAB) Executive Committee for screening under the *Yukon Environmental and Socio-Economic Assessment Act*, SC 2003, c. 7 (YESAA), and applications to be submitted for a Quartz Mining Licence and a Type A Water Licence from the Yukon Water Board, among other permits and licences.

This report presents the results of the assessment of potential Project-related effects and cumulative effects on Economic Conditions, including the following:

- Scope of assessment – issues scoping; description of the Valued Component (VC) selection process and outcome; and the establishment of spatial and temporal assessment boundaries
- Existing conditions relevant to Economic Conditions
- Potential Project – Economic Conditions interactions with specific Project components and activities; potential adverse effects to Economic Conditions; mitigation measures to eliminate, reduce, or control these adverse effects; and potential residual adverse effects, including significance and likelihood
- Potential cumulative effects to the VC due to interactions between the residual effects of the Project and the residual effects of other past, present, and future projects and activities; potential adverse cumulative effects on Economic Conditions; mitigation measures to eliminate, reduce, or control these adverse effects; and potential residual adverse cumulative effects, including significance and likelihood
- Monitoring to verify assessment predictions and evaluate mitigation effectiveness
- Adaptive management program(s) to address any unexpected Project-related effects on Economic Conditions.

The assessment of Economic Conditions considers the following topics: income and income distribution and the money received by individuals and its distribution among members of a society; labour market and the supply of available workers in relation to demand by employers; and sustainable economic development, consisting of local and territorial economic activity and cycles.

This section presents a description of the process used to select Economic Conditions as a VC, including inputs considered to identify issues, and the rationale for VC selection. Specifically, the scope of assessment includes:

- Identification of any Intermediate Components (ICs) along the same pathway of effects as the VC and descriptions of how an understanding of potential Project-related changes to the ICs support the assessment of Project-related effects on the VC
- Identification and justification of the spatial and temporal boundaries within which the assessment was conducted
- Identification and descriptions of the indicators used to evaluate potential adverse effects and characterize potential residual effects to the VC.

1.1 ISSUES SCOPING

Through baseline studies undertaken during the Project's Feasibility Study (July 2014 to December 2015) (JDS 2016) and subsequent **Socio-economic Baseline Report** (December 2015 to April 2016; **Appendix 18-A**), the Socio-economic Project team reviewed a mine plan and detailed technical information related to socio-economic values in the vicinity of the Project, including the Mine Site and the NAR. Available information regarding other existing and proposed quartz mining projects in Yukon was reviewed, including environmental and socio-economic assessments. A comprehensive primary data collection program identified issues and concerns through key informant interviews, focus groups, and surveys with communities, stakeholders, and First Nations. **Section 3.0 Consultation and Engagement** of the Project Proposal summarizes the Proponent's consultation and engagement with First Nations, the public, and Yukon and Federal Government agencies. All of this information supported scoping of the effects assessment, including the identification of candidate VCs, selection of the Economic Conditions VC, and the establishment of assessment boundaries for Economic Conditions.

1.2 SELECTION OF THE ECONOMIC CONDITIONS VALUED COMPONENT

Economic Conditions was selected as a VC based on the VC selection process set out in **Section 5.0 Assessment Methodology** of the Project Proposal.

1.2.1 CANDIDATE VALUED COMPONENTS

The key steps in the VC selection process are described in this section. Issues scoping (**Section 1.1**) played an important role in identifying Economic Conditions as a Candidate VC.

1. **Identification of Candidate VCs**: Economic Conditions is an important socio-economic value, and was identified as a candidate VC at the onset of the **Socio-economic Baseline Report** (**Appendix 18-A**) development. Specifically, the economy was identified as a dimension of sustainability in the City of Dawson's and TH's Integrated Community Sustainability Plan (City of Dawson and TH n.d.). Moreover, YESAA includes consideration of economies in its definition of socio-economic effects. The Project is anticipated to increase the need for goods and services, which has the potential to influence local and regional economic conditions, including the region's sustainable economic development. The Project is also anticipated to result in employment opportunities as well as employment-related labour income.

2. **Selection of VCs:** The Economic Conditions Candidate VC was refined and shaped though the Project's engagement and consultation process, as defined under Section 50 (3) of YESAA, to support the scoping of issues for the Project. This included potentially affected First Nations and communities, government agencies, and interested persons or other stakeholders who may be interested in the Project and its related activities. In addition, this consultation and engagement process included a Technical Working Group established with TH and government departments, as well as community meetings, one-on-one and small group meetings, and ongoing communications such as print communication, and newsletters, including specific presentations and discussions regarding key themes of interest and exploration of candidate VCs, including Economic Conditions, to represent the themes. Through secondary and primary research, as well as consultation and engagement activities, the selection of Economic Conditions as a VC was confirmed.

3. To support this discussion, **Table 1.2-1** illustrates the VC selection process that resulted in the selection of Economic Conditions as a VC.

Table 1.2-1 Candidate Valued Components – Evaluation Summary

Candidate VC	Project Interaction			Third-party Input		Supports the Assessment of Which Other VC?	Selected as a VC?	Decision Rationale
	Interaction?	Project Phase / Project Component / Activity	Nature of Interaction	Source	Input			
Economic Conditions	Yes	Construction, Operation, Reclamation and Closure	The Project will increase the need for goods and services, which has the potential to influence local and regional economic conditions, including the region's sustainable economic development. The Project will also result in employment opportunities as well as employment-related labour income. If Impact Benefit Agreements are developed with affected First Nations, the Project has the potential to influence the economic conditions of those respective First Nations and their citizens/members.	First Nations Public Stakeholder	Concerns related to: • Direct and indirect economic effects to the local and regional economies on an individual and community level (including boom and bust, sustainable economic development) • Ability to enhance potential benefits to economic conditions	Social Economy Community Infrastructure and Services Education and Training Land and Resource Use Community Health and Well-being	Yes	The Project will increase the need for goods and services, which has the potential to influence local and regional economic conditions, including the region's sustainable economic development. This VC enables the assessment of the Project's potential effects to labour market conditions through changes to employment and income.

1.2.2 SELECTED VALUED COMPONENT

Economic Conditions was selected as a VC to support the assessment of the Project's anticipated interactions with income and income distribution, the labour market, and sustainable economic development, while reflecting local values and feedback. The Project will increase the need for goods and services, which has the potential to influence local and regional economic conditions, including the region's sustainable economic development. Identification of this VC enables the assessment of the Project's potential effects to labour market conditions through changes to employment and income.

1.2.3 INDICATORS

Indicators are quantitative or qualitative measures used to describe existing VC conditions and trends, and evaluate potential Project-related effects and cumulative effects to the VC. Economic Conditions indicators and rationale for their selection are listed in **Table 1.2-2**.

Table 1.2-2 Indicators for the Economic Conditions Valued Component

Indicator	Rationale for Selection
Income and income distribution	Income and income distribution considers individual income, household income, and sources of income (i.e., employment income, government transfers, etc.), and how these may change with direct and indirect Project-related income.
Labour market	Labour market considers labour force characteristics (i.e., employment rate, unemployment rate, participation rate), employment by occupation and industry, and employment type and tenure. The existing labour force can indicate the extent to which the Project can fill labour requirements locally, and how the Project may influence change in labour market conditions through employment opportunities.
Sustainable economic development	Sustainable economic development considers local economies, gross domestic product, boom-and-bust economy, local business activities, cost of living, and government revenues. Sustainable economic development can be affected by the Project through changes to the aforementioned topics.

1.3 ESTABLISHMENT OF ASSESSMENT BOUNDARIES

This section identifies the spatial, temporal, administrative, and technical boundaries established for the assessment of Economic Conditions.

1.3.1 SPATIAL BOUNDARIES

The study areas for the Economic Conditions VC consist of a Local Assessment Area (LAA) and Regional Assessment Area (RAA), defined in **Table 1.3-1** and shown in **Figure 1.3-1**. Due to the nature of data availability for this VC as well as anticipated Project interactions, the LAA and RAA reflect government administrative boundaries, where such administrative boundaries are in place.

The LAA corresponds to the area closest to Project activities in which direct and indirect effects are most likely to be experienced. Given that the communities potentially affected by the Project are widely separated, the LAA consists of several discrete areas that capture the potential effects on economic conditions within several communities. The Economic Conditions VC LAA includes the communities of Whitehorse, Dawson, Beaver Creek, Pelly Crossing, and Mayo. Each of these communities may extend outside of the formal community boundaries, but the use of the administrative boundary of each community is considered to adequately capture potential Project-related effects. Due to Dawson's proximity to the Mine Site and NAR, it is anticipated that the community will provide labour, goods, and services required for the Project. Although Whitehorse is geographically distant from the Project it will also likely be a source of labour, goods, and services due to its size.

Dawson and Whitehorse will likely experience a population influx related to the Project. This influx may consist of workers directly employed by the Project, others hired for the delivery of goods and services indirectly associated with the Project, and workers in other industries who support the needs of the workforce (e.g., employees of grocery stores). In addition, speculative workers are also considered likely to add to local populations. Speculative workers are those who travel to a community seeking direct or indirect Project employment, which may also result in interactions with local economies.

The LAA also encompasses the communities of WRFN, SFN, and FNNND, respectively, reflecting the availability of economic data at the community scale. Not all the communities in the LAA have administrative boundaries; accordingly, the LAA boundaries were approximated based on the apparent physical boundaries of the communities. The LAA boundaries selected do not necessarily exclude from the assessment entities that may be located immediately adjacent to but outside those communities. Although these smaller communities are a further distance from the Project location and are unlikely to experience population influxes associated with the Project, it is anticipated that the communities can still provide a source of labour, goods, and services associated with the Project.

The RAA consists of the LAA as well as the Yukon Territory, reflecting the broader labour market and economy of the territory. The RAA is expected to function primarily as context for the assessment of potential economic effects in the LAA; it also may be used as a cumulative effects assessment area and to reflect some additional direct and indirect economic effects. To support employment and procurement needs for the Project, it is anticipated that labour, goods, and services will be sourced from Whitehorse and the broader territory. Royalties and other revenue generated by the Project are anticipated to contribute to Yukon's economy.

Table 1.3-1 Spatial Boundary Definitions for Economic Conditions

Spatial Boundary	Description of Assessment Area
Economic Conditions	
Local Assessment Area	The LAA includes the communities of City of Dawson, Whitehorse[1], Beaver Creek, Mayo, Pelly Crossing, WRFN, SFN, and FNNND.
Regional Assessment Area	The RAA includes the LAA and Yukon Territory

Note: For consistency between Statistics Canada and Yukon Bureau of Statistics (YBS) data sets for Whitehorse, the Statistics Canada Whitehorse Census Agglomeration data is provided, which corresponds with YBS census data for the Whitehorse Area, rather than the City of Whitehorse.

COFFEE GOLD MINE

Economic Conditions Assessment Area

Legend

- Highway
- National/International Border
- Project Footprint
- Local Assessment Area
- Regional Assessment Area

Notes

1. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

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Figure 1.3-1	Date: Mar 21, 2017	Drawn by: JS	Reviewed: DP

GOLDCORP

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1.3.2 TEMPORAL BOUNDARIES

The temporal boundaries established for the assessment of Project-related effects on Economic Conditions include all phases of the Project, as described in the Project Proposal (**Section 2.0 Project Description**). These include:

- Construction: 30 months
- Operation: 12-year mine life
- Reclamation and Closure: 11 years
- Post-closure: Undefined period of time following Reclamation and Closure.

Baseline data was gathered for a period of at least 10 years (wherever possible and applicable) to be as comparable as possible to the period proposed for Project's Operation Phase. This was to support the subsequent effects assessment (refer to **Section 4.0**) for a comparative temporal period, allowing consideration of baseline data trends and variations.

1.3.3 ADMINISTRATIVE BOUNDARIES

The LAA and RAA spatial boundaries have been defined to reflect Yukon Territory, local government boundaries, where possible, and apparent physical boundaries of communities, as described in **Section 1.3.1**, in which economic activities occur and labour forces exist. It is acknowledged that these spatial boundaries do not reflect the traditional territories of FNNND, SFN, and WRFN; however, due to the overlapping traditional territories of these communities, their administrative centres were selected as spatial area components. Due to the nature of data availability and potential Project-related effects related to the Economic Conditions VC, administrative boundaries and centres were selected as the spatial boundaries. Communities may extend outside of the city or census boundary, but the use of this administrative boundary is considered to adequately capture potential Project-related effects.

1.3.4 TECHNICAL BOUNDARIES

Technical boundaries refer to the constraints imposed on the assessment by limitations in the ability to assess the potential effects of the Project. The assessment of potential Project-related effects on Economic Conditions is not associated with technical boundaries; however, limitations to the accuracy or representation of available data exist with the underlying statistical information. Statistical data are provided by the YBS and Statistics Canada Census Program. It is understood that some communities, in particular smaller communities, may not be accurately reflected in statistical data due to sampling errors, rounding, and suppression. For instance, analyses are primarily based on Census 2011 data because limited data for 2016 was available at the time of this report's preparation. It is also understood that not all Aboriginal communities agree with the Census results or the Aboriginal Peoples Survey results. Although limitations to statistical data exist, the information provides among the few available published statistical data at the

community level across the entire study region, and provides an indication of existing conditions and trends. For a detailed discussion of statistical data limitations, refer to **Appendix 18-A Socio-economic Baseline Report**. The assessment of Project-related effects on Economic Conditions also relied on results of input-output (IO) modelling, which is further described in **Section 2.0**, including limitations.

2.0 ASSESSMENT METHODS

The Economic Conditions assessment, including the assessment of Project-related effects and cumulative effects, was conducted according to the methods set out in **Section 5.0 Assessment Methodology** of the Project Proposal. The assessment has been informed by input (e.g., Traditional Knowledge (TK), statistical, and other information) provided through consultation and engagement with government agencies, potentially affected First Nations, and the public.

2.1 INPUT–OUTPUT MODEL

The assessment of Project-related effects on Economic Conditions also relied on results of IO modelling performed by the Government of Yukon Economic Development (YGED) based on information provided by the Proponent. The IO model was run based on 2010 Statistics Canada IO multipliers, with level L61 – Metal Ore Mining selected as the production shock category. The IO model is a static model, which does not account for any changes in technology, prices, and patterns since 2010. The following provides assumptions regarding the IO model:

- The multipliers are based on the assumption of fixed technological coefficients. They do not take into account economies of scale, constraint capacities, technological change, externalities, or price changes (an externality is a cost or benefit that affects a party or environmental component that did not choose to incur that cost or benefit). This makes multiplier analysis less accurate for the long term and large impacts as firms adjust their production technology and the IO technological coefficients become outdated. Based on the assumption that firms adjust their production technology over time to become more efficient, multipliers are likely to over-estimate the impact of a change in final demand.
- The endogenization (internal development) of household consumption is based on the assumptions of constant consumption behaviour and fixed expenditure shares relative to incomes.
- It is generally acknowledged that simple and type I multipliers under-estimate economic impacts since household activity is absent, and total and type II multipliers over-estimate economic impacts because of the rigid assumptions about labour incomes and consumer spending. They can be considered as upper and lower bounds of multipliers effects.
- The estimate of the total number of jobs covers two main categories: employee jobs and self-employed jobs (including persons working in a family business without pay). The employee jobs are converted to full-time equivalence based on the overall average full-time hours worked in either the business or government sectors.
- The data source for the number of jobs calculated in the model is: CANSIM Table 383-0029 – Labour productivity and related variables by business sector industry, consistent with the North American Industry Classification System (NAICS) and the System of National Accounts, provinces and territories (Statistics Canada 2016b).
- Following the structure of the IO tables, the multipliers are organized according to three broad sectors of the economy: business, government, and non-profit institutions serving households sectors. The business sector is disaggregated by industry according to NAICS. The non-profit institutions serving households sector is disaggregated into the few industries where its activities

are concentrated and include a large aggregation of residual industries. The government sector, however, is disaggregated or separated, not by industry but by broad functions such as education, health, recreation, public administration, etc. Activities of government business enterprises operating for a profit are classified to business sector industries; however, agencies, commissions, and boards financed from public funds are classified to the government sector. This approach leads to differences from the non-sectored industrial classifications used by other programs in Statistics Canada.

- The "labour income" variable in the IO model combines “wages and salaries”, “supplementary labour income” and the labour income portion of "gross mixed income" (the net income of the unincorporated sector). The return to capital portion of “gross mixed income” is combined with the "gross operating surplus" variable.

The YGED also provides a summary of the limitations associated with IO modelling, including:

- “IO models treat all inputs as complements, excluding substitutes, which imply that increases in the demand for one input will only lead to demand increases for other inputs. The IO model does not consider price-adjusting behaviour or substitution effects.
- Because the model is entirely open, there is no scarcity of resources. The economy is assumed to have limitless amounts of all the inputs it requires.
- IO models produce a snapshot of the economy at a given point in time. Structural changes in the economy over time will reduce the validity of results produced by IO models.
- Statistics Canada no longer provides multipliers from partially closed models to produce induced-effects multipliers resulting from re-spending of labour income within the economy. Therefore, IO multipliers differ substantially from true Keynesian multipliers, which include both indirect and induced multiplier effects.
- Analysis based on IO models does not explicitly consider alternatives and tends to show only benefits of expenditures while ignoring costs.
- The impacts considered through the IO model are short-term and at the margin: there is no consideration of whether the economy has the capacity to incorporate the changes and whether changes in production are sustainable or cost competitive.” (YGED 2009).

3.0 EXISTING CONDITIONS

This section describes existing economic conditions, including the regulatory context for the Economic Conditions VC, based on TK, statistical and other information, and baseline studies conducted during the Project's Feasibility Program.

3.1 REGULATORY CONTEXT

The following legislation, regulations, and government-led programs are relevant to the Economic Conditions VC, which considers the following: income and income distribution, money received by individuals and its distribution among members of a society; labour market; the supply of available workers in relation to demand by employers; and sustainable economic development, consisting of local and territorial economic activity and cycles.

The Yukon *Employment Standards Act*, RSY 2002, c.72, and associated regulations (e.g., Minimum Wage Regulations and Minimum Wage Order No. 2012/01) set out standards for hours of work, minimum wages, annual vacations, general holidays, maternity and parental leave, equal pay, termination of employment, special leave without pay, and payment of wages, among other topics. Under the *Canadian Human Rights Act*, RSC 1985, c.H-6, and the federal Aboriginal Employment Preferences Policy, it is not a discriminatory practice for an employer to give preferential treatment to Aboriginal persons in hiring, promotion, or other aspects of employment when the primary purpose of the employer is to serve the needs of Aboriginal people.

Individuals from outside of Canada can work in Yukon to fill employer needs through federal and territorial programs such as the Yukon Nominee Program, Temporary Foreign Worker Program, and Foreign Qualifications Recognition. The Yukon Nominee Program is designed to fill permanent full-time jobs, and the Temporary Foreign Worker Program provides individuals with permits to gain employment in Canada to fill temporary labour shortages. The Temporary Foreign Worker Program is administered by Human Resources and Skills Development Canada and Immigration, Refugees and Citizenship Canada.

The Yukon *Economic Development Act*, RSY 2002, c.60, and associated regulations (e.g., Energy Infrastructure Loans for Resource Development Regulation) prioritize continued development of a vigorous and sustainable economy. Powers and duties of the Minister include but are not limited to: encouraging the development of the Yukon economy in an environmentally and socially sensitive manner; working to increase Yukon's share of the net economic benefits from development (i.e., increased Yukon business ownership, employment); promoting community economic development; and encouraging development through diversification and growth in all sectors of the economy. The *Economic Development Act* also legislates the Yukon Council on the Economy and the Environment, economic development programs, and financial assistance programs, among others. The Act identifies four goals of the Yukon Government with respect to economic development:

- Provide the people of Yukon with control over the economic future of Yukon
- Work toward equal economic opportunity for all persons living in Yukon
- Preserve and enhance the quality of life in Yukon by encouraging business opportunities and services to the public as nearly comparable as practicable with the rest of Canada, but consistently with the principles of sustainable development and the social and environmental values and interests of the people of Yukon
- Provide the people of Yukon with the option to stay in Yukon.

The Yukon *Quartz Mining Act*, SY 2003, c.14 (QMA), includes provisions regarding the payment of annual royalties to the Crown, and the Quartz Mining Royalty Regulation (OIC 2010/51) provides the mechanism for determining the royalty due on a mine in commercial production.

3.2 BACKGROUND INFORMATION AND STUDIES

This section presents details on the background information and studies conducted to inform the assessment of Economic Conditions. It includes information on the TK, scientific, and other information, and baseline studies conducted to characterize the existing conditions for this VC.

3.2.1 TRADITIONAL KNOWLEDGE

Traditional Knowledge related to Economic Conditions was generally obtained through previous reports, and provided an understanding of past and present economic activities and considerations for sustainable economic development. Most TK information related to economics is more applicable to the Social Economy VC; a description of TK information is found in **Appendix 21-A Social Economy Valued Component Assessment Report**.

3.2.2 SCIENTIFIC AND OTHER INFORMATION

Baseline conditions were identified through desktop research, as well as through primary research activities including a survey, focus group, and interviews with key informants.

Existing economic conditions in the LAA and RAA were documented from statistical data sources including Statistics Canada (2001, 2006, and 2011 Census of Population and 2011 National Household Survey), and various published reports from the YBS. Local published reports prepared by organizations in the LAA provided detailed existing economic conditions information for communities in the LAA.

A survey was conducted with local businesses in the Dawson area from January 26, 2016 to March 24, 2016. The objective of the survey was to gain a better understanding of the local economic setting by learning more about the existing local economy, labour market conditions, and economic development. A local business focus group for businesses in the Dawson area was held on February 9, 2016. The three

main topics explored during the focus group included: the existing business environment, existing employment conditions, and sustainable economic development (including boom and bust cycles).

Semi-structured informational interviews were also conducted with representatives from various agencies and organizations to confirm and enhance the understanding of desktop research findings. Information related to the local labour market, boom and bust economy, economic development, and cost of living were discussed, in addition to related socio-economic factors that influence economic conditions. This included the current availability of housing and accommodations in the Klondike Region.

3.2.3 BASELINE STUDIES CONDUCTED DURING THE PROJECT'S FEASIBILITY PROGRAM

Appendix 18-A Socio-economic Baseline Report presents a description of the existing socio-economic and health conditions for the Project **(Table 3.2-1**). The baseline report was developed to support the assessment of potential Project related socio-economic and health effects, including Economic Conditions. It was informed by local secondary and primary data, as well as by consultation with regulators, First Nations, and communities. Primary research was conducted, where possible, to address data gaps and enhance desktop research results. Specific primary data collection methods included semi-structured information interviews, focus groups following a semi-structured group interview format, and paper and digital surveys.

Table 3.2-1 Summary of Desktop and Field Studies Related to Economic Conditions

Study Name	Study Purpose, Duration and Spatial Boundaries
Appendix 18-A Socio-economic Baseline Report	The Socio-economic Baseline Report describes the existing socio-economic and health conditions for the Project. Through this report, the existing socio-economic and health landscape is introduced, and the Project's socio-economic and health IC and VCs are described. The study began in December 2015 and was completed in April 2016.

3.3 DESCRIPTION OF EXISTING CONDITIONS

This section describes the economic conditions in the LAA and RAA of the Project, with a focus on the following topics:

- Income and income distribution
- Labour market
- Sustainable economic development.

3.3.1 INCOME AND INCOME DISTRIBUTION

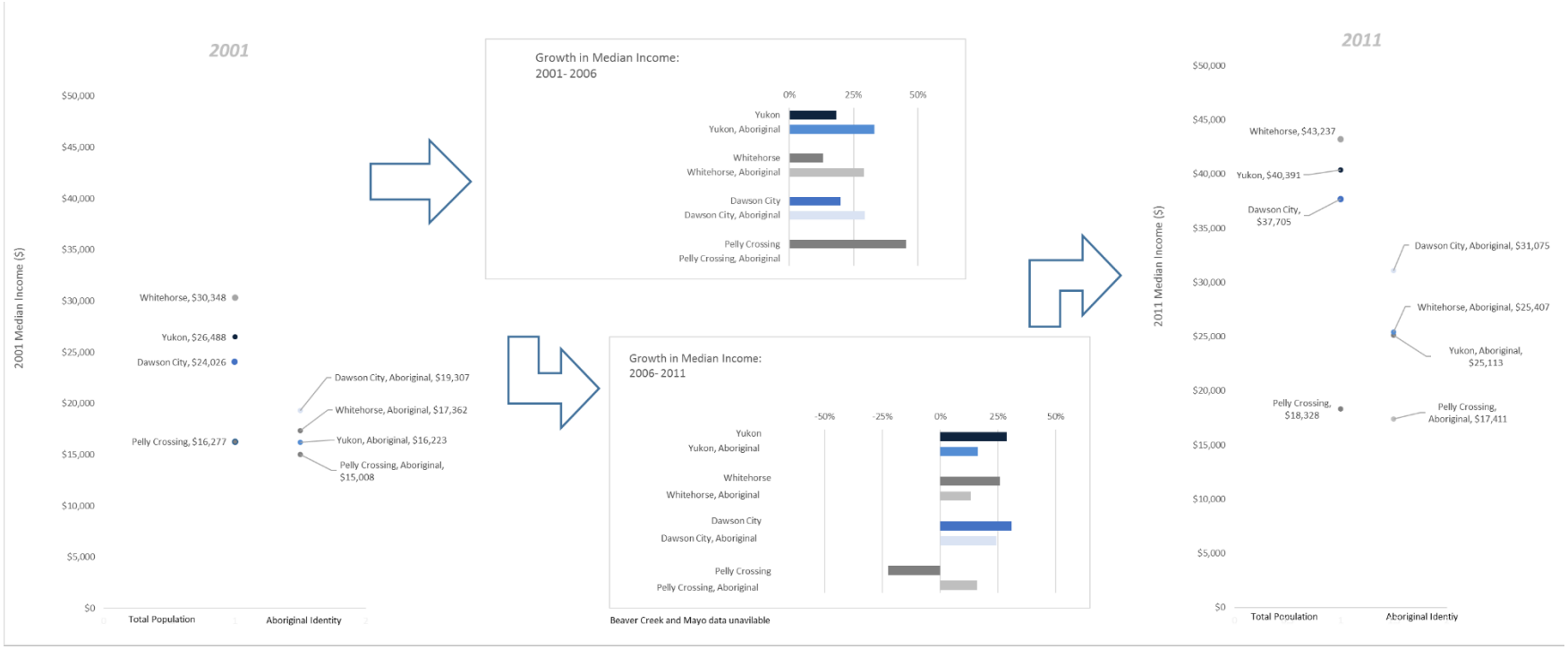
There is variability in income levels and distribution across potentially affected communities in the LAA and RAA, as well as in the context of the broader territory **(Table 3.3-1**). Of the LAA communities with available data, Whitehorse had the highest median individual income in 2011 ($43,237), although the highest median individual income for those of Aboriginal identity was in Dawson ($31,075). Results of the local business survey indicate that average wages paid to employees across various industries in Dawson range between $15 and over $25 per hour. The opinion of the majority of survey participants (52 percent (%)) indicated that average wages have increased over the last two years. This result reflects data reporting median income to Statistics Canada between 2001 and 2011 (**Figure 3.3-1)**, as well as average income reported to the Canada Revenue Agency between 2004 and 2013 (**Figure 3.3-2)**. These data demonstrate increasing values for median and average incomes in Dawson (Statistics Canada 2003, 2007a, 2007b, 2013a, 2013b; YBS 2016a). “Decent” wages were defined through primary data collection as a component of retaining staff and growing a healthy business community in Dawson (Interview 20, Personal Communication 2016, Interview 23, Personal Communication 2016).

Table 3.3-1 Median Individual and Household Income in Local and Regional Assessment Areas

Location	Median Individual Income for Population 15+ ($)			Median Household Income for Population 15+ ($)
	Total	Male	Female	Total
RAA				
Yukon (total)	$40,391	$42,867	$37,899	$75,944
Yukon (Aboriginal identity)	$25,113	$22,674	$28,311	$58,551
LAA				
Whitehorse Area (total)	$43,237	$46,745	$40,580	$82,345
Whitehorse Area (Aboriginal identity)	$25,407	$23,633	$28,646	$70,318
Pelly Crossing (total)	$18,328	$17,517	$18,920	$50,829
Pelly Crossing (Aboriginal identity)	$17,411	$16,154	$18,387	$50,081
Mayo	Data for this area has been suppressed for data quality or confidentiality reasons.			
Beaver Creek	Data for this topic has been suppressed to meet confidentiality requirements of the *Statistics Act*.			
Dawson (total)	$37,705	$41,107	$34,697	$60,072
Dawson (Aboriginal identity)	$31,075	$46,666	$31,025	$55,002

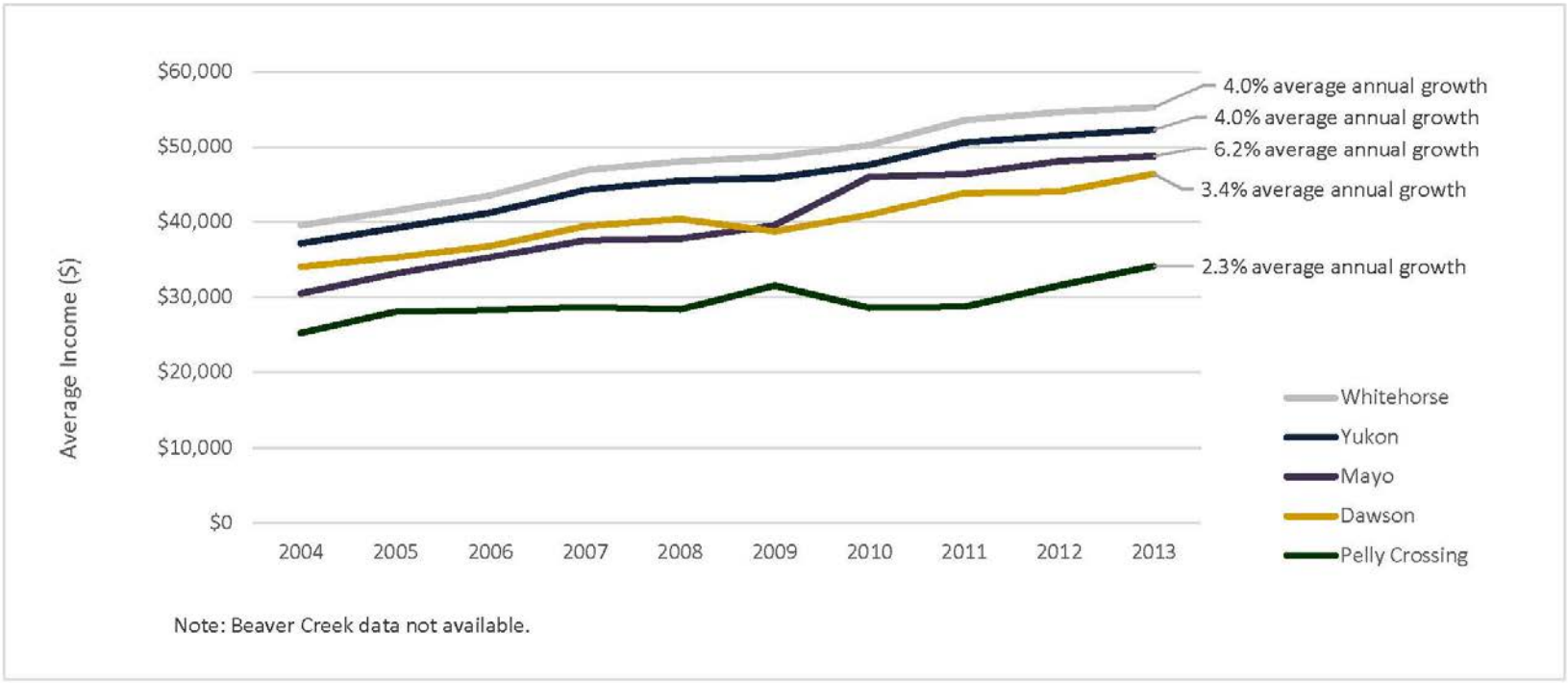
Source: Statistics Canada 2013a, 2013b

Notes: Yukon total and Aboriginal identity includes all data for the territory, including RAA and LAA communities. Total includes Aboriginal identity populations.



Sources: Statistics Canada 2003, 2007a, 2007b, 2013a, 2013b

Figure 3.3-1 Change in Median Income 2001 to 2011 in the Local and Regional Assessment Areas



Source: YBS 2016a

Figure 3.3-2 Change in Average Income 2004 to 2013 in the Local and Regional Assessment Areas

Gender differentials in median individual incomes were identified in LAA communities. In general, median incomes for males in LAA communities (total population) were approximately $5,000 to $6,000 greater than incomes for females in 2011 (**Table 3.3-1**). The gender differential for Yukon as a whole was approximately $5,000. However, in contrast with the total population, median female incomes were greater than the income for males for the Aboriginal population, with the exception of Dawson. Dawson demonstrated the greatest discrepancy between male and female median income ($46,666 for males and $31,025 for females); however, all female incomes for Aboriginal populations in the rest of the LAA were approximately $2,000 to $6,000 greater than incomes for males. Between 2001 and 2011, all LAA communities experienced overall increases in median individual income, ranging from 12.6% in Pelly Crossing to 56.9% in Dawson (Statistics Canada 2003, 2007a, 2007b, 2013a, 2013b).

Median household income for adult populations (aged 15 years and over) also varied across communities in the LAA (**Table 3.3-1**). Reflecting median individual income, median household income in 2011 for the total population of communities was greater than the median household income for Aboriginal populations. Of the LAA communities with available data, Whitehorse had the greatest median household income in 2011 ($82,345), followed by Dawson ($60,072). As Whitehorse's adult population (aged 15 years and over) comprises a large proportion of Yukon's total adult population (76.7% in 2011), this influences Yukon's median household income, which was $75,944 in 2011 (Statistics Canada 2013a, 2013b).

The composition of total income sources for the adult population (aged 15 years and over) varied across the communities (**Table 3.3-2**). Income sources are presented by employment income (e.g., wages and salaries), other market income (e.g., investment income and retirement income), and government transfer payments (i.e., benefits received from federal, provincial, territorial, or municipal governments). Income from employment in 2011 was above 70% for all communities, with the greatest proportions in Dawson for both total and Aboriginal populations (85.5% and 83.7%, respectively). Employment income for Aboriginal populations in 2011 was 2% to 7% less than the corresponding proportions for the total populations in communities. The composition of government transfer payments as a proportion of total income for Aboriginal populations was greater than total populations in the LAA and RAA. In 2011, Whitehorse's adult population (aged 15 and over) had the least proportion of their income from government transfer payments (7.8%), while the Aboriginal population of Pelly Crossing had the greatest (25.4%) (Statistics Canada 2013a, 2013b).

Table 3.3-2 Income Sources in the Local and Regional Assessment Areas

Location	Market Income		Government Transfer Payments (%)
	Employment Income (%)	Other Market Income (%)	
RAA			
Yukon (total)	81.8	9.0	9.2
Yukon (Aboriginal identity)	76.6	5.6	17.8
LAA			
Whitehorse (total)	82.8	9.5	7.8
Whitehorse (Aboriginal identity)	84.9	5.9	15.2
Pelly Crossing (total)	74.7	5.5	21.5
Pelly Crossing (Aboriginal identity)	70	3.4	25.4
Mayo	Data for this area has been suppressed for data quality or confidentiality reasons.		
Beaver Creek	Data for this topic has been suppressed to meet confidentiality requirements of the *Statistics Act*.		
Dawson (total)	85.5	5.1	9.3
Dawson (Aboriginal identity)	83.7	5.2	11

Source: Statistics Canada 2013a, 2013b

Notes: Yukon total and Aboriginal identity includes all data for the territory, including RAA and LAA communities. Total includes Aboriginal identity populations.

3.3.2 LABOUR MARKET

This section provides information on the labour force and employment characteristics of the LAA and RAA, including labour force size, participation rates (employed or actively seeking employment), unemployment rates, occupations and industries, employment type and tenure, and identification of future labour force trends.

3.3.2.1 Labour Force

The labour force includes the adult population (aged 15 years and older) that is working, looking for work or willing to work, including both those employed or unemployed. It does not include adults who have opted out of seeking wage employment. Labour force data for Yukon are available for 2015, and identify high participation rates and low unemployment rates (**Table 3.3-3**) (YBS 2016b).

Table 3.3-3 Summary of 2015 Labour Force Activity in the Regional Assessment Area

Location	Population Aged 15+	Labour Force	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
RAA					
Yukon (total)	28,100	20,700	73.7	69.0	6.3
Yukon (Aboriginal identity)	N/A	3,700	69.8	62.3	10.8

Source: YBS 2016b

Notes: Total includes Aboriginal identity populations.

Unemployment rate is expressed as a percentage of the total labour force, whereas employment rate is expressed as a percentage of the population aged 15+, therefore, unemployment and employment rates will not add up to 100%.

Table 3.3-4 provides an overview of 2011 labour force activity in the LAA and RAA. In 2011, the total labour force comprised 21,245 workers in Yukon, with 16,520 workers in Whitehorse, 960 workers in Dawson, and 265 workers in the remaining LAA communities (Statistics Canada 2013a, 2013b). Generally, consistently low unemployment rates and high participation rates present challenges to the Yukon labour force's ability to fill emerging employer needs.

Table 3.3-4 Key Labour Force Characteristics for the Local and Regional Assessment Areas

Location	2011 Census Population (No.)	Population 15+ by Labour Force Status (No.)	In the Labour Force (No.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
RAA						
Yukon (total)	33,320	27,495	21,245	77.3	69.7	9.8
Yukon (Aboriginal identity)	7,705	5,785	4,050	70	54	22.7
LAA						
Whitehorse (total)	25,570	20,920	16,520	79.0	72.7	7.9
Whitehorse (Aboriginal identity)	4,100	2,900	2,130	73.4	59.0	19.7
Pelly Crossing (total)	335	290	185	63.8	34.5	45.9
Pelly Crossing (Aboriginal identity)	305	260	170	65.4	30.8	50
Mayo (total)[1]	248	195	150	76.9	64.1	16.7
Beaver Creek (total)	100	85	80	94.1	82.4	0
Beaver Creek (Aboriginal identity)	*An Aboriginal population profile is not available for this area.*					

Location	2011 Census Population (No.)	Population 15+ by Labour Force Status (No.)	In the Labour Force (No.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
Dawson (total)	1,295	1,185	960	81	72.2	10.9
Dawson (Aboriginal identity)	430	370	285	77	56.8	28.1

Source: Statistics Canada 2007b, 2013a, 2013b

Notes: Yukon total and Aboriginal identity includes all data for the territory, including RAA and LAA communities.

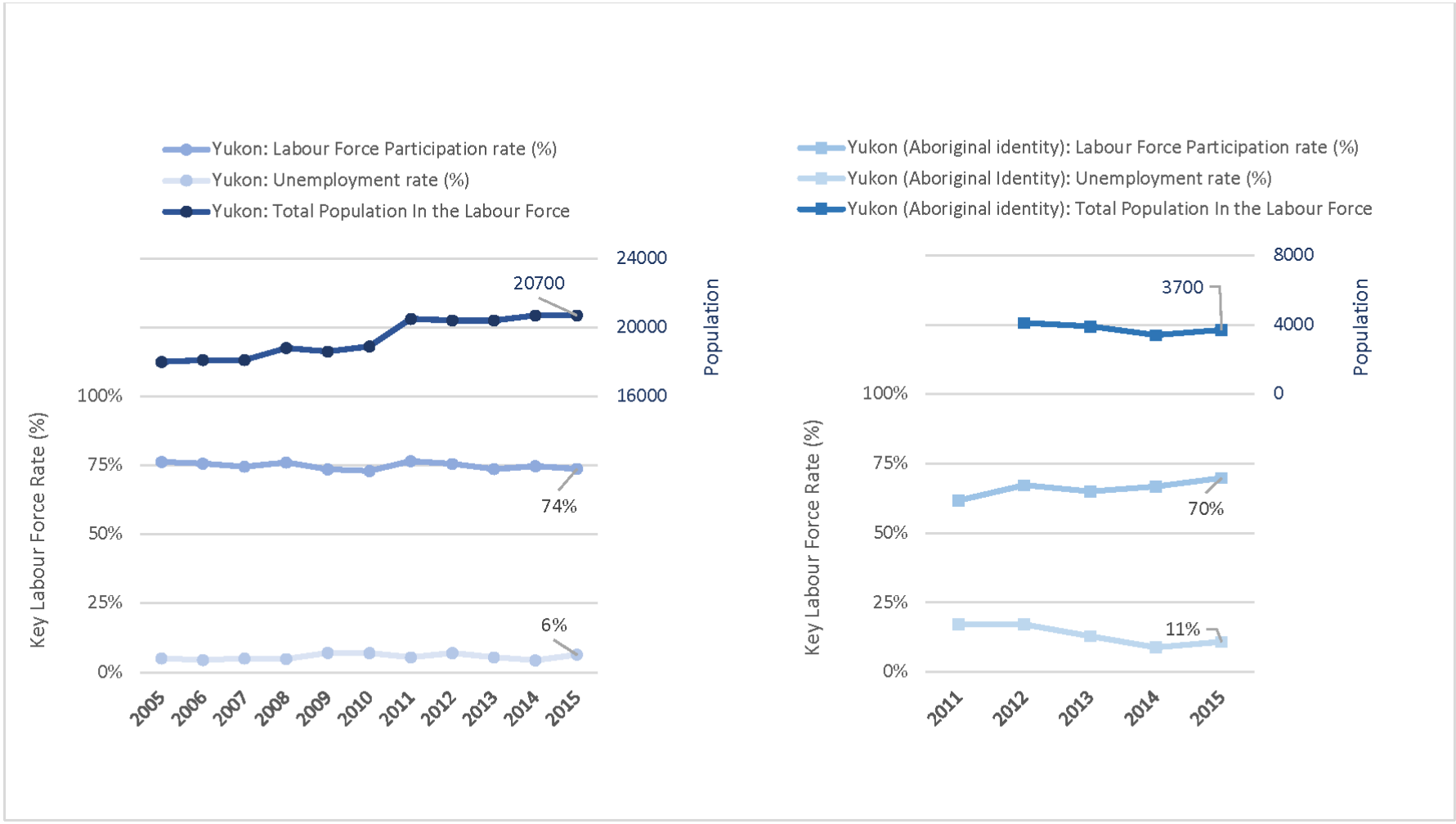
Total includes Aboriginal identity populations.

Unemployment rate is expressed as a percentage of the total labour force, whereas employment rate is expressed as a percentage of the population aged 15+, therefore, unemployment and employment rates will not add up to 100%.

[1]2011 data for this area (Mayo) have been suppressed for data quality or confidentiality reasons. Therefore, 2006 data are presented.

Regional Assessment Area

Between 2005 and 2015, Yukon's labour force increased from 18,000 to 20,700 (**Figure 3.3-3**) (YBS 2013, 2014a, 2015, 2016b). This increase is representative of a general upward trend in total labour force numbers for the territory since 2000 (YGED 2015). Divergent data on the territory's labour force was provided in the National Household Survey (NHS); however, the Yukon labour force was identified as 21,245 in 2011 (Statistics Canada 2013a, 2013b). The Aboriginal labour force comprised 3,700 workers in 2015, representing approximately 18% of the total Yukon labour force (YBS 2016b). Similar to total population data provided, the NHS identifies that Yukon's Aboriginal labour force was 4,050 workers in 2011, representing approximately 19% of the total Yukon labour force (Statistics Canada 2013a, 2103b). In 2015, of the 7,400 Yukon adults not in the labour force, approximately 95% did not want work or were not available. Approximately 5% of adults in Yukon not in the labour force did want work but did not search for work, citing illness, personal or family reasons, attending school, awaiting recall or reply, and discouragement (i.e., they believed no suitable work was available), among other reasons, (YBS 2016b).



Source: YBS 2013, 2014a, 2015, 2016b

Figure 3.3-3 Key Labour Force Characteristics for the Regional Assessment Area: 2005 to 2015

Local Assessment Area

The total labour force in LAA communities with available data for 2011 was 17,895, which represents 84.2% of the total labour force in Yukon. The LAA Aboriginal identity labour force, comprises approximately 63.8% of the total Aboriginal labour force in the territory. Whitehorse represents 92.3% of the LAA communities' total labour force, while Dawson represents 5.4% of the LAA communities' total labour force, with 960 adults (aged 15 years and over) in 2011 (Statistics Canada 2013a, 2013b). Comparing LAA communities to the RAA using 2011 NHS data reveals that the Aboriginal labour force represents a smaller proportion of the total labour force in the broader territory (19.1%) than in Dawson (29.69%) and Pelly Crossing (91.89%) (**Table 3.3-5**) (Statistics Canada 2013a, 2013b). Dawson's labour force, as identified through various surveys and reports (KDO 2011a, 2013a, 2014a), is seen as a restricting factor in the community's local economic and business development. It is anticipated that Dawson's population will not be able to fill labour force needs related to economic expansion (Kishchuk 2008). The Yukon Nominee Program and federal Temporary Foreign Worker Programs are used in Dawson to fill labour needs (KDO 2014a). In response to the local business and economic development survey, business owners identified that the availability of workers was reasonably good, although approximately 28.6% of respondents identified that they currently have specific positions that they could fill if qualified workers were available. The majority of respondents (77.3%) do not believe that their ability to hire workers has changed in the past 5 years. Of note, the majority of business owner respondents (73.7%) are most likely to hire local residents (i.e., within 50 km of Dawson).

With a population of 23,900 and a labour force of 17,800 in 2015, Whitehorse represents approximately 86% of Yukon's total labour force, and consequently often reflects data at the territory scale (YSB 2016b). The participation rate for Whitehorse in 2015 was 74.5%, which was greater than the rest of Yukon (69%) (YBS 2016b). In 2011, the participation rate balance between males and females in Whitehorse was 80.2% and 77.7%, respectively **Figure 3.3-4**), both of which decreased in 2015 (77.2% and 71.6%, respectively) (Statistics Canada 2013a, 2013b; YBS 2016b). In 2015, the employment rate in Whitehorse was 70.3%, a decrease from the 72.7% reported in the 2011 NHS (Statistics Canada 2013a, 2013b; YBS 2016b). The employment rate for the Aboriginal labour force in Whitehorse was 59.0% in 2011 (Statistics Canada 2013a, 2013b).

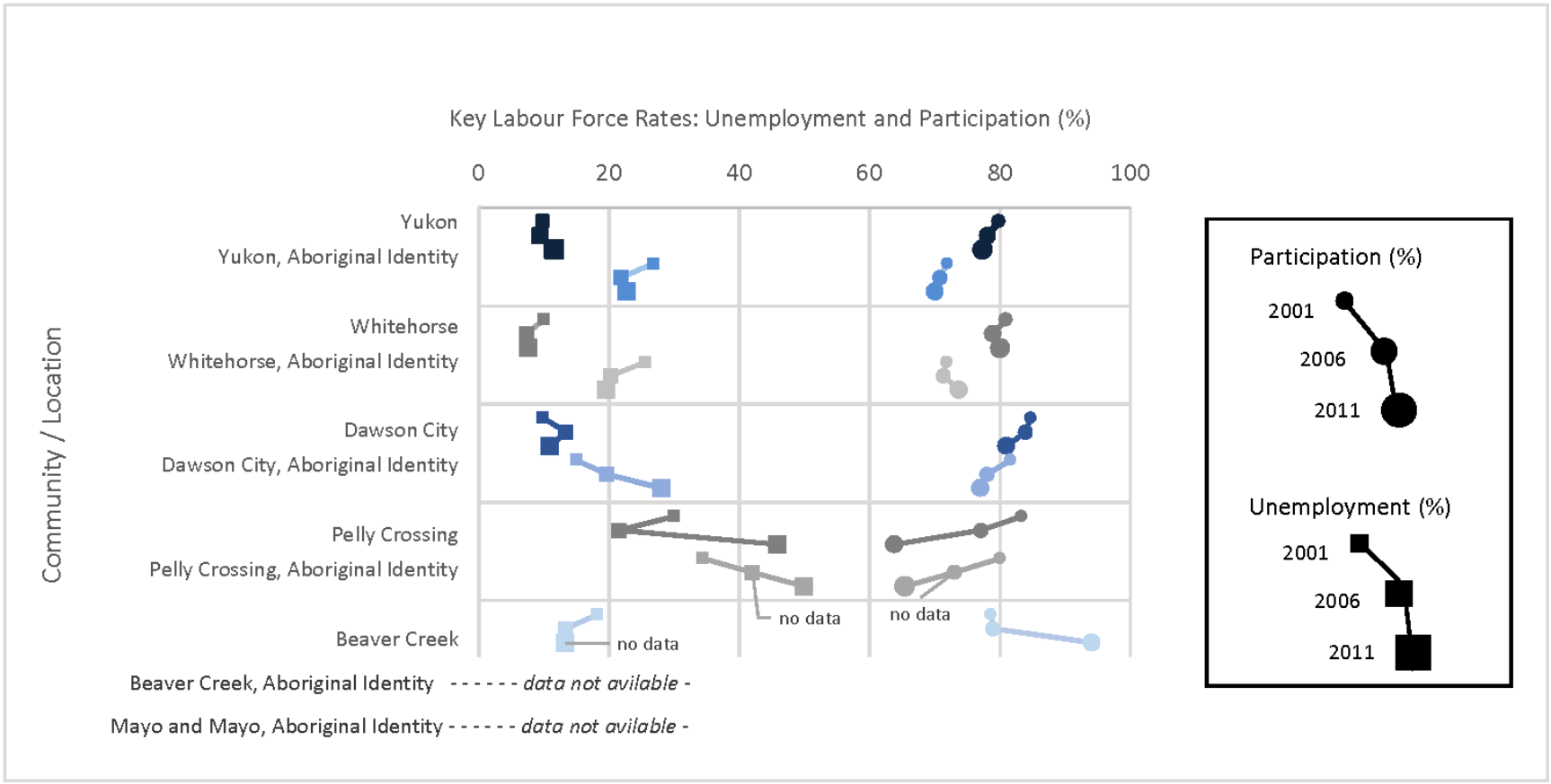
Current and frequent labour market data between Census years are not available for Dawson or other LAA communities, although secondary and primary data indicate that access to the labour force in Dawson is considered the largest constraint to business and economic expansion in the area (KDO 2011a, 2014a, Interview 28, Personal Communication 2016). The Regional Labour Market Development Strategy (Regional Economic Development Plan Traditional Territory of the Tr'ondëk Hwëch'in) identifies a targeted regional labour market development strategy, in the context of the local economic characteristics (KDO 2014a). Goals centre on the following key areas: immigration, current labour market information, recruitment and retention strategies, programs and services awareness, and partnerships and communication (KDO 2014a).

Participation and Employment

Yukon's 2015 participation rate was 73.7% (shown rounded to 74% in **Figure 3.3-3**); though this marked a decrease from the territory's 2011 participation rate of 77.3% (**Figure 3.3-3**, **Figure 3.3-5)**, it was the second highest rate observed in Canada in 2015 (YBS 2016b). The participation rate of Yukon's Aboriginal adult population was 69.8% in 2015, reflecting an increase from 2014, but a minor change from 2011 (70%) (Statistics Canada 2013a, 2013b, YBS 2016b). Between 2001 and 2011 however, Yukon's Aboriginal labour force participation rate decreased from 71.9% to 70% (**Figure 3.3-5**). Yukon's total labour force experienced a similar decrease in participation, from 79.8% to 77.3% between 2001 and 2011 (Statistics Canada 2003, 2007a, 2007b, 2013a, 2013b). Of note, in 2015, Yukon's Aboriginal labour force aged 25 to 54 had a higher participation rate (66.7%) than the non-Aboriginal labour force of the same age (59.4%) (YBS 2016b). In terms of gender differentials, participation rates for Yukon in 2011 were slightly greater for males (78.6%), compared to females (76%) (Statistics Canada 2013a, 2013b) **Figure 3.3-4**).

Source: Statistics Canada 2013a, 2013b

Figure 3.3-4 Key Labour Force Characteristics for the Local and Regional Assessment Areas – Gender Differentials



Source: Statistics Canada 2003, 2007a, 2007b, 2013a, 2013b

Figure 3.3-5 Key Labour Force Characteristics for the Local and Regional Assessment Areas: 2001 to 2011

Yukon's 2015 employment rate of 69.0% was the highest in Canada, which is consistent with Yukon's employment rate over the last 10 years (YBS 2016b). Between 2006 and 2015, Yukon's average employment rate was 70.5% in comparison to Canada's average rate of 62.1% during the same period (YBS 2016b). The employment rate of the Aboriginal labour force in 2015 for Yukon was 62.3%, an increase from 54% reported in the 2011 NHS (Statistics Canada 2013a, 2013b; YBS 2016b). The 2015 demographics of Yukon's Aboriginal labour force indicate that the employment rate is lowest for those aged 55+ (46.7%) and greatest amongst individuals between the ages of 25 and 54 (73.1%) (YBS 2016b). Of note, higher employment rates were observed for Yukon's Aboriginal labour force between 15 and 24 (58.3%), when compared to the non-Aboriginal labour force (53.1%) (YBS 2016b).

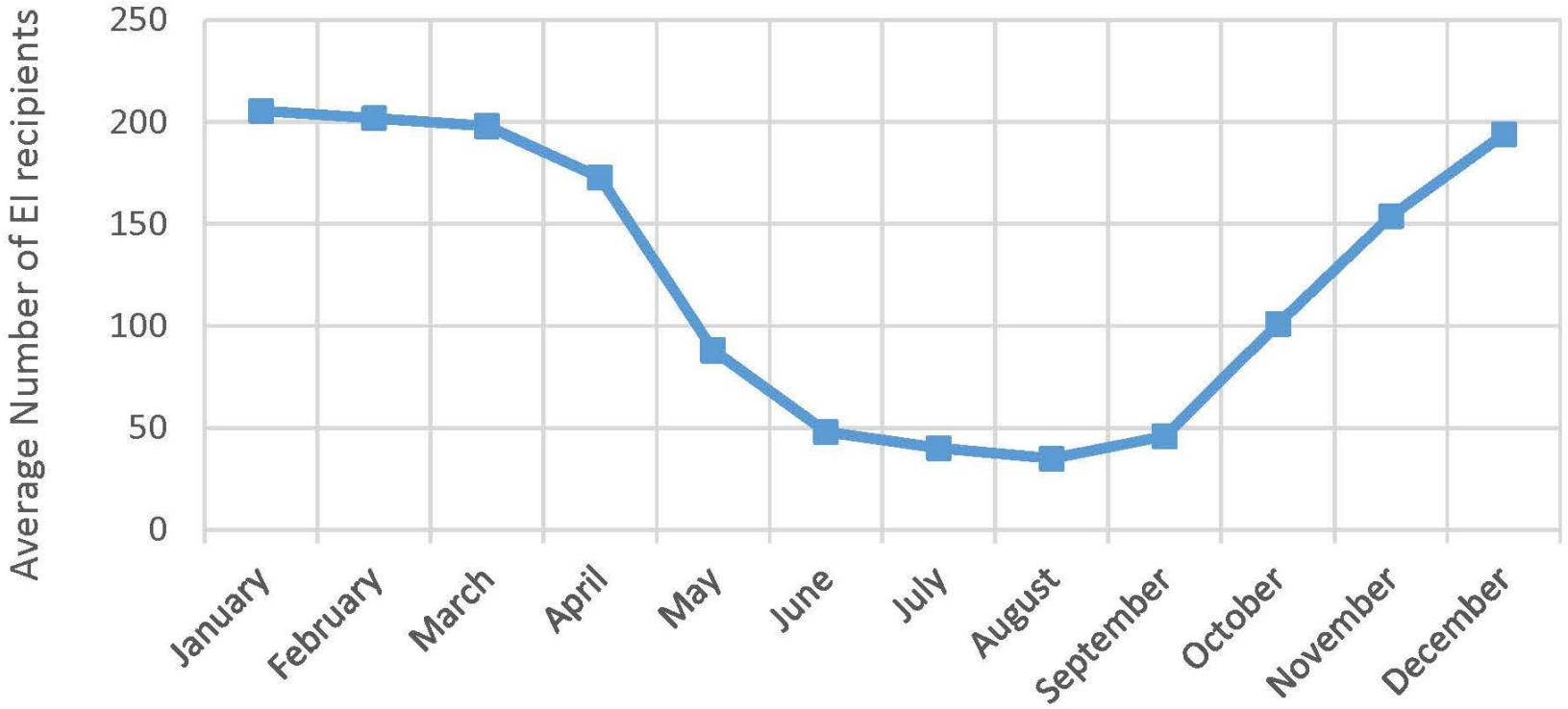
In 2011, Beaver Creek had greater participation and employment rates (94.1% and 82.4%, respectively) than Pelly Crossing (63.8% and 34.5%, respectively), as presented in **Table 3.3-4**. From 2001 to 2011, Pelly Crossing reflected RAA trends of decreased participation and employment rates (Statistics Canada 2003, 2007a, 2007b, 2013a, 2013b) (**Figure 3.3-5**). Pelly Crossing's Aboriginal population had similar participation and employment rates (65.4% and 30.8%, respectively) as the total population, likely due to the large proportion of adults self-identifying as Aboriginal in the total labour force (91.9%). Pelly Crossing's gender differentials reflect a higher proportion of males in the labour force for both total and Aboriginal populations, but higher employment rates for females in both populations (**Figure 3.3-4**) (Statistics Canada 2013a, 2013b). Though community-level data were not available for 2015, key labour force characteristics for Yukon communities (excluding Whitehorse) include: 69.0% participation rate; 61.9% employment rate; and 6.9% unemployment rate (YBS 2016b).

In 2011, Whitehorse and Dawson had greater participation rates (79.0% and 81%, respectively) compared to the territory as a whole (77.3%), which demonstrate constraints on economic expansion (**Table 3.3-4** and **Figure 3.3-5**) (Statistics Canada 2013a, 2013b; KDO 2014a; Interview 28, Personal Communication 2016). Whitehorse and Dawson also had higher employment rates than the territory as a whole in 2011 (72.7% and 72.2%, respectively, compared to 69.7% in Yukon) (**Table 3.3-4** and **Figure 3.3-5**) (Statistics Canada 2013a, 2013b). High employment rates for Dawson are particularly evident in the summer (Interview 28, Personal Communication 2016). The employment rates of Whitehorse's and Dawson's Aboriginal population were comparable to the territory; however, the participation rates were greater (79% and 77%, respectively, compared to 70%). Participation and employment rates of the Aboriginal populations of Whitehorse and Dawson were lower than those of the total population for the communities in 2011. In terms of gender balance, males exhibited greater participation and employment rates for both total and Aboriginal populations in Whitehorse and Dawson (**Figure 3.3-4**). This reflects the gender balance in both labour market characteristics for the RAA. From 2001 to 2011, the participation and employment rates for Dawson's total and Aboriginal populations decreased, which reflects a similar trend in the RAA (**Figure 3.3-5**) (Statistics Canada 2003, 2007a, 2007b, 2013a, 2013b).

Unemployment

The Yukon's 2015 unemployment rate was 6.3%, an increase since 2014 (4.3% unemployment) (YBS 2016b) (**Figure 3.3-3**). The increased unemployment rate between 2014 and 2015 can be attributed to falling commodity prices and production and employment cutbacks in Yukon's mining industry, although it is anticipated that employment trends will be positive from 2015 (Government of Canada 2015a). In 2015, Yukon's unemployment rate was below the national average of 6.9%, reflecting a trend observed over the last 10 years, where Yukon has had an average unemployment rate (5.7% between 2006 and 2015) below that of the national average of (7.1% between 2006 and 2015) (YBS 2016b, YGED 2015). The consistently low unemployment rate represents a challenge for the territory to meet skilled labour needs. It is anticipated that the Yukon labour force will not be able to meet expected skilled labour needs in the mining sector (Herkes et al 2013). Other challenges identified for Yukon's labour force are an aging population and decreasing birth rate, accompanied by population loss via interprovincial migration (Government of Canada 2015b). Yukon's 2015 Aboriginal unemployment rate was 10.8%, an increase since 2014 (8.8% unemployment) (YBS 2016b). The NHS identified 9.8% and 22.7% unemployment rates for Yukon's total and Aboriginal populations in 2011 (Statistics Canada 2013a, 2013b).

The unemployment rate in Whitehorse in 2011 was 7.9%, which is lower than Yukon overall (9.8%) and an improvement from 2006 (**Table 3.3-4**, **Figure 3.3-5**). Dawson's unemployment rate in 2011 was 10.9%, which represents an improvement from 2006, but is greater than the 2001 rate (9.9%) (**Figure 3.3-5**). The Aboriginal population's unemployment rate has increased each Census year from 15% in 2001 to 28.1% in 2011 (**Figure 3.3-5**) (Statistics Canada 2003, 2007a, 2007b, 2013a, 2013b). Pelly Crossing and Beaver Creek exhibited divergent unemployment rates in 2011: 45.5% and 0.0%, respectively (refer to **Appendix 18-A Socio-economic Baseline Report** regarding statistical data limitations) (Statistics Canada 2013a, 2013b). Through primary data collection it was identified that the unemployed labour force in Dawson is small, and is mostly seasonal or by choice (Interview 19, Personal Communication 2016). This is reinforced by Employment Insurance beneficiaries data, which demonstrate strong fluctuations in seasonal employment, with higher unemployment in winter months (**Figure 3.3-6**) (KDO 2014a, YBS 2016b). In Dawson, the Klondike Development Organization (KDO) provides free advice to entrepreneurs and businesses, as well as employment services including physical and online job boards; assisting job seekers prepare for employment (i.e., resume support, mock interviews, cover letters, etc.); providing use of computer and internet, fax, telephone, and resource library; acting as a resource for employment-related programs; providing a message service for job seekers; and storing client resumes (Interview 23, Personal Communication 2016, Interview 28, Personal Communication 2016).



Source: YBS 2016b

Figure 3.3-6 Cyclical Unemployment: Employment Insurance Beneficiaries for the City of Dawson, Average 2006 to 2016

The Yukon Government's Labour Market Framework for Yukon identifies five strategies to diversify the economy and address labour market issues, including a comprehensive skills and trades training strategy; immigration strategy; labour market information strategy; national recruitment strategy; and employee retention strategy (YG 2008). According to the 2014 Yukon Labour Market Supply and Migration Study, Yukon's population, labour force, and employment are expected to grow between 2013 and 2021 (MDB 2014). By using a projection model, the study authors anticipate that Yukon's unemployment rate will slightly decline, and that the participation rate will slightly increase. To fill labour force needs, a positive net migration is assumed over this period, reflecting migration trends from 2003 to 2013. It is noted in the report that interprovincial migration was a key factor in supplying workers to Yukon (MDB 2014). Refer to **Appendix 19-A Demographics Intermediate Component Analysis Report** for a detailed discussion of population migration in the Project study areas.

Individuals from outside of Canada can work in Yukon to fill employer needs, through federal and territorial programs such as the Yukon Nominee Program, Temporary Foreign Worker Program, and Foreign Qualifications Recognition. The Yukon Nominee Program is designed to fill permanent full-time jobs, with 388 nominees brought in to Yukon between 2006 and early 2010. Yukon Education conducted a survey in 2010 of the Yukon Nominee Program: of nominees surveyed (265 or 68% of total nominees), 35 lived in Dawson, compared to 91 in Whitehorse (Yukon Education 2010). In terms of the Temporary Foreign Worker Program, individuals receiving permits for Yukon as their destination comprised 88 in 2015 and 77 in 2014 (Citizen and Immigration Canada 2016). Refer to **Appendix 19-A Demographics Intermediate Component Analysis Report** for a detailed discussion of immigration in the Project study areas.

Much of the mining labour force in Yukon does not permanently reside in Yukon (MIHR 2012). Reviewing 2013 workforce data from three operating mines demonstrates that the mining industry in the territory relies heavily on fly-in, fly-out labour. Of approximately 624 employees working at the Minto, Bellekeno, and Wolverine mines and contractors working at the Wolverine Mine in 2014, 67% resided outside of Yukon. The data also demonstrates a disproportionate gender and Aboriginal balance: approximately 88% of total employees and contractors were male, and 18% had First Nation status (Herkes et al 2013).

3.3.2.2 Occupation

In Yukon, occupations in services, business, and government were predominant for the labour workforce in 2015. Through various labour force forecasting analyses in the mining sector, gaps have been identified in terms of available labour to meet industry occupational needs. Growing the territory's population as well as education and training initiatives were identified as general solutions. Refer to **Appendix 19-A Demographics Intermediate Component Analysis Report** and **Appendix 23-A Education Services Valued Component Assessment Report** for more information.

Occupations are defined as collections of jobs, and are organized and defined in the National Occupational Classification (NOC), which provides a framework of occupations in the Canadian labour market, consisting of 10 broad occupation categories as well as major, minor, and unit groups. In 2015, sales and service occupations employed the most Yukoners with 3,800 workers or approximately 22.9% of the labour force. This was followed by the business, finance, and administrative occupations, as well as occupations in education, law, and social, community, and government services categories (3,100 workers each, 18.7% of the Yukon labour force). From 2014 to 2015, there was a 4.5% decrease in the trades, transport, and equipment operators and related occupations, from 3,200 to 2,100 workers (YBS 2016b). The 2011 NHS identified sales, trades, and business occupations as the most prevalent for the Yukon labour force, representing 19.1%, 17.3%, and 17.1%, respectively (**Table 3.3-5**). Yukon's 2011 Aboriginal labour force consisted of occupations primarily in trades, transport, and equipment operators and related occupations (875 workers, 22.9% of the Aboriginal Yukon labour force), followed by sales and service occupations (810 workers, 21.2% of the Aboriginal Yukon labour force), and business, finance, and administration occupations (660 workers, 17.3% of the Aboriginal Yukon labour force) (Statistics Canada 2013a, 2013b). In 2015, Yukon's total and Aboriginal labour forces were represented in all 10 NOC categories, which can indicate a diverse labour force. According to the 2014 Yukon Labour Market Supply and Migration Study, the occupations expected to experience the largest employment gains from 2011 to 2021 are administrative and financial supervisors and administrative occupations; middle management occupations in retail and wholesale trade and customer services; professional occupations in law and social, community, and government services; paraprofessional occupations in legal, social, community, and education services; and transport and heavy equipment operation and related maintenance occupations (MDB 2014).

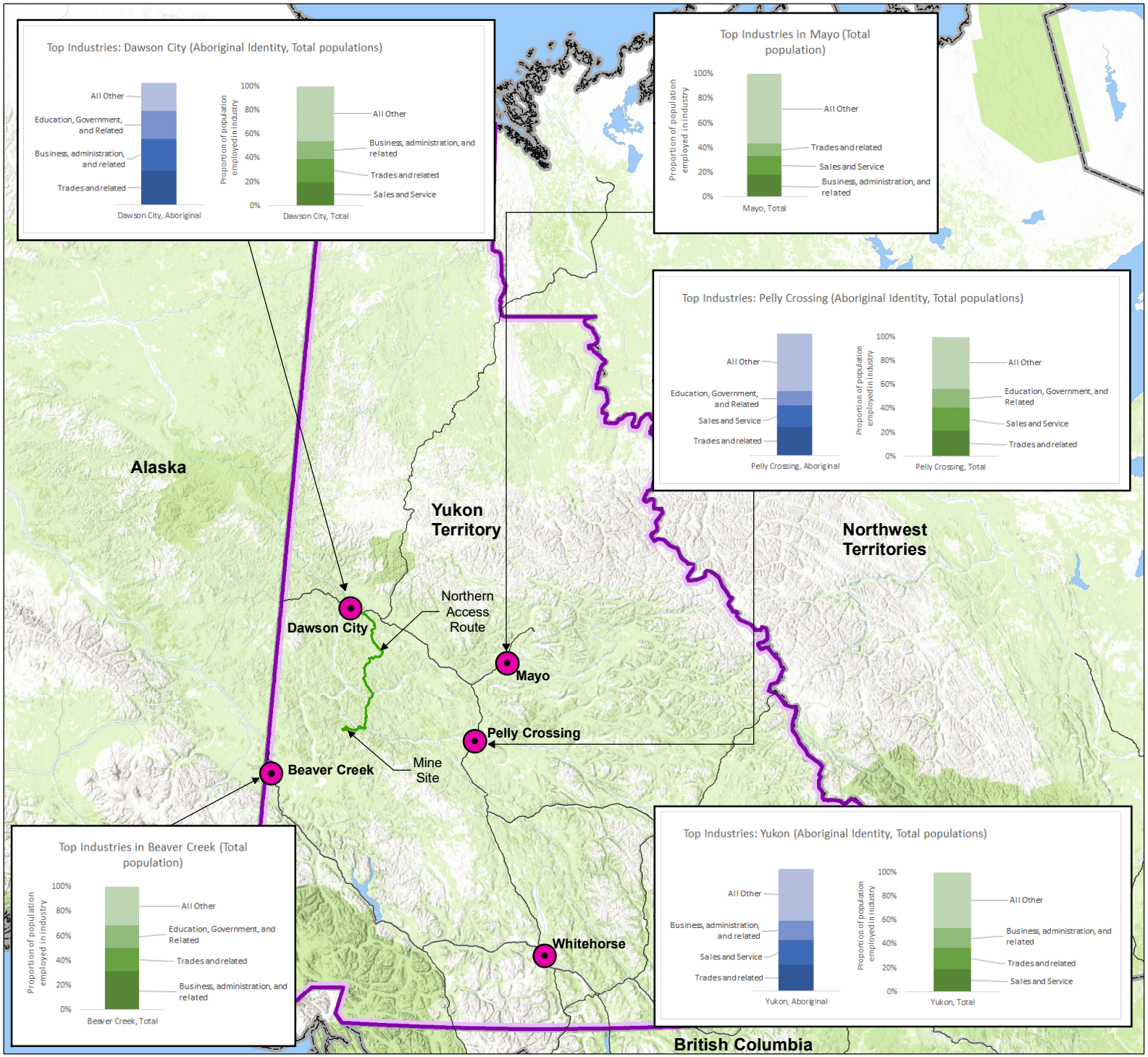
The balance of occupations for Yukon as a whole was similar for Whitehorse's total and Aboriginal labour force in 2011 (**Table 3.3-5**). In Dawson, the total labour force was represented in 9 of the 10 NOC categories, compared to the Aboriginal labour force, which was represented in 5 of 10 categories. The Aboriginal population of Dawson indicated stronger representation in fewer occupations, specifically in trades (28.1%), business (26.3%), and education, law, and government services (22.8%). Pelly Crossing's prevalent total labour occupations included trades (21.6%), sales (18.9%), and education, law, and government services (13.5%), which are similar to the community's Aboriginal labour force, which included trades (23.5%), sales (17.6%), and education, law, and government services (8.8%). Selkirk First Nation's Integrated Community Sustainability Plan identified the addition of workers with building trades skills would be an asset for the community (Inukshuk Planning & Development 2007). Beaver Creek's total labour force was focused on business (31.3%), followed by trades and education, law, and government services (both 18.8%) (Statistics Canada 2013a, 2013b). The concentration of the LAA labour force in fewer occupations reflects small labour forces, which make it difficult to support a large range of occupations. **Figure 3.3-7** provides a summary of the top three occupations in LAA communities.

Table 3.3-5 Distribution of Occupations in the Regional and Local Assessment Areas

Location	2011 Census Labour Force (No.)	Management Occupations (%)	Business, Finance, and Administration Occupations (%)	Natural and Applied Sciences and Related Occupations (%)	Health Occupations (%)	Occupations in Education; Law and Social; Community and Government Services (%)	Occupations in Art; Culture; Recreation and Sport (%)	Sales and Service Occupations (%)	Trades; Transportation and Equipment Operators and Related Occupations (%)	Natural Resources; Agriculture and Related Occupations (%)	Occupations in Manufacturing and Utilities (%)
RAA											
Yukon (total)	21,245	11.8%	17.1%	7.6%	4.4%	14.2%	3.4%	19.1%	17.3%	1.8%	1.4%
Yukon (Aboriginal identity)	4,050	7.3%	16.3%	4.2%	1.9%	15.2%	3.0%	20.0%	21.6%	4.0%	0.9%
LAA											
Whitehorse (total)	16,520	12.2%	18.5%	8.5%	4.6%	14.3%	3.2%	19.9%	16.1%	1.2%	1.4%
Whitehorse (Aboriginal identity)	2,130	7.2%	17.4%	4.7%	2.7%	14.9%	3.5%	25.6%	20.3%	3.2%	0.0%
Pelly Crossing (total)	185	8.1%	13.5%	5.4%	0.0%	16.2%	0.0%	18.9%	21.6%	5.4%	0.0%
Pelly Crossing (Aboriginal identity)	170	5.9%	8.8%	5.9%	0.0%	11.8%	0.0%	17.6%	23.5%	5.9%	0.0%
Mayo (total)[1]	195	7.7%	17.9%	5.1%	0.0%	10.3%	0.0%	15.4%	10.3%	7.7%	0.0%
Mayo (Aboriginal identity)	*An Aboriginal population profile is not available for this area.*										
Beaver Creek (total)	80	12.5%	31.3%	0.0%	0.0%	18.8%	0.0%	12.5%	18.8%	0.0%	0.0%
Beaver Creek (Aboriginal identity)	*An Aboriginal population profile is not available for this area.*										
Dawson (total)	960	9.9%	15.1%	3.1%	10.4%	11.5%	6.3%	19.8%	19.3%	4.7%	0.0%
Dawson (Aboriginal identity)	285	0.0%	26.3%	3.5%	0.0%	22.8%	0.0%	12.3%	28.1%	0.0%	0.0%

Source: Statistics Canada 2007b, 2013a, 2013b

Notes: Yukon total and Aboriginal identity includes all data for the territory, including LAA communities.
Total includes Aboriginal identity populations.
Data may not sum to 100% due to rounding.
[1] 2011 data for this area (Mayo) have been suppressed for data quality or confidentiality reasons; therefore, 2006 data are presented.



COFFEE GOLD MINE

Top Occupations for Total and Aborginal Population in the Local Assessment Area and Regional Assessment Area

Legend

- National/International Border
- Project Footprint
- Local Assessment Area
- Regional Assessment Area

Notes

1. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

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Figure 3.3-7	Date: Mar 28, 2017	Drawn by: JS	Reviewed: DP

GOLDCORP

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Occupations typical of mine operations (e.g., drillers, shovel operators, haul truck drivers) and mine maintenance (e.g., mechanics, electricians, labourers) are classified in the NOC under trades, transportation, and equipment operators and related occupations, as well as natural resources, agriculture, and related occupations. As described, trades comprised one of the largest occupation categories in the LAA and RAA in 2011. It is anticipated that these occupations will comprise the majority of direct employment opportunities for the Project, while technical and supervisory occupations (e.g., geologists, engineers, superintendents) are anticipated to comprise a smaller proportion of direct employment opportunities (JDS 2016). These occupations are represented under the management and natural and applied sciences NOC categories, which comprised a smaller proportion of the 2011 LAA and RAA labour force (Statistics Canada 2013a, 2013b).

The mining work force can be presented in the following sectors: mineral exploration, mineral extraction, and support services. In Yukon in 2012, the mining workforce comprised a larger proportion of the mineral exploration sector (41%), when compared to Canada (22%). Conversely, Yukon's mining workforce comprised a smaller proportion of the mining extraction sector (35%), when compared to Canada (60%) (MIHR 2012). Various labour market forecasts (by the Mining Industry Human Resources Council (MIHR), Centre for Northern Innovation in Mining and YGED) for the mining industry and related occupations needed to support the mining industry in Yukon have identified gaps in terms of skills and available labour force (MIHR 2012 and Herkes et al 2013). The MIHR analysis identified key hiring requirements in the following occupations: machine operators, mineral and metal processing; heavy equipment operators (except crane); underground mine service and support workers; underground production and development miners; and production workers in mineral and metal processing (MIHR 2012). The Centre for Northern Innovation in Mining analysis identified mining engineers, underground production and development miners, underground mine service and support workers, and mining and quarrying supervisors as occupations that would be the most in demand by 2023, while the Yukon Occupational Modelling System identified heavy equipment operators (except crane), underground production and development miners, and primary production managers as the most common occupations anticipated for 2015 (Herkes et al 2013).

Occupations that support mining operations are anticipated to focus in the sales and service occupations NOC category, which comprised a strong representation of the LAA and RAA 2011 labour force. Examples of sales and service occupations that may result in indirect or induced employment as a result of the Project include travel and accommodation services; retail sales; and food and beverage services. Other occupation categories such as business and management may also experience indirect or induced employment opportunities as a result of the Project. Through a survey conducted in 2011 by KDO, critical labour force and skill shortages were identified in occupations directly and indirectly related to mining including cooks, electricians, equipment mechanics, equipment operators, and mechanics (KDO 2011a). In a 2013 survey, trades (mechanics, carpenters, etc.), kitchen and serving staff, office managers, bookkeepers, and highly skilled positions were identified as positions that are difficult to fill (KDO 2013a). In the Dawson area, it was

noted that mining-related work in the summer changes from year to year. It was also noted that in 2014, equipment operators from Alberta were seeking employment in the Dawson area (Interview 23, Personal Communication 2016). As a result of discussions with mine developers and operators, labour force skills, access to housing, and transportation challenges were identified as key concerns in the Dawson region for the mining sector (KDO 2013b). In particular, "labour market and skills shortages greatly inhibit business development viability" (KDO 2013b).

The Yukon mining labour force forecasts also predicted anticipated occupation needs and gaps. The MIHR analysis predicted cumulative hiring requirements for 2023 ranging from 1,360 to 4,260 (depending on the economy scenario), and the Yukon Occupational Modelling System analysis predicted 1,400 jobs in the mining sector for 2020 (MIHR 2012, Herkes et al 2013). Based on a talent gap analysis (comparing hiring requirements and available talent), MIHR predicted talent gaps of 745, 1,630, and 2,515 workers for 2015, 2018, and 2023, respectively. The largest talent gap was identified for the technologist and technician occupation category, although negative talent gaps were identified for all occupation categories, both for primary and support sectors. For most occupation categories, the existing talent pool in Yukon does not contain enough workers to meet anticipated industry demands in the mining sector (MIHR 2012).

Yukon Work futures forecasts employment prospects based on how the economy is expected to perform between 2012 and 2018. Very high demand is anticipated for six careers in the following occupations:

- Management
- Business, finance, and administration
- Education, law, and social and community and government
- Sales and service occupations (Yukon Work Futures 2016).

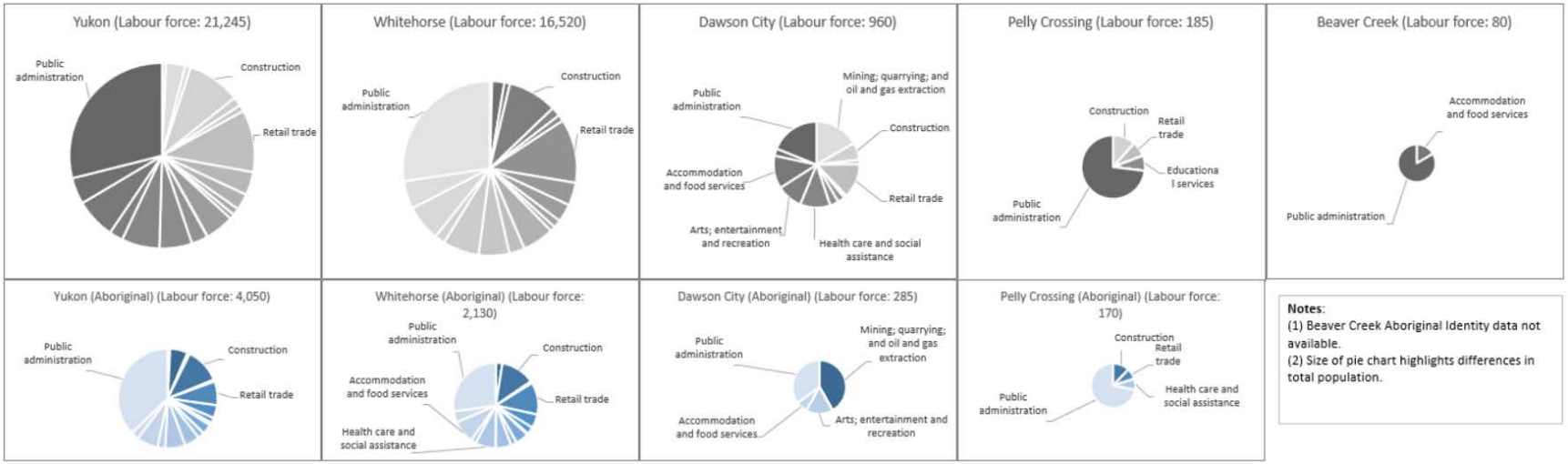
High demand is anticipated for 22 careers in the following occupations, in addition to those listed above: health; and trades, transport, and equipment operators. Heavy equipment operators (except crane), transport truck drivers, and construction trades helpers and labourers are anticipated to have high demand, ranking 10, 11, and 20, respectively, of Yukon Work futures expected employment demand (2016).

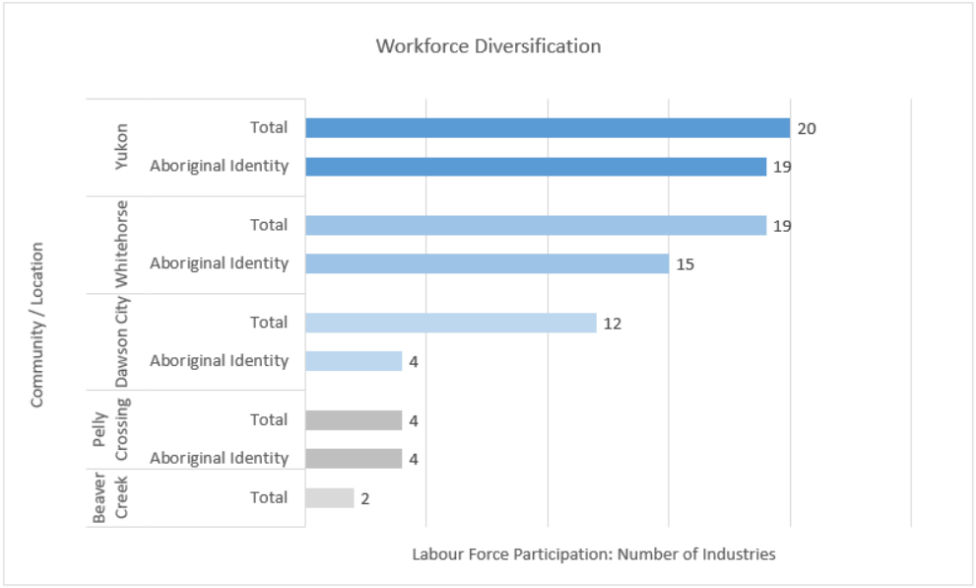
3.3.2.3 Industry

The majority (86%) of Yukon's workforce were employed in the service sector in 2014, with the non-commercial services (e.g., public administration and health care) comprising almost one-third of the territory's workforce. Although mining contributes substantially to the territory's economy, the industry does not represent a major employer for the Yukon workforce. Between 2009 and 2014, employment increases were focused in the services-producing sector (e.g., retail trade, transportation, professional services, accommodation services), while the goods-producing sector (i.e., forestry, mining, construction) did not perform as well, a result of low global mineral commodity prices (Government of Canada 2015b). Of note,

in 2011, Dawson's labour force comprised a larger proportion in goods-producing industries (22.4%), compared to the total for the territory (14.7%) (Statistics Canada 2013a, 2013b).

The three industry sectors that employed the majority of the total and Aboriginal Yukon labour force in 2011 were public administration (28.4% and 35.1%), retail trade (10.7% and 7.3%), and construction (9.1% and 10.9%) (**Table 3.3-6** and **Figure 3.3-8**) (Statistics Canada 2013a, 2013b). Whitehorse's total and Aboriginal labour forces exhibited a similar balance in the same three industry sectors, which reflects the community's strong representation of the territory's total labour force (approximately 86% in 2015) (YBS 2016b). The substantial representation in public administration, including territorial, Aboriginal, federal, and municipal public administration services, can be attributed to administration headquarters and the large component of the total labour force located in Whitehorse. The Yukon total labour force exhibited representation across all NAICS industry sectors, which is also reflected in Whitehorse, except for the management of companies and enterprises sector (**Figure 3.3-8**). The Yukon and Whitehorse labour forces comprised a greater proportion of service-producing or supporting industries, when compared to goods-producing industries (**Table 3.3-7**). This can indicate a more diversified economy, able to offer services to basic industry activities. According to the 2014 Yukon Labour Market Supply and Migration Study, the industries expected to experience the largest employment gains from 2011 to 2021 are public administration; health care and social assistance; retail trade; accommodation and food services; and educational services (MDB 2014).





Source: Statistics Canada 2013a, 2013b

Figure 3.3-8 Distribution of Labour Force across Industries

In 2011, Pelly Crossing's and Beaver Creek's labour forces were heavily focused in the public administration sector (51.4% and 62.5%, respectively). Other representative industries were construction in Pelly Crossing (8.1%) and accommodation and food services (12.5%) in Beaver Creek (**Table 3.3-6** and **Figure 3.3-8**) Pelly Crossing's labour force was represented in four industry sectors, while Beaver Creek's labour force was represented in two industry sectors (**Figure 3.3-8**). Both communities' labour forces are more focused in service-producing industries (62.2% and 75.0%, respectively) (Statistics Canada 2013a, 2013b). Similar to findings for occupations, the concentration of the labour force for these communities in fewer industries reflects the small labour forces, which make it difficult to support a large range of industries.

Dawson's labour force in 2011 was focused in the public administration (18.2%); mining, quarrying, and oil and gas extraction (16.1%); and retail trade (12.5%) industry sectors, and represented 12 of the 20 NAICS industry sectors (**Table 3.3-6** and **Figure 3.3-8**). This representation across 60% of industry sectors differs from the labour force in the RAA. The Aboriginal labour force in Dawson was primarily employed in mining, quarrying, and oil and gas extraction (31.6%); public administration (26.3%); and arts, entertainment, and recreation (12.3%) (**Table 3.3-6** and **Figure 3.3-8**). Dawson's Aboriginal labour force was represented in only four industry sectors (**Figure 3.3-8**). Compared to the RAA, Dawson's total and Aboriginal labour forces were more focused in fewer industry sectors, and exhibited a greater representation in goods-producing industries (22.4% and 31.6%, respectively) (**Table 3.3-7**) (Statistics Canada 2013a, 2013b). Dawson's labour force reflects the broader territory's reliance on public administration industry for employment, as well as local economic activity focused on mineral exploration and mine development and tourism. Feedback indicates that recently, the Dawson labour force has not been able to supply the hospitality and tourism industry's demand in summer months (Interview 23, Personal Communication 2016). It was noted that the tourism industry is often more competitive than other industries, by offering better wages, but that the industry is largely dependent on the strength of the United States (U.S.) dollar (Interview 23, Personal Communication 2016).

High labour demands in the construction industry were experienced in Dawson associated with two major capital projects between 2009 and 2012 (KDO 2013b). In 2013, a slowdown in the mining and exploration industry related to decreasing commodity prices was anticipated to decrease activity levels, and scale back employment needs in the sector for the Dawson labour force, a situation that was also experienced in 2015 (KDO 2013b, Interview 23, Personal Communication 2016).

Table 3.3-6 Industries Represented in the Local and Regional Assessment Area 2011s

Location	2011 Census Labour Force (No.)	Agriculture; Forestry; Fishing and Hunting (%)	Mining; Quarrying; and Oil and Gas Extraction (%)	Utilities (%)	Construction (%)	Manufacturing (%)	Wholesale Trade (%)	Retail Trade (%)	Transportation and Warehousing (%)	Information and Cultural Industries (%)	Finance and Insurance %)	Real Estate and Rental and Leasing (%)	Professional; Scientific and Technical Services (%)	Management of Companies and Enterprises (%)	Administrative and Support; Waste Management and Remediation Services (%)	Educational Services (%)	Health Care and Social Assistance (%)	Arts; Entertainment and Recreation (%)	Accommodation and Food Services (%)	Other Services (Except Public Administration) (%)	Public Administration (%)
RAA																					
Yukon (total)	21,245	0.7%	3.3%	0.9%	9.1%	1.6%	1.1%	10.7%	4.0%	2.8%	1.2%	0.8%	4.9%	0.1%	2.8%	5.6%	6.5%	2.4%	6.9%	4.5%	28.4%
Yukon (Aboriginal identity)	4,050	0.7%	5.4%	0.7%	10.9%	0.2%	0.4%	7.3%	4.0%	1.6%	0.4%	0.5%	3.1%	0.0%	2.0%	4.7%	6.2%	2.3%	6.5%	2.5%	35.1%
LAA																					
Whitehorse (total)	16,520	0.4%	2.3%	1.0%	9.14%	1.7%	1.2%	11.9%	4.2%	3.3%	1.4%	1.0%	5.9%	0.0%	2.9%	5.7%	6.8%	1.9%	7.0%	5.2%	27.3%
Whitehorse (Aboriginal identity)	2,130	0.0%	2.5%	0.0%	12.9%	0.0%	0.7%	12.1%	5.2%	2.7%	0.5%	0.0%	5.0%	0.0%	2.2%	5.9%	7.7%	2.0%	8.7%	4.2%	27.0%
Dawson (total)	960	0.0%	16.1%	0.0%	6.3%	0.0%	1.6%	12.5%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	3.1%	10.9%	9.4%	12.0%	2.6%	18.2%
Dawson (Aboriginal identity)	285	0.0%	31.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.3%	5.3%	0.0%	26.3%
Pelly Crossing (total)	185	0.0%	0.0%	0.0%	8.1%	0.0%	0.0%	5.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.4%	0.0%	0.0%	0.0%	0.0%	51.4%
Pelly Crossing (Aboriginal identity)	170	0.0%	0.0%	0.0%	8.8%	0.0%	0.0%	5.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%	0.0%	0.0%	0.0%	52.9%
Mayo	*Data for this area has been suppressed for data quality or confidentiality reasons.*																				
Beaver Creek (total)	80	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	0.0%	62.5%
Beaver Creek (Aboriginal identity)	*An Aboriginal population profile is not available for this area.*																				

Source: Statistics Canada 2013a, 2013b
Notes: Yukon total and Aboriginal identity includes all data for the territory, including LAA communities.
Total includes Aboriginal identity populations.

Table 3.3-7 Labour Force Distribution across Goods- and Service-producing Industries

Location	2011 Census Labour Force (No.)	Goods-producing Industries (% of Labour Force)	Service-producing Industries (% of Labour Force)
RAA			
Yukon (total)	21,245	15.6%	82.7%
Yukon (Aboriginal identity)	4,050	18.0%	76.4%
LAA			
Whitehorse (total)	16,520	13.5%	86.5%
Whitehorse (Aboriginal identity)	2,130	15.3%	84.6%
Dawson (total)	960	22.4%	74.0%
Dawson (Aboriginal identity)	285	31.6%	43.9%
Pelly Crossing (total)	185	8.1%	62.2%
Pelly Crossing (Aboriginal identity)	170	8.8%	64.7%
Mayo	Data for this area have been suppressed for data quality or confidentiality reasons.		
Beaver Creek (total)	80	0.0%	75.0%
Beaver Creek (Aboriginal identity)	An Aboriginal population profile is not available for this area.		

Source: Statistics Canada 2013a, 2013b

Notes: Yukon total and Aboriginal identity includes all data for the territory, including LAA communities.
Total includes Aboriginal identity populations.

3.3.2.4 Employment Type and Tenure

Large proportions of the LAA and RAA populations worked full time in 2010, which is also reflected in more recent (2015) data for the territory. Recruitment and retention of employees is a challenge for Yukon, as well as Dawson, particularly in the context of boom and bust cycle economies reliant on the mining industry. **Section 3.3.3.3** provides a detailed discussion of boom and bust economies. In Dawson, recruiting labour has consistently been identified as a constraint to local business development. Dawson in particular witnesses a highly seasonal workforce, reflecting key industries of mineral exploration and tourism, which exhibit short tenure labour needs in summer months (KDO 2014a).

Full-Time and Part-Time

Approximately 87.6% of employed Yukoners were full-time workers, and 12.4% were part-time workers, in 2015. This represents a slight decrease in the proportion of Yukon's part-time workers, since over the last 10 years (2006 to 2015), approximately 13.9% of Yukon's labour force were considered to be part-time (YBS 2016b). Moreover, the 2011 NHS identified approximately 84.3% of Yukon's labour force who worked in 2010 were full-time, compared to 15.7% part-time (**Figure 3.3-9**) (Statistics Canada 2013a, 2013b).

In 2015, Yukon had the second lowest proportion of part-time workers (13.1%) in comparison to the rest of Canada. The top five reasons identified for working part-time in 2015 were personal preference (41.7%); going to school (20.8%); business conditions (12.5%); caring for children (8.3%); and other reasons (16.7%) (YBS 2016b).

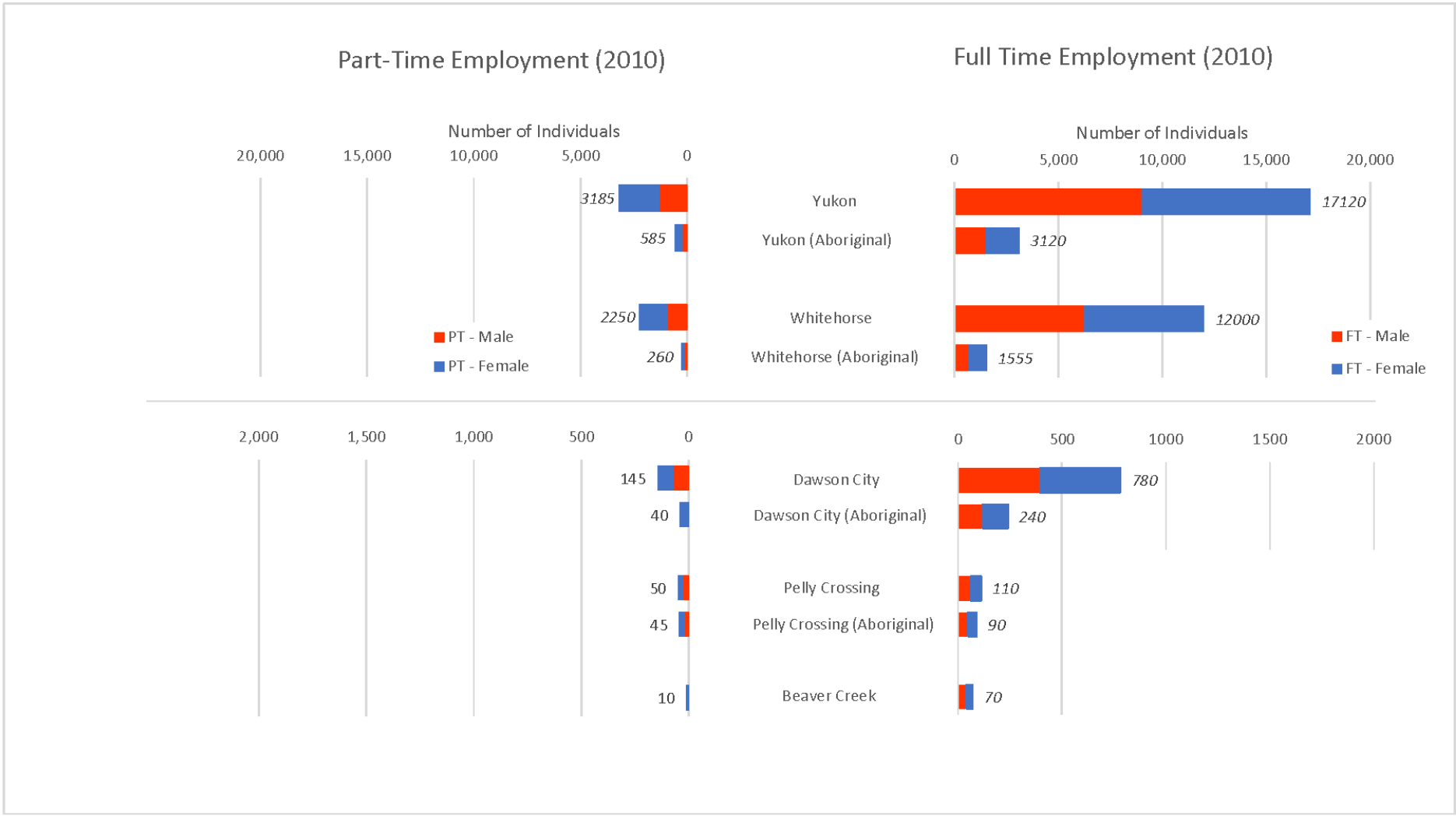
Dawson's total and Aboriginal labour forces who worked in 2010 reflected the RAA labour force's balance of full-time compared to part-time work (85.2% and 15.3%, and 83.9% and 14.3%, respectively) (**Figure 3.3-9**). The balance was also similar for Beaver Creek (86.7% and 13.3%). Data for Pelly Crossing's total and Aboriginal labour forces demonstrated a stronger representation of part-time work in 2010 (32.3% and 35.7%, respectively), when compared to the LAA and RAA communities (Statistics Canada 2013a, 2013b). Through the local business and economic development survey, business owners in Dawson identified that approximately 56.5% of their employees were full-time, and 34.8% were part-time. For several businesses, their employees were a mix of full-time, part-time, and seasonal or temporary.

Average Hours

Though the average number of hours worked varies by occupation, the average number of hours worked per week by Yukoners in 2015 was 35.5 hours per week, which is similar to the national average of 35.6 hours per week (YBS 2016b). Occupations with the highest reported average hours worked were supervisors and technical occupations in natural resources, agriculture and related production with 53.5 hours per week; the occupations with the lowest reported average hours worked were trade helpers, construction labourers, and related occupations with 25.0 hours per week (YBS 2016b).

Job Tenure

Job tenure can be defined as "the number of consecutive months or years that a person has worked for the current (or most recent) employer" (YBS 2016b). In 2015, the average job tenure of Yukoners was 91.3 months (approximately 7.6 years), compared to a national average of 103.6 months (approximately 8.6 years) (YBS 2016b). Both Yukon (4.9%) and the Canadian average job tenure length (0.7%) increased between 2014 and 2015 (YBS 2016b). Males working in Yukon were found to have longer average job tenure (93.8 months or 7.8 years) than females (88.5 months or 7.4 years) (YBS 2016b). Occupations with the longest average job tenures in Yukon were middle management occupations in trades, transportation, production, and utilities occupations (182.8 months or 15.2 years), maintenance and equipment operation trades (159.5 months or 13.3 years), and retail sales supervisors and specialized sales occupations (146.8 months or 12.2 years) in 2015.



Source: Statistics Canada 2013a, 2013b

Figure 3.3-9 Labour Force by Full- or Part-Time Work in 2010 – Gender Differentials

Occupations with the shortest average job tenures in Yukon were sales support occupations (19.6 months or 1.6 years), trades helpers, construction labourers and related occupations (27.5 months or 2.3 years), and other installers, repairers, and servicers, and material handlers (37.0 months or 3.1 years) in 2015 (YBS 2016b). This reflects the seasonality of industries, in particular the tourism sector (YG 2010a). Communities other than Whitehorse typically have more seasonal work, resulting in retention challenges, and movement of workers to the capital (YG 2010a). Refer to **Appendix 19-A Demographics Intermediate Component Analysis Report** for a detailed discussion of population migration in the Project study areas.

Dawson in particular witnesses a highly seasonal regional economy, reflecting key industries of mineral exploration and tourism, which exhibit short-tenure labour needs in summer months (KDO 2014a). Approximately 40% of the Dawson labour force is recruited each year (KDO 2014b). A 2014 survey of seasonal workers in Dawson identified that May and September were the most common arrival and departure dates (71% and 60% of respondents, respectively), and that close to 50% of workers were employed at a bar or restaurant (KDO 2014b). This reflects other feedback received, that there are limited work opportunities available in the winter, with seasonable work available from May to September (Interview 23, Personal Communication 2016). It was noted that the cost of having a turnover of staff is expensive for local businesses (Interview 28, Personal Communication 2016).

A review of Yukon's 2015 labour force revealed that approximately 81.9% of workers (13,600 people) were permanent employees and approximately 18.1% were temporary (YBS 2016b). In comparison to Canada's national average, Yukon had fewer permanent workers (86.6% national average) and more temporary workers (13.4% national average) in 2015. Further, males were slightly more likely to work as temporary employees (53.3%) than females (46.7%) in 2015 (YBS 2016b).

Recruitment and Retention

Findings from research conducted in 2010 identified employee recruitment and retention as a challenge faced by municipalities in Yukon (YG n.d.). Yukon's historic boom and bust cycle has been identified as a contributing factor to fluctuations in the territory's labour market (YG 2010a). Salary, quality of life, recognition, housing, modern technologies, and sophisticated human resources (HR) strategies were identified as approaches to address recruiting and retention challenges (YG n.d., 2010a). Strong labour market demands from an upswing in the mining or construction sector can result in employee recruitment and retention challenges, particularly in the context of the size of Yukon's labour force (YG 2010a).

In Dawson, recruiting labour has consistently been identified as a constraint to local business development, as evidenced in 2006, 2011, and 2013 survey responses (KDO 2014a). For the Dawson area, lack of affordable housing, qualified workers, competitive wages, and full-time permanent employment in the context of seasonal economic fluctuations were identified as contributors to employee recruitment and retention challenges (KDO 2011a, 2013a, 2014a, Interview 23, Personal Communication 2016, Interview 21, Personal Communication 2016). Generational differences between older workers and those born in the

1980s and 1990s were also identified as an employment recruitment challenge (KDO 2014a). According to the Dawson Employer Labour Market Survey Report (KDO 2013a), 58% of respondents reported regular and occasional difficulty recruiting employees, and 63% of respondents experience regular and occasional difficulty retaining employees. A 2014 survey of seasonal workers in Dawson identified that enjoyment and the wilderness were key reasons to return to Dawson, and that settling down elsewhere, travel interests, expensive living conditions, and access to housing were key reasons not to return for future employment (KDO 2014b). Of note, 40% of survey respondents were provided with staff accommodations, which is a benefit to employees in a community with housing capacity issues (KDO 2014b, Interview 23, Personal Communication 2016).

3.3.3 SUSTAINABLE ECONOMIC DEVELOPMENT

Sustainable economic development is a persistent theme throughout community and economic development plans in Yukon and the communities in the Project's study areas. The YGED's mandate is:

> …[t]o develop a sustainable and competitive Yukon economy to enrich the quality of life of all Yukoners; to pursue economic initiatives with a shared vision of prosperity, partnerships and innovation; and to forge partnerships with First Nations in the economic development of the territory… (YG 2016).

With territorial and local economies largely reliant on outside events (e.g., global commodity prices, U.S. dollar, international tourism trends), pursuing sustainable economic development is an attractive and useful goal, but not without challenges. The dominance of the mining industry for communities results in an unstable cyclical economy based on commodity production (Southcott and Walker 2009). The YGED's 2012 to 2017 strategic goals include: attracting investment, growing Yukon's economy, and building Yukon's competitive advantage (YGED 2012).

3.3.3.1 Local Economy

Regional Assessment Area

Yukon's economic sectors include agriculture, energy, film and sound, fishing, forestry, hunting, mining and exploration, tourism, and trapping. Agriculture comprises a small portion of Yukon's economy, with key agricultural areas near Whitehorse, Dawson, Watson Lake, and Mayo. The film and sound recording industries in Yukon exist due to the territory's scenic location and availability of recording facilities. Fishing and hunting are important industries to residents and visitors, both in terms of subsistence and sport. Trapping is a valuable industry, particularly as a winter revenue source. Approximately 81,000 square km (km^2) of land in Yukon can support timber harvesting activities, predominantly by small operators (YG 2015a). Further detail on these industries can be found in **Appendix 24-A Land and Resource Use Valued Component Assessment Report.**

The mining and mineral exploration industry reflects the geological composition of Yukon, and is primarily comprised of gold mining, though activity has expanded in other commodities, including lead and zinc, silver, tungsten, iron, molybdenum, nickel, copper, and coal (YG 2015a). The global market for minerals is a key determinant of mineral exploration, development, and production in the territory, and plays a key role in Yukon's economy (YGED 2015). Due to Yukon's relatively small economy, influences from global markets and events are strong (YGED 2015). Expenditures in mineral exploration peaked in 2011, although increased spending was anticipated for 2014 and 2015 (YGED 2015). Weaker mineral prices and global mineral demand have affected mineral exploration work in the territory, resulting in efforts by mining companies to lower costs and raise capital (YGED 2015). In 2015, the mining sector in Yukon experienced uncertainty regarding future demand and price performance (YGED 2015). Yukon's geology positions the territory for future mineral development (YGED 2015).

Tourism in Yukon is currently the largest private sector employer, and comprises the following categories: accommodations; food and beverage; transportation; adventure tourism; wildlife viewing and recreation; events and conferences; travel trade; attractions; and tourism services (YG 2015a). Tourism and related industries and services such as retailers, accommodation providers, and restaurants comprised approximately 4% of Yukon's total gross domestic product (GDP) in 2012, contributing to the territory's economic diversity (YGED 2015). Greater reliance of Yukon's economy on tourism typically occurs when the mining sector is weaker (YGED 2015). In 2012, it was estimated that 11.3% of employment in Yukon was in the tourism sector. Low oil prices and a weaker Canadian dollar were anticipated to result in increased visitation numbers for Yukon in 2015 (YGED 2015).

The predominant energy source in Yukon is hydroelectric, followed by diesel combustion and wind (YG 2015a). Yukon's hydrocarbon resources include onshore and offshore conventional natural gas and oil. Interest in the territory's oil and gas development includes exploration. Similar to the mining industry, the development of Yukon's oil and gas resources depends on global prices and demand, as well as decisions related to hydraulic fracturing. Generally, Yukon's outlook for oil and gas development remains uncertain as of 2015 (YGED 2015).

The construction industry is expected to grow in terms of the value of building permits, particularly for health and social services institutional buildings (YGED 2015). Retail sales, linked closely to the mining sector and general economy of the territory, are expected to fall in 2015, but grow in 2016 (YGED 2015).

Local Assessment Area

Key economic drivers for the City of Whitehorse include government services, tourism, and mining. Government services are predominant as Whitehorse is the territory's capital city, and tourism largely results from visitors via the Alaska Highway. As a large city, Whitehorse also services mineral exploration companies (City of Whitehorse 2010). Whitehorse's community economic development strategy includes goals associated with the local business climate: supporting an inclusive economy; developing

infrastructure; promoting entrepreneurship; attracting residents to live in Whitehorse; and creating a vibrant downtown (City of Whitehorse 2015).

The local economy of Dawson has been shaped by its history, spanning from TH's use of the land and resources, to fur trading between the 1700s and 1840s, to the discovery of gold in 1896, and to the ensuing Klondike gold rush. After the gold rush declined, a subsequent mining boom occurred in the area during the 1930s and ceased in the 1960s. Dawson's local economy is currently driven by placer mining and tourism, highlighting Dawson's and TH's heritage (City of Dawson and TH n.d.). This relatively narrow economic focus results in seasonal fluctuations and reliance on outside factors (e.g., global commodity prices and value of the U,S, dollar), and is seen as limiting the community's economic development and potential. From TH's perspective, it is noted that tourism and other development can create meaningful economic opportunities (TH 2012a).

Sustainable economic development is a key component of Dawson and TH's vision for the community, as identified in the Integrated Community Sustainability Plan: "[h]onouring the past, sharing the present, embracing the future" (City of Dawson and TH n.d., p. 13). Specifically, the community looks to diversify the local economy through development of heritage, arts, and culture; this aligns with KDO's vision, identified in its Strategic Plan 2011 to 2015, which is: "[a] resilient Klondike where highly engaged citizens, networks and organizations collaborate to build a sustainable economy" (KDO 2011b). The Integrated Community Sustainability Plan also identifies the following community objectives related to the local economy: supporting a stable economy; developing tourism; retaining a sustainable year-round population; promoting an affordable cost of living; encouraging employment opportunities; restricting franchises; and developing the volunteer economy (City of Dawson and TH n.d.). In the Dawson area, KDO works with Chief Isaac Inc. (TH's development corporation), the City of Dawson, and local organizations to build "a resilient Klondike where highly engaged citizens, networks, and organizations collaborate to build a sustainable economy" (KDO n.d.). Chief Isaac Inc.'s mission is to "operate a for-profit corporation to create sustainable wealth for our First Nation" (Chief Isaac Inc. 2016).

The Regional Economic Development Plan for the TH Traditional Territory, reflecting findings from Vector Research (2008), states that several actions are required to expand and diversify the region's economy, including:

- Addressing and overcoming perceived barriers to economic development (e.g., housing, labour market supply, among others)
- Building on existing and unique strengths of the Dawson Region, as well as focusing on niche opportunities by expanding tourism and establishing a knowledge economy
- Remaining open to development activities that are primarily driven by global forces (e.g., non-renewable resources), than by local influences (TH 2011).

The other communities in the LAA share common goals related to diversifying economic and employment opportunities to support the development of sustainable local economies (FNNND 2016, SFN 2007). Challenges such as small populations and lack of capital are experienced in Mayo, Pelly Crossing, and Beaver Creek. As these communities' populations are strongly represented by First Nations, balancing traditional and modern economies is a focus in developing sustainable local economies (see **Appendix 21-A Social Economy Valued Component Assessment Report** for a detailed discussion). The local economy in Mayo consists of government services from all levels of governments, as well as the mining, construction, transportation, energy, and service sectors (YG 2014a). The mining sector exhibits the greatest demand for labour and services, and Yukon Energy Corporation investments in hydroelectric energy infrastructure may provide employment opportunities for skilled labour (YG 2014a). Mining and energy developments provide opportunities for local businesses in Mayo to expand the local economy. The Na-Cho Nyäk Dun Development Corporation advances economic and employment opportunities for the First Nation, and sees opportunities for local economic diversification in the following areas: tourism; local service sector; local construction projects; and mineral exploration and development support (YG 2014a). The Na-Cho Nyäk Dun Development Corporation plans to maximize local economic interests through investment and development in mining and reclamation; renewable energy; and real estate (FNNND 2016). The FNNND has previously expressed that the community recognizes the importance of balancing resources with economic development and jobs (InterGroup Consultants Ltd. 2009, FNNND 2008).

Pelly Crossing's local economy is small and centred on government services, health, and education, with SFN as the primary employer. As of 2007, SFN anticipated that development of the Minto Mine Project (Sherwood Copper) would substantially improve employment opportunities in the community (SFN 2007). As stated in SFN's Integration Community Sustainability Plan: "[w]e value an economy that supports traditional lifestyle options and new economic opportunities. We want an economy that supports lifestyle choice and allows our local government to raise own source revenue to meet existing and emerging needs" (SFN 2007). Sustainable development for SFN is identified as respect for Mother Earth as the cornerstone in the development of traditional and modern lifestyles (SFN 2007). Through its Development Corporation, SFN seeks to develop Pelly Crossing's local economy to ensure stability, local business opportunities related to goods and services provision, and employment opportunities (SFN 2007). The SFN Development Corporation works with SFN to develop business ventures and maximize opportunities for the community (SFN Development Corporation n.d.).

Similar to Mayo and Pelly Crossing, Beaver Creek's local economy centres on government services and tourism, with potential for growth associated with mineral exploration activities (YG 2014b). Beaver Creek's government services include the Canadian Border Services Agency (YG 2014b). The community's primary employer is WRFN, exemplifying the local economy's reliance on government services. The WRFN Economic Development Corporation is a new entity created to lead economic development for WFRN.

The community's small population and reliance on Alaska Highway traffic presents challenges in terms of diversifying the local economy and providing full-time, year-round employment (Inukshuk Planning & Development 2009). The community has a strong reliance on the Federal Government to fund capital projects (Inukshuk Planning & Development 2009). Developing a strong, diversified local economy is seen as the key to community growth (Inukshuk Planning & Development 2009). As of 2009, Beaver Creek witnessed a downward trend in private sector employment and businesses, resulting from retirement, a downturn in Alaska Highway-based economy, and lack of new capital (Inukshuk Planning & Development 2009). As stated in WRFN's Comprehensive Community Development Plan: "[f]uture success for White River will require finding the proper balance between the First Nation's traditional economy and lifestyles with the demands and opportunities of the modern economy" (Inukshuk Planning and Development 2009). As of 2009, Beaver Creek was anticipating several long-range opportunities related to mining, energy, and rail projects, although concerns related to impacts from boom and bust projects were identified, such as access to housing and social problems linked to increases in income (Inukshuk Planning & Development 2009). A key goal for the community's local economy is identified as: "help[ing to] build a viable and sustainable local economy in Beaver Creek to the extent possible for a small community of our size so Beaver Creek is a good place to live, work and play" (Inukshuk Planning & Development 2009).

3.3.3.2 Local Businesses

Sustaining local businesses is a key component of developing and maintaining a sustainable local economy. Local businesses in Dawson tend to be owned and operated by an older demographic, with concerns regarding succession planning (KDO 2011a). It is acknowledged that portions of the local and regional economy can be expanded, but require additional organized capacity to retain businesses and services in the community (KDO 2011a). Services such as regional information, permitting assistance, and data are anticipated to be developed by KDO to facilitate development and investment planning (KDO 2011a). It was noted that TH recently hired a full-time business advisor to support business development in Dawson, which will provide a dedicated focus to this area (Interview 23, Personal Communication 2016). It was identified that KDO supports the development of a sustainable local economy through many different initiatives and services, including: developing and maintaining KDO's website; organizing forums on different topics related to economic development; fielding inquiries from people who are interested in doing business in Dawson; acting as a source of information for people; and working to address the housing issue in Dawson (Interview 20, Personal Communication 2016).

Communicating and building awareness of local businesses and services in Dawson with larger regional business operators in the mining sector was identified as an area of focus to ensure local opportunities are realized (KDO 2013a). According to a 2013 survey, several respondents felt that housing in Dawson should be addressed before recruiting employees to the community (KDO 2013a); this reflects KDO's 2011 to 2015 strategic plan, which identified development of the housing sector as a key to strengthening the local economy (KDO 2011a). It was noted through feedback that KDO will be undertaking a re-visioning exercise

to re-confirm priorities in the current economic climate (Interview 28, Personal Communication 2016). The current lack of housing availability in Dawson is a challenge that limits the ability of local businesses to bring in additional staff to the community, even with grants available for some builders (Interview 21, Personal Communication 2016, Interview 28, Personal Communication 2016). Through primary data collection, feedback was received regarding potential benefits to housing in Dawson as a result of the Project. Specifically, the Project may be the needed incentive to build additional housing capacity in the community (Interview 21, Personal Communication 2016). Even after mine closure, the potential housing legacy will be beneficial to the community (Interview 21, Personal Communication 2016).

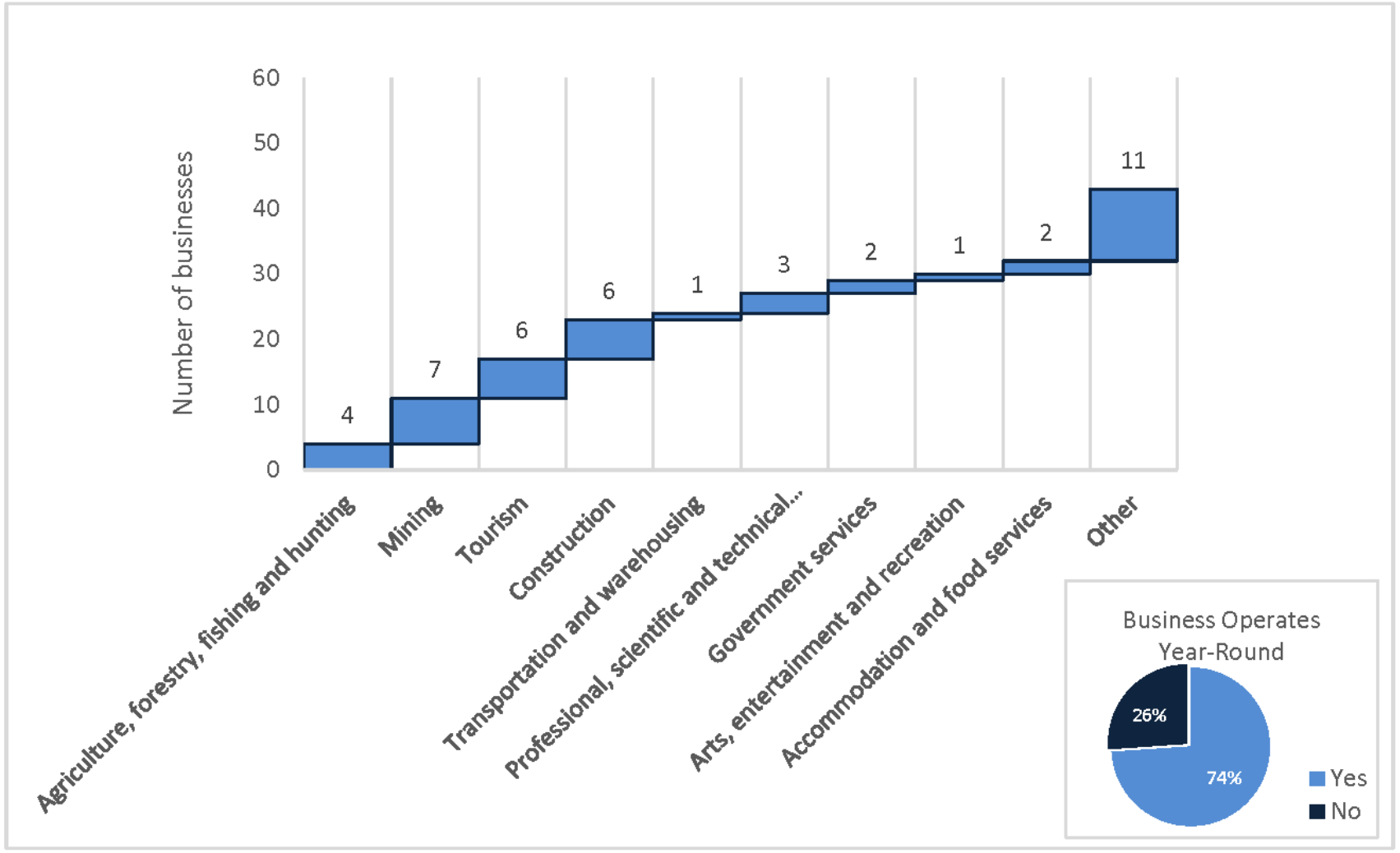
According to the 2013 Yukon Business Survey, Dawson had the second largest number of businesses (determined by office address) in the territory, behind Whitehorse. Even so, Dawson's businesses comprised only 8.2% of the total for Yukon, with Whitehorse representing 76.7%. Across the territory, the sectors with the greatest number of businesses included accommodation and food services; retail trade; construction; professional, scientific and technical services; mining, quarrying, and oil and gas extraction; and transportation and warehousing (YBS 2014b).

Results from the local business and economic development survey indicate that various sectors are represented by businesses in Dawson (**Figure 3.3-10**) (KDO 2011a). A large proportion of businesses (59.4%) identified as belonging to the mining, tourism, and construction sectors, which reflect the community's local economy. Almost half of respondents identified 'other' as their business' sector, for example office services, windshield repair, welding, and retail. Of note, many businesses (43.5%) have been operated for more than 20 years, and the majority of respondents (86.4%) consider their business to be family-owned. Regarding seasonality, approximately one-quarter of respondents identified that their businesses were open between April and October, and 73.9% of total employees were seasonal or temporary (**Figure 3.3-10**). Most respondents (52.2%) indicated that their main customer base is local. In terms of the mining industry, a majority of respondents (78.3%) believe that the industry has positively affected their business operations and activities in the past 5 years, with approximately 82.6% of businesses currently providing goods and / or services to the industry. Goods and or services provided to the mining industry by Dawson businesses identified in the survey include but are not limited to: notary services; windshield repair; bulk water delivery; road grading; welding; environmental products; equipment rentals; entertainment; accommodations; restaurants and catering; and retail. Generally, respondents (69.6%) believe that economic development in the Klondike region in the last five years has had a positive effect on their business.

A study by Vector Research indicated that mining firm spending on the supply chain is largely driven by price and value, although initiatives to encourage the use of local suppliers and services supported by various organizations in Yukon have been successful (Herkes et al. 2013). Challenges identified by mineral exploration companies that conduct business in the Klondike region include: short field seasons;

transportation costs; lack of road infrastructure to access properties; and limited banking services (KDO 2013b). It was identified that local businesses in Dawson were generally able to service and provide supplies for mineral exploration companies; however, considerations such as selection and price were factors in soliciting business elsewhere (KDO 2013b).

Initiatives at the local and territorial scale have occurred to encourage the use of local businesses and service providers. Specific to the mining sector, a local website was developed to advertise and promote local goods and services available in Dawson and the region (KDO 2013b). The Contracting and Procurement Regulation and Contracting and Procurement Directive by the Yukon Department of Highways and Public Works requires that procurement authorities "make reasonable efforts to support community-based businesses" (YG 2013). Klondike Development Organization has been active in a number of strategic initiatives (e.g., website development and attending promotional events) to encourage local business development and facilitate local economic resilience (KDO 2011b, 2013b). The final draft Regional Economic Development Plan includes a strategy to maximize local procurement opportunities associated with major industrial developments in the Dawson area (KDO 2013b).



Source: Local Business Focus Group, Personal Communication, 2016

Figure 3.3-10 Dawson Local Business Survey Results: Business Categories and Seasonality

Results of a survey by KDO indicate that a strong majority (89% of sample size) of Klondike businesses deliberately seek local suppliers. Moreover, few (7.5% of sample size) businesses are considering relocation outside of the area (KDO 2011a). It was also identified that numerous businesses experience strong service or product demand, potentially opening opportunities for growth (KDO 2011a). A range of business opportunities was identified as an important component of building a sustainable local economy (KDO 2011a). Business support services such as counselling and training were identified as a need to ensure sustainable business retention and expansion (KDO 2011a, 2011b). It was also identified, through general observations, many people moved to Dawson to start businesses or to take over businesses (Interview 21, Personal Communication 2016).

3.3.3.3 Boom and Bust Economy

Yukon's historical boom and bust cycle presents challenges in terms of labour supply, and contributes to the expectation that the territorial labour market will continue to fluctuate in the future (YG 2010a). Yukon has long experienced boom and bust economic cycles associated with resource development and global commodity prices. In the past, economic development planning focused on boom opportunities, ignoring or misunderstanding key characteristics of the Yukon economy that can sustain itself through bust downswings (Staples 1988). Flexibility, diversity, and self-reliance, exhibited through varied work tenure (e.g., seasonal), and subsistence through non-wage economies demonstrates the adaptability and self-sufficiency of Yukon's economy (Staples 1988). Focusing on boom opportunities associated with the mining industry can also result in unrealistic and exaggerated expectations (Staples 1988); this was reflected in primary data collection, which identified cautious feedback regarding a community being overly reliant on a project, and needing to ensure that changes during Project operations are sustainable (Interview 28, Personal Communication 2016).

Dawson's local economy is subject to seasonal boom and bust cycles, as well as longer-term boom and bust cycles relating to the mining sector that reflect commodity prices. As a result of heightened construction and mineral industry activities experienced in the Dawson area in 2011 and 2012, it was identified that servicing anticipated developments could encourage increases in employment and local economy diversification (KDO 2013b). Following this period in 2013, however, major mineral exploration and development activities experienced a slowdown, which is typical of the industry's cyclical activity levels (KDO 2013b). This slowdown reinforced the need to consider local procurement and economic readiness in a broader way, over a longer period, and across multiple industries, rather than a short-term focus on the mining sector (KDO 2013b). Focusing on broader industries can also lessen Dawson's challenge of cyclical recruitment and retention associated with seasonal boom and bust cycles (KDO 2014b).

Dawson exhibits an annual seasonal boom and bust economic cycle, with high unemployment rates in winter months (KDO 2011a, Vector Research 2008, Interview 19, Personal Communication 2016). Driven by the local economy's focus on mining and tourism, the community's population triples each summer.

Dawson relies on bringing workers in from outside of the region to meet the summer season's employment needs (City of Dawson and TH n.d., Vector Research 2008, Interview 28, Personal Communication 2016). In Dawson, the small permanent population currently in place is seen as the primary barrier to expansion of the local economy, which can be attributed to high costs of living, limited access to housing, and availability of year-round services (KDO 2011b, City of Dawson and TH n.d., Interview 21, Personal Communication 2016, Interview 28, Personal Communication 2016). Employee recruitment and particularly retention are challenges in the community. Diversifying economic development into sectors that generate full-time permanent employment opportunities is a proposed means to address this issue (KDO 2011a).

The three largest employers of year-round work in Dawson are the Yukon Government, TH, and the City of Dawson (Interview 23, Personal Communication 2016). Through primary data collection, it was stated that if year-round employment is available for people in Dawson, it may increase overall population numbers and result in more winter and year-round economic activity, reducing the community's seasonal boom and bust cycle (Interview 21, Personal Communication 2016, Interview 28, Personal Communication 2016). The KDO is actively engaged in various strategies to expand the local economy, including: enterprise retention and development; research; key sector development; capital pool investment; partnership forum; community marketing; and social enterprise (KDO 2011b). Strategies for businesses to stay open year-round include: reduction of hours; implementation of a winter schedule; and service diversification (Interview 23, Personal Communication 2016). It was noted that both seasonal and year-round businesses have their own strategies for success, although seasonal businesses in the Klondike Region struggle to manage and stay afloat in winter (Interview 23, Personal Communication 2016, Interview 19, Personal Communication 2016).

3.3.3.4 Cost of Living

The cost of living in Yukon is generally higher than living in southern Canada, and even higher for those living in Yukon communities outside of Whitehorse (YG 2014c). Influencing the cost of living is the price of goods and services. Although the Consumer Price Index (CPI) is not a cost-of-living index, it can be used as an indicator of price changes over time (YBS 2016c). The major components of the CPI include food; shelter; household operations, furnishings, and equipment; clothing and footwear; transportation; health and personal care; recreation, education, and reading; and alcoholic beverages and tobacco products. Between 2006 and 2014, the CPI for Whitehorse increased annually. In 2015, the CPI decreased by 0.2%. Between 2006 and 2014, the smallest increase was in 2009 (0.4%), and the largest increase was in 2008 (3.6%) (YBS 2016c). In Whitehorse and Mayo, average regular self-serve fuel prices were under 100.0¢ per litre as of March 30th 2016. At the same time, average fuel prices were 104.9¢ per litre in Pelly Crossing, 116.0¢ per litre in Dawson, and 129.9¢ per litre in Beaver Creek. Since March 2015, these prices have decreased by 5.3% to 16.0%, depending on the community. Diesel and premium fuel prices demonstrated similar changes (YBS 2016c). The average prices for residential heating fuels (furnace oil, arctic stove oil, and propane) varied between communities, with the greatest prices in Mayo, and the lowest prices in

Whitehorse. Other than propane fuel for all communities except Whitehorse, residential heating fuel average prices decreased from March 2015 to March 2016 (YBS 2016c).

High costs of living, in particular fuel and resource costs, were identified as a local challenge for Dawson and TH, particularly in terms of retaining a larger permanent population (City of Dawson and TH n.d.). Dawson's cost of living is slightly higher than Whitehorse and other areas of Canada. Specifically comparing Dawson to Whitehorse, the average ratio for goods such as gas, fuel, cigarettes, groceries, personal care items, and household cleaning supplies in 2012 was 1:1.17 (YG 2014d) Primary data collection indicates that affordability and the cost of living as well as operating a business is becoming a challenging to those living in Dawson, including the cost of housing and food (Interview 28, Personal Communication 2016). Moreover, the majority (73.9%) of respondents to the local business and economic development survey identified that their business' operating costs (e.g., rent, taxes) have increased during the past five years. Feedback regarding the costs of renting in Dawson identified a range from $500 for a room in a shared house to $2,500+ for a four-bedroom house. The costs of buying a detached home in Dawson range from cabins in West Dawson for $125,000 (no running water) to executive-style homes for approximately $350,000 to $500,000 (Interview 21, Personal Communication 2016). Refer to **Appendix 22-A Community Infrastructure and Services Valued Component Report** for a detailed discussion of housing and shelter costs in the LAA and RAA.

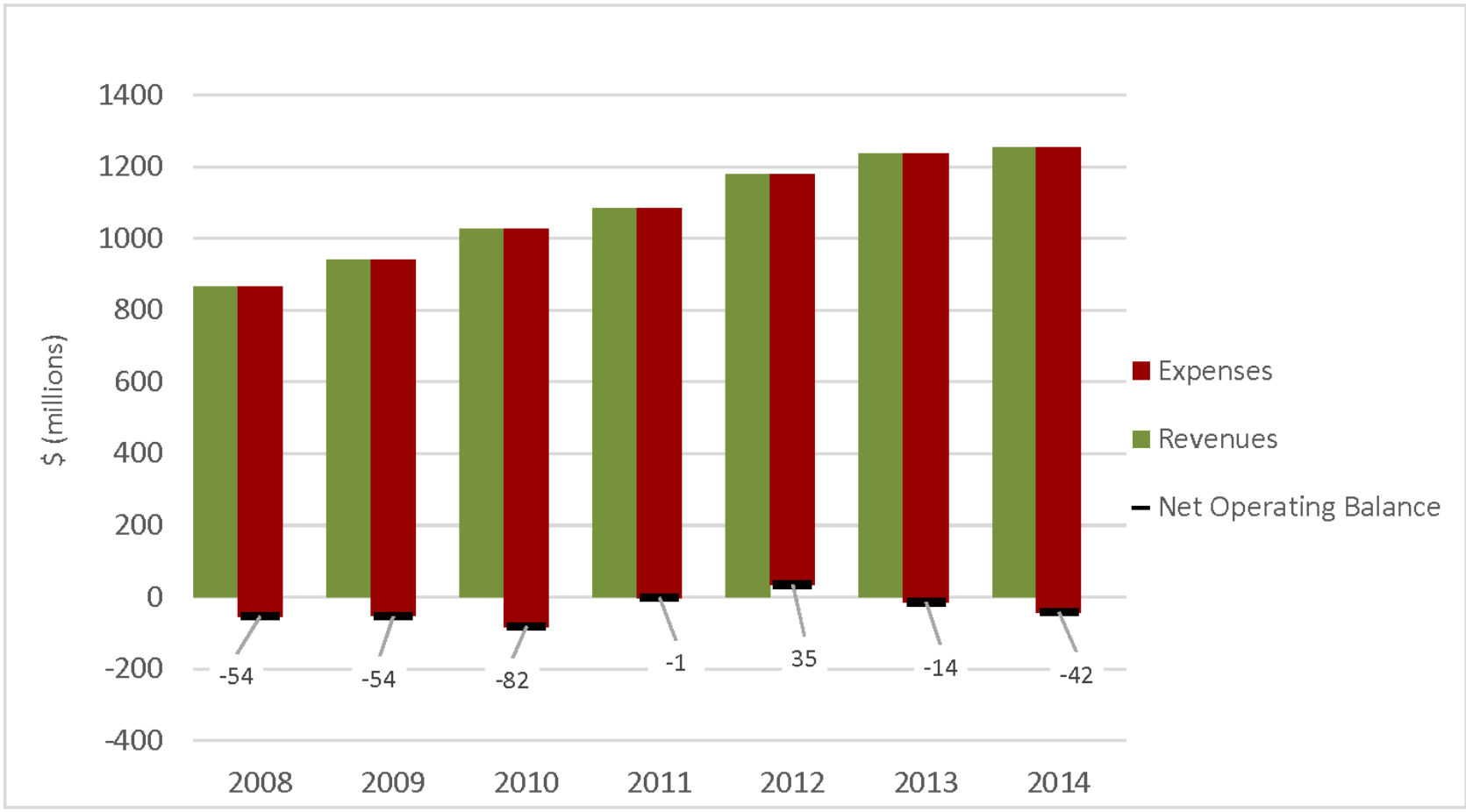
3.3.3.5 Gross Domestic Product

Between 2005 and 2012, Yukon's GDP grew on average 6% per year; however, after strong increases between 2006 and 2008, the growth rate declined to -0.8% in 2014. From 2013 to 2014, Yukon's real GDP contracted by 1.2% to $2.2 billion (in 2007 dollars), largely due to a decline in mineral commodity prices and associated mineral production, a trend that was anticipated for 2015 (Government of Canada 2015b, YBS 2016d, YGED 2015). Specifically, the mining, quarrying, and oil and gas extraction sector experienced the largest contraction in 2014 (by 10.7% from 2013) (YBS 2016d). Examples include suspension of production at the Wolverine Mine in January 2015, and lack of production at the Bellekeno Mine (YGED 2015). Reflecting the trend in the mining industry, Yukon's GDP in goods-producing industries contracted by 5.1% in 2014, compared to services-producing industries which increased by 0.6% (YBS 2016d). In 2015, YGED forecasted a 3.5% growth in real GDP, primarily due to anticipated mineral production levels at the Minto Mine (YGED 2015). However, it was announced in January 2016 that underground mining and operation at the Minto Mine would temporarily close in 2016 until mid-2017 (Capstone Mining 2016). A recent announcement indicates that mine operations at the Minto Mine may resume for several months in 2017, with a temporary shutdown and assessment of options planned for late 2017 (Capstone Mining 2017). Generally, slow economic growth was predicted to continue for the territory in 2017 (Government of Canada 2015a). Yukon's economy was expected to grow by approximately 3.4% in 2016, largely due to the continued strength of Yukon's dominant public sector (Government of Canada 2015b).

In 2014, public administration accounted for the greatest contribution to Yukon's GDP (23.3%), followed by real estate and rental and leasing (14.0%). The Yukon's mining, quarrying, and oil and gas extraction industry accounted for 13.2% of the territory's real GDP, and was valued at $437.1 million in 2014 (YBS 2016d). Public administration routinely comprises the greatest percentage share of Yukon's GDP, with construction and mining, quarrying, and oil and gas extraction industries demonstrating the greatest fluctuations between years (YBS 2016d).

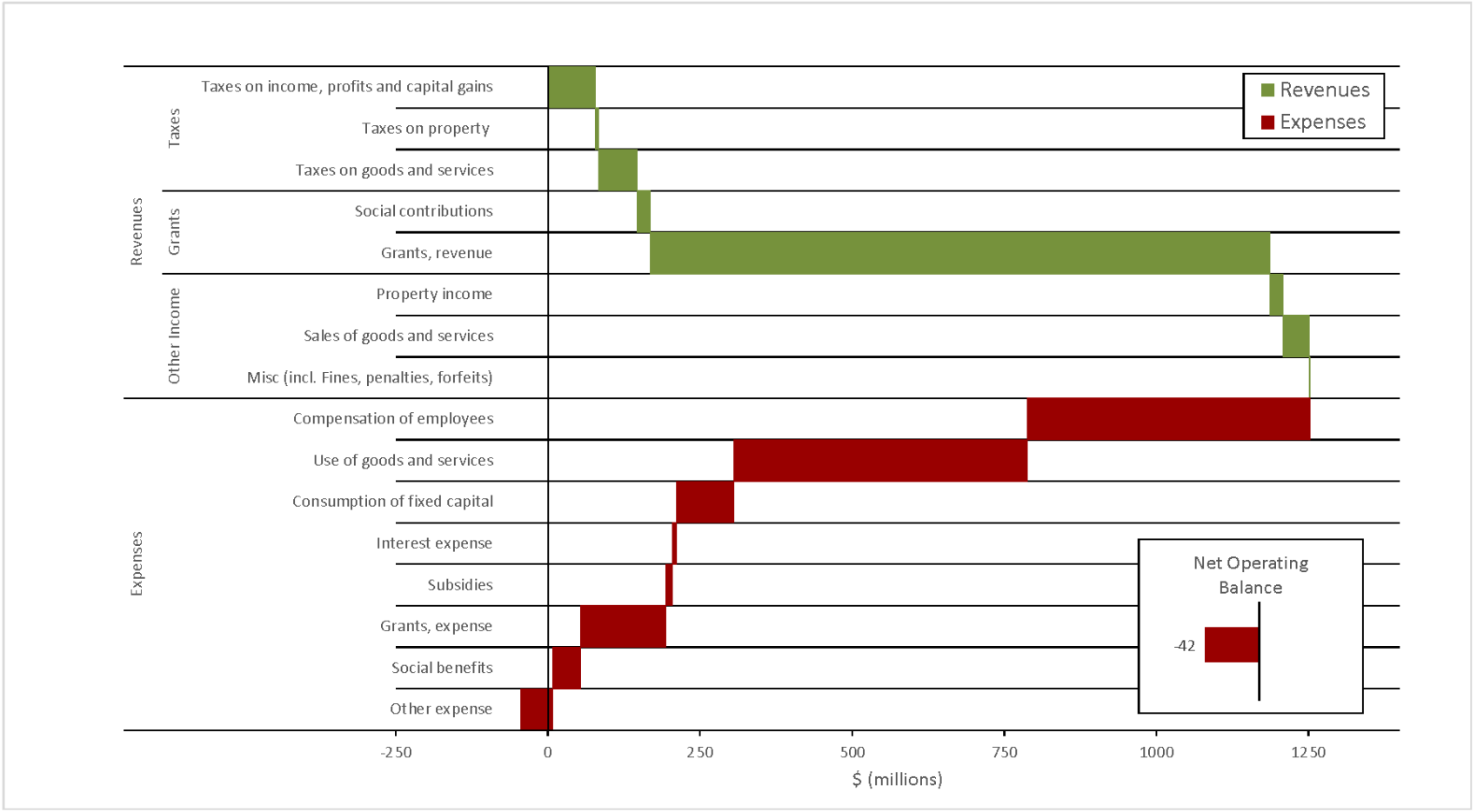
3.3.3.6 Government Revenues

Yukon Government revenues and expenditures are reported annually. Between 2008 and 2014, both revenues and expenditures have increased (**Figure 3.3-11**). Other than 2012, which saw a net surplus of $35 million, the territorial government had net deficits between 2008 and 2014. According to Statistics Canada, Yukon Government revenue from grants comprised the largest proportion of revenue sources (**Figure 3.3-12**). Rents, including mineral royalties, comprised less than 1% of annual total revenue between 2008 and 2014. The majority of Yukon Government expenditures comprise compensation of employees and use of goods and services (**Figure 3.3-12**) (Statistics Canada 2016a).



Source: Statistics Canada 2016a

Figure 3.3-11 Yukon Revenues, Expenses, and Net Operating Balance, 2008 to 2014



Source: Statistics Canada 2016a

Figure 3.3-12 Yukon Operating Budget by Category, 2014

The Yukon Government reported on annual royalties paid associated with three operating mines: Minto, Bellekeno, and Wolverine in 2015 (Table 3.3-8). Under the QMA the Yukon Government receives a royalty or share of profits from mine operators. Between 2007 and 2013, the peak of mine royalties received was almost $6 million in 2009, solely deriving from the Minto Mine. Royalty values of $0 for each mine indicate their first commercial production year (YG 2015b). Overall, royalties decreased between 2011 and 2013 due to decreased production, as well as amendments to the QMA Royalty Regulation Guidelines, which caps the annual royalty rate for any profit in excess of $35 million at 12% (YG 2010b).

Table 3.3-8 Annual Royalties Paid by Yukon Mines: 2007 to 2013

Mine	Royalty Paid						
	2007	2008	2009	2010	2011	2012	2013
Minto Mine (Capstone Mining Corp.)	$0	$1,503,491	$5,917,904	$3,806,550	$1,680,398	$391,661	$215,773
Bellekeno Mine (Alexco Resources)	-	-	-	$0	$351,525	$372,588	$0
Wolverine Mine (Yukon Zinc)	-	-	-	-	-	$0	$0

Source: Yukon Energy, Mines and Resources 2015

4.0 ASSESSMENT OF PROJECT-RELATED EFFECTS

This section describes the potential interactions between Project-related activities and the Economic Conditions VC, including income and income distribution, the labour market, and sustainable economic development, as well as enhancement measures, and residual effects and their significance.

4.1 POTENTIAL PROJECT-RELATED INTERACTIONS WITH ECONOMIC CONDITIONS

Potential interactions are likely to occur between Project-related activities and income and income distribution, the labour market, and sustainable economic development during the Construction, Operation, and Reclamation and Closure Phases. This section focuses the assessment on those interactions with the potential to affect the Economic Conditions VC. To accomplish this task, the potential for interactions between Economic Conditions and identified Project activities are considered. Each potential interaction is rated using the terms provided in **Table 4.1-1**.

Potential Project interactions with Economic Conditions are presented in **Table 4.1-2**. When a potential interaction between the Project and Economic Conditions will not likely result in an effect on the VC, or the effect of an interaction is considered negligible (i.e., not likely to have a substantial influence on the short- or long-term integrity of the VC, and the effect would not be quantitatively or qualitatively measurable or detectable using the identified indicator), it is not considered further in the assessment.

Table 4.1-1 Potential for an Interaction between Economic Conditions and the Project

Term	Definition
No Interaction	Project activity will not interact with the VC.
Negligible Interaction	Interaction with the Project activity will not have a substantial influence on the short- or long-term integrity of the VC (i.e., not measurable / not detectable using the identified indicator). Note that the rationale for such a finding (e.g., potential effect avoided due to implementation of mitigation) must be documented.
Potential Interaction	Interaction between the Project activity and the VC may have a substantial influence on the short- or long-term integrity of the VC (i.e., measurable or detectable using the identified indicator). The potential effect(s) of the interaction is considered further in the effects assessment.

Table 4.1-2 Identification of Potential Project Interactions with Economic Conditions

Project Component	Interaction Rating	Nature of Interaction and Potential Effect
Construction Phase		
Overall Construction Phase	Potential Interaction	Changes in income and income distribution, labour market, and sustainable economic development are likely to occur as a result of an interaction between Economic Conditions and the overall Construction Phase of the Project.
Operation Phase		
Overall Operation Phase	Potential Interaction	Changes in income and income distribution, labour market, and sustainable economic development will likely occur as a result of an interaction between Economic Conditions and the overall Operation Phase of the Project.
Reclamation and Closure Phase		
Overall Reclamation and Closure Phase	Negligible Interaction	Minimal Project employment and expenditures associated with Reclamation and Closure activities may interact with Economic Conditions due to local hiring and Project spending on goods and services, although these changes will likely not be detectable.
Post-closure Phase		
Overall Post-closure Phase	Negligible Interaction	Minimal Project employment and expenditures associated with Post-closure activities may interact with Economic Conditions due to local hiring and Project spending on goods and services, although these changes will likely not be detectable.

Although employment opportunities associated with the Project will occur during the Reclamation and Closure Phase, the effect is likely to be negligible due to the disparity in employment numbers across the different Project phases. During Reclamation and Closure, the maximum annual labour estimated for the Project is 32, compared to 663 during the Construction Phase and 372 during the Operation Phase. A negligible interaction does not imply that no interaction exists. Local communities including First Nations will likely continue to benefit from employment and contracting and procurement opportunities during the Reclamation and Closure Phase of the Project. During the Post-closure Phase, long-term monitoring is the only activity likely to occur. Employment and goods and services expenditures associated with long-term monitoring are not likely; therefore, interactions between Economic Conditions and Post-closure Phase Project activities will likely be negligible. As a result of negligible interactions, the potential for Project-related effects on economic conditions during Reclamation and Closure, and Post-closure Phases is not carried forward for further assessment.

It is recognized that due to the Project's procurement and labour needs, economic effects of the Project may occur beyond the RAA (i.e., beyond Yukon Territory). The IO modelling conducted by YGED demonstrates that direct, indirect, and induced effects of the Project will also likely occur outside Yukon, and that labour income is likely in other territories and provinces. The way in which Project-related effects

on economic conditions may influence income and income distribution, the labour market, and sustainable economic development in regions, provinces, and territories beyond the RAA are not within the scope of this assessment, and are therefore not assessed in this report. Such effects are influenced by economic factors globally and in other parts of Canada that are beyond the control of the Proponent.

The majority (83%) of the 214-km NAR is existing, and will be upgraded for use during Project Operation; however, certain areas of the Mine Site and NAR overlap with surface, traditional use, land rights. The potential for disruption to livelihoods is examined in **Appendix 21-A Social Economy Valued Component Assessment Report**.

Interactions which are considered likely to result in potential effects to Economic Conditions are discussed further in **Section 4.2**.

4.2 POTENTIAL PROJECT-RELATED EFFECTS

This section considers potential Project-related effects on Economic Conditions arising from potential interactions, as identified in **Table 4.1-2**, and in relation to the indicators listed in **Table 1.2-2**.

The Project will affect the local, regional, and territorial labour markets through three main avenues:

(1) Direct employment – labour required for the Construction, Operation, and Reclamation and Closure Phases of the Project
(2) Indirect employment – additional employment generated through the purchase of goods and services needed for the Project, and the upstream production of these goods and services;
(3) Induced employment – workers associated with the consumer or household spending of the wages and incomes earned in Project associated direct and indirect employment.

In turn, employment may affect income levels. The Project also has the potential to affect the balance of the labour market in terms of the availability of labour for other projects and activities and the seasonality of employment.

Diversification of the local economy and expansion of the local business base through contracting opportunities will interact with communities' goals of pursuing a sustainable local economy. The local economy may also be affected through a change in full-time or shift employment, or a change from more seasonal part-time employment to full-time employment.

At a broader scale, the Project may affect territorial economic growth, and government fiscal flows may increase through taxes and royalties.

The potential effects considered in the assessment are listed below and discussed in the following sections:

- Increased direct, indirect, and induced employment opportunities
- Increased income levels and changes in income distribution patterns resulting from increased employment opportunities
- Effects on the labour market
- Increased contracting and procurement opportunities
- Change in local economies
- Beneficial to territorial economic growth
- Change in government fiscal flows.

4.2.1 INCREASED DIRECT, INDIRECT, AND INDUCED EMPLOYMENT OPPORTUNITIES

Employment opportunities are likely to occur during Construction and Operation in the LAA and RAA as a result of direct Project employment, as well as indirect and induced employment resulting from Project expenditures and purchases of goods and services. Economic opportunities related to the Project may be experienced differently by different cohorts, genders, and cultural backgrounds of the LAA and RAA populations. Although the potential effect is likely to occur across all assessment areas, the effect of employment opportunities will likely be more pronounced in Dawson and the smaller LAA communities, which exhibit smaller populations and labour markets. The LAA is likely to strongly experience the effect of direct, indirect, and induced employment opportunities associated with the Project. For example, Dawson is near the Project and NAR, and has an available workforce. The Proponent anticipates facilitating goods and services expenditures and employment opportunities for community members and members of TH. Effects of the Project on employment are considered beneficial, and were identified as such through primary data collection activities, particularly if the employment opportunities are available year-round (Interview 23, Personal Communication, 2016, Interview 27, Personal Communication, 2016).

Direct employment opportunities associated with the Project will vary between the Construction, Operation, and Reclamation and Closure Phases, and by Project component (i.e., Process Plant, Open Pit, surface and infrastructure, construction, and general and administrative). The Maximum annual labour estimates by Project component are shown in **Figure 4.2-1**. The extent to which local and regional residents will participate is dependent on several factors including labour force size and availability, industry experience, and the timing of other projects with similar labour demands (refer to **Section 4.2.2** for a discussion of the potential effect of the Project on the labour market).

COFFEE GOLD MINE

Maximum Annual Labour Estimates by Project Component

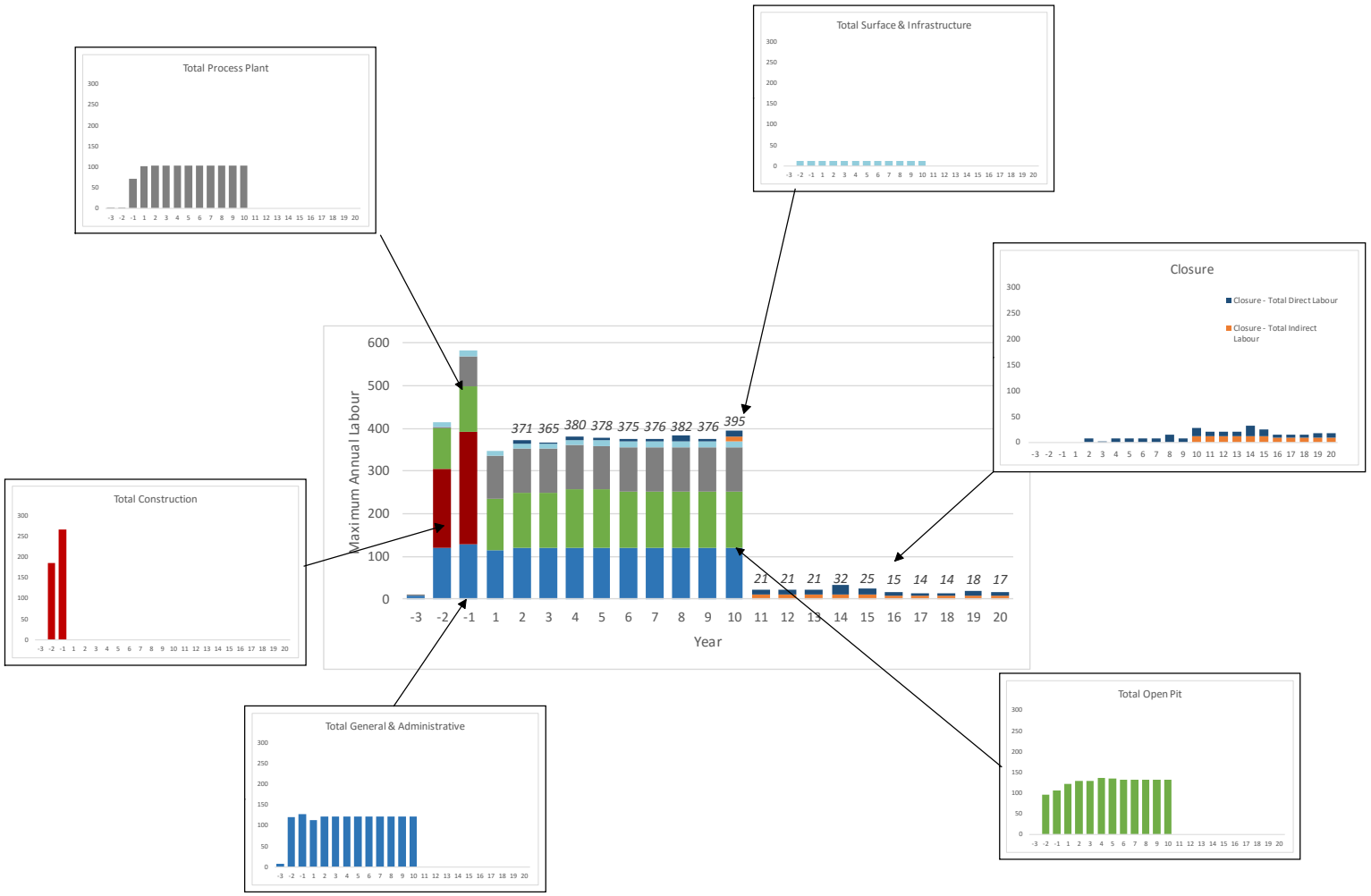


Figure 4.2-1	Date: Mar 24, 2017	Drawn by: JS	Reviewed: MH

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The Project components (i.e., Process Plant, Open Pit, surface and infrastructure, construction, and general and administrative) have varying labour needs during Construction and Operation based on position, which are summarized in **Table 4.2-1**. Positions for construction are only required in Years –1 and –2, during the Construction Phase of the Project (**Figure 4.2-1**). The Project will require a maximum of 321 pre-production construction labour positions, consisting of direct construction labour, construction management, and construction support crew positions, which include electricians, mechanics, and labourers. Positions for general and administrative roles will be required for all years during Construction and Operation. The Project will require a maximum of 132 pre-production and 121 production general and administrative labour positions for general management, IT support, administration, health and safety, security, and camp services, among others. The surface and infrastructure component of the Project will also require a maximum of 12 labour positions during all years of the Construction and Operation Phases, including foremen and mobile equipment operators. The Open Pit mining component and the Process Plant component both require labour from Year –1 to Year 11. The Process Plant positions (95 maximum for pre-production and 103 maximum for production) consist of mill staff, mill operations, Heap Leach operations, laboratory, power plant, and mill maintenance.

During Operation, Open Pit mining has the largest labour requirements: a maximum of 105 pre-production, and 136 production labour. Open Pit mining positions are divided by operations, Open Pit maintenance, and Open Pit technical services, and include positions such as blasters, truck drivers, mechanics, labourers, and engineers, among others. Fewer positions are required for Reclamation and Closure activities (**Table 4.2-2**). Direct labour (maximum 20) will be required from Year 2 to Year 20, and includes positions for monitoring and water treatment, among others. Indirect labour (maximum 12) will be required from Year 10 to Year 20, and includes positions for project management, NAR and barge operations, and helicopter support, among others.

Table 4.2-1 Positions by Project Component, Construction and Operation

Construction	General and Administrative	Open Pit Mining
Construction Support Crew	**General Management**	**Operations**
Surface Foreman	General Manager	Mine Shift Foreman
Electrician	Secretary	Driller, Blasthole
Mechanic	**Human Resources**	Blaster
Crane Operator	HR Superintendent	Blasting Helper
Batch Plant Operator	Human Resources Coordinator	Ammonium Nitrate and Fuel Oil Truck Driver
HEO – Skilled	Community Relations Coordinator	Shovel / Loader Operator
HEO - Semi Skilled	**IT / OT Support**	Truck Driver
Labourers	Technicians	Track Dozer Operator
Direct Construction Labour	**Administration**	Wheel Dozer Operator
Direct Construction Labour	Controller / Accountant	Grader Operator

Construction	General and Administrative	Open Pit Mining
Construction Management	Payroll Supervisor	Water / Ancillary Truck Driver
Construction Management	Payroll Clerk	Labourer / Trainee
Construction Management	Sr. Purchasing / Contracts	**Open Pit Maintenance**
Construction Management	Purchasing Agent	Maintenance Superintendent
Process Plant	Warehouse Supervisor	Maintenance Planner (OP / UG)
Mill Staff	**Warehouse Clerk**	**Maintenance Shift Foreman**
Mill Superintendent	**Health and Safety**	Heavy Equipment Mechanic
Operations Shift Foreman	Safety and Training Superintendent	Welder / Mechanic
Chief Metallurgist	Health and Safety Officer	Electrician / Instrument
Plant Metallurgist	Trainer	Lube / PM Mechanic / Light Duty Mechanic
Metallurgical Technician	**Environmental**	Drymen
Mill Operations	Environmental Superintendent	Tireman
Control Room Operator	Road Monitor	Labourer / Trainee
Crusher Operator	Environmental Technician	**Open Pit Technical Services**
Carbon Plant Operator	Environmental Monitors	Operations Manager
EW / Gold Room Operator	**Security**	Mining Superintendent
Helpers	Protective Services Supervisor	Chief Mining Engineer
Helpers (Crushing Plant)	Protective Services Officers	Senior Mine Engineer
Heap Leach Operations	**Camp Support Services**	Mine Engineer
Heap Leach PAD Operators (2 for drip lines and 2 for Welding pipe)	Camp Manager	Mine Projects Engineer
Laboratory	Camp Clerk	Geotechnical Engineer
Lab Manager	Catering	Ore Control Engineer
Assayer	Housekeepers	Mine Technicians LTP / STP
Sample Prep / Trainees	Janitors	Surveyor
Power Plant	Nurse / Paramedic	Survey Assistant
Power Plant Operator	**Pre-Production Owner's Team**	Clerk
Millwright	Project Sponsor and Project Manager	Chief Geologist OP / UG
Mill Maintenance	**Surface and Infrastructure**	Mine Geologist OP / UG
Maintenance Superintendent	**Surface and Infrastructure**	Technician / Ore Control
Maintenance Planner	Surface Foreman	
Millwrights / Welders	Electrician	
Electricians	Facilities Maintenance - Tradesman	
Instrumentation	Mobile Equipment Operator	
Apprentice	Labourers / Apprentices	

Source: JDS, Personal Communication, 2016

Table 4.2-2 Positions by Project Component, Reclamation and Closure

Direct Labour – Personnel On-site
Civil / Earthworks
Structural
Heap Rinse
Water Treatment
Monitoring / Testing
Indirect Labour – Personnel On-site
Onsite Project Management
Northern Access Route and Barge Operations
Site Services / Maintenance
Accommodations and Travel
Helicopter Support

Source: JDS Personal Communication, 2016c

The positions identified in **Table 4.1-2** above are largely classified under the trades, transportation and equipment operators and related occupations; natural resources; agriculture and related occupations; management; and natural and applied sciences occupations. In 2011, the majority of both Dawson total and Aboriginal labour forces were employed in trades, as well as transportation and equipment operators and related occupations. It is noted, however, that various labour force forecasting analyses in Yukon's mining sector have identified gaps in terms of available labour to meet industry occupational needs, many of which will be required to fill positions on the Project. Key gaps identified include: machine operators, mineral and metal processing; heavy equipment operators (except crane); underground mine service and support workers; underground production and development miners; production workers in mineral and metal processing; mining engineers; mining and quarrying supervisors; and primary production managers (Herkes et al 2013, MIHR 2012). Specifically, for Dawson's mining sector, labour force skills, access to housing, and transportation challenges were identified by mine developers and operators as key concerns (KDO 2013b).

In terms of industry experience, a commonality across the LAA and RAA is the dominance of the public administration industry, which comprises the largest proportions of the study area labour forces. Dawson's labour force, however, is also more substantially focused in the mining industry compared to other communities in the LAA and the RAA. This industry experience may provide an advantage to the community in terms of its ability to maximize direct employment opportunities associated with the Project. The labour forces in the LAA and RAA have some capacity to meet direct labour needs of the Project during Construction, Operation, and Reclamation and Closure (**Table 4.2-3**). In particular, a recent slowdown in the mining and exploration industry related to decreasing commodity prices has decreased activity levels, and has scaled back employment needs in the sector for the Dawson labour force (Interview 23, Personal

Communication, 2016). In addition, approximately 8.9% of the labour force in Whitehorse in 2011 was identified as experienced in mining and construction, and the total available labour pool was approximately 1,132. These data provide an indication that local labour will be available to fill some direct Project needs; however, it is clear that labour forces in LAA communities will not meet the entire complement of direct labour demands associated with the Project. The Proponent will likely seek to meet the additional labour requirement from beyond the territory, potentially through temporary workers or permanent in-migration of workers. Refer to **Appendix 19-A Demographic Intermediate Component Analysis Report** for a discussion of Project-related population changes.

Table 4.2-3 Key Labour Force Characteristics in the Local and Regional Assessment Areas

Location	Population 15+ by Labour Force Status (No.) 2011 Census	Participation Rate (%)	In the Labour Force (No.)	Unemployment Rate (%)	Estimated Total Available Labour (No.)	Labour Force Experienced in Mining and Construction Industries (%)
RAA						
Yukon (total)	27,495	77.3%	21,245	9.8%	2,082	9.6%
Yukon (Aboriginal identity)	5,785	70.0%	4,050	22.7%	919	11.4%
LAA						
Whitehorse (total)	20,920	79.0%	16,520	7.9%	1,305	8.9%
Whitehorse (Aboriginal identity)	2,900	73.4%	2,130	19.7%	420	10.2%
Dawson	1,185	81.0%	960	10.9%	105	18.1%
Dawson (Aboriginal identity)	370	77.0%	285	28.1%	80	24.3%
Pelly Crossing	290	63.8%	185	45.9%	85	5.2%
Pelly Crossing (Aboriginal identity)	260	65.4%	170	50.0%	85	5.8%
Mayo	*Data for this area has been suppressed for data quality or confidentiality reasons.*					
Beaver Creek	85	94.1%	80	0.0%	0	0.0%
Beaver Creek (Aboriginal identity)	*An Aboriginal population profile is not available for this area.*					

Source: Statistics Canada 2013a, 2013b

Appendix 23-A Education Services Valued Component Assessment Report describes the educational attainment of the labour forces in the LAA and RAA. Training opportunities associated with the Project will likely result in overall increases in education, training, and skill levels of the labour force. Project-specific training opportunities will likely be focused in the LAA (Dawson), which in turn may lead to an increased ability of the LAA labour force to maximize direct employment opportunities with the Project.

Primary data collection for the Project indicated that it will be important for the Proponent to hire locally, to be open, transparent, and fair with respect to its hiring policies, and to balance Project benefits between First Nations and local residents. It was suggested that including local addresses on employment application forms would be a means of distinguishing local applicants. Additional feedback during primary data collection indicated that it would be beneficial for the Proponent to provide job descriptions, requirements, and information about how to pursue anticipated jobs to prospective employees now, so that people can seek any required training or experience in advance of operations (Interview 23, Personal Communication, 2016). Klondike Outreach was identified as a venue for advertising employment opportunities.

The Dawson community generally sees the opportunity for benefits from the Project, but emphasized that it is important for the Proponent to work with the local community (Interview 23, Personal Communication, 2016, Interview 28, Personal Communication, 2016). In particular, it was noted that is important for the Proponent to provide a communication channel so that people can get in touch, and to be responsive to people who are applying for jobs (Interview 23, Personal Communication, 2016).

Yukon Government Economic Development conducted IO modelling for the Project, which provides an estimate of direct[1], indirect[2], and induced[3] full-time equivalent (FTE) jobs for Yukon and outside of Yukon (**Table 4.2-4**). IO modelling results for the Construction Phase of the Project rely on pre-production capital cost expenditures as the input. Construction-related expenditures for the Project will occur over a three-year period (Year –3 to Year –1), with pre-production capital costs expected to be $318.4 million over this period. Yukon Government Economic Development projected that pre-production spending would result in 1,260 direct FTE jobs occurring in Yukon (direct, indirect, and induced), and 1,307 occurring in the rest of Canada (indirect and induced) (YGED, Personal Communication, 2016b).

1 Direct effects measure the initial requirements for an extra dollar's worth of output of a given industry. The direct effect on the output of an industry is a dollar change in output to meet the change of a dollar in final demand. Associated with this change, there will also be direct effects on GDP, jobs, and imports (YGED Personal Communication, 2016b).

2 Indirect effects measure the changes due to inter-industry purchases as they respond to the new demands of the directly affected industries. This includes all the chain reaction of output up the production stream since each of the products purchased will require, in turn, the production of various inputs (YGED Personal Communication, 2016b).

3 Induced effects measure the changes in the production of goods and services in response to consumer expenditures induced by households' incomes (i.e., wages) generated by the production of the direct and indirect requirements (YGED Personal Communication, 2016b).

In terms of Operation, the Project will likely be in production from Year –1 to Year 11 (12 years). Results of YGED's IO modelling provides an indication of direct, indirect, and induced FTE jobs for Yukon and outside of Yukon associated with production output (**Table 4.2-4**). The IO modelling results are based on the total ounces produced by the mine, multiplied by the return in Canadian dollars per ounce. The IO model for Production Phase impacts was updated in February of 2017 to reflect new information (JDS, Per. Comm. 2017, YGED, Personal Communication, 2017). Similar to the pre-production estimates, IO modelling does not consider the labour estimates prepared by the Proponent. Yukon Government Economic Development projected that average annual FTE jobs during production would consist of 390 occurring in Yukon (direct, indirect, and induced), and 296 occurring in the rest of Canada (indirect and induced) (YGED, Personal Communication, 2016b, 2017).

Table 4.2-4 Projected Effects, Total Pre-Production and Average Annual Production Full-time Equivalent Jobs as a Result of the Project

Total Effects	FTE Jobs	
	Pre-Production (total)	Production (average annual)
Yukon		
Direct	703	278
Indirect	448	65
Induced	110	48
Subtotal (Yukon)	**1,260**	**390**
Outside Yukon		
Indirect	896	180
Induced	411	116
Subtotal (Outside Yukon)	**1,307**	**296**
Total (All Provinces and Territories)	**2,567**	**686**

Source: YGED, Personal Communication, 2016a; 2017

In addition to direct employment opportunities, through Project-related goods and service expenditures, as well as expenditures by workers, the LAA and RAA will likely experience increases in indirect and induced employment opportunities. The balance of the labour force in service-producing (supporting) industries compared to goods-producing (basic) industries can indicate the extent of a local economy's diversification. The RAA labour force demonstrated a greater proportion in supporting industries, which is an indication of an ability to offer services to basic industry activities, such as a mine. In terms of basic industries, Dawson's 2011 labour force comprised a larger proportion (22.4%), compared to the total for the territory (15.6%). It can therefore be inferred that compared to Yukon, Dawson's local economy may have a reduced ability to provide goods and services to support basic industries, based on the balance of the labour force in supporting versus basic industries. Refer to **Section 4.2.5** for a discussion of potential effects associated with local economies. It is still likely that local and regional businesses will be able to provide goods and services to support the Project, however, which in turn may result in beneficial indirect and induced employment effects. Based on IO modelling, the Project will likely result in 448 indirect and 110 induced FTE jobs occurring in Yukon during the Construction Phase of the Project (**Table 4.2-4**). During the Operation Phase of the Project from Year –1 to Year 11, the Project will likely result in 65 indirect and 48 induced average annual FTE jobs occurring in Yukon (**Table 4.2-4**) (YGED, Personal Communication, 2016b).

Ultimately, the number of local and regional residents hired for direct employment opportunities associated with the Project will depend on the availability of qualified workers, which considers the demands of other projects in the RAA for skilled workers in the mining sector (Refer to **Section 4.2.2**).

In conclusion, while the Project will likely be required to hire from labour markets in the RAA and beyond to fill labour demands, the LAA is likely to strongly experience the effect of increased direct, indirect, and induced employment opportunities associated with the Project. This effect is likely to be pronounced in Dawson, due to its geographic location in relation to the Mine Site and NAR, as well as the Proponent's practices regarding goods and services expenditures and employment opportunities for community members and members of the LAA First Nations. The Proponent's strategic focus on training opportunities for Dawson and First Nations citizens will further enhance the beneficial effect of employment opportunities as a result of the Project.

4.2.2 Increased Income Levels and Changes in Income Patterns Resulting from Increased Employment Opportunities

Changes in income patterns during the Project's Construction and Operation Phases will likely occur in the LAA and RAA as a result of direct Project employment, as well as indirect and induced employment resulting from Project expenditures and purchases of goods and services. Economic opportunities and corresponding incomes related to the Project may be experienced differently by different cohorts, genders, and cultural backgrounds of the LAA and RAA populations. Although the potential effect is likely to occur across all assessment areas, changes in income patterns will likely be more pronounced in smaller LAA communities, which exhibit lower median incomes. Due to Dawson's geographic location in relation to the Mine Site and NAR, as well as the Proponent's practices regarding goods and services expenditures and employment opportunities for community members and members of TH, Dawson will likely experience a beneficial change in income patterns associated with the Project.

A wide range of employment opportunities are anticipated in relation to the Project, particularly during the mine's Operation Phase (refer to **Section 4.2.1**). Certain demographic cohorts in the LAA and RAA labour force, however, may experience challenges associated with accessing direct Project employment opportunities. Challenges or barriers to accessing employment may include limited available services such as childcare or a lack of education and training. Many of the challenges to accessing employment are discussed and addressed in other Socio-economic VC reports. For example, some individuals may face constraints in the context of existing capacity pressures on local services to support families (refer to Social Determinants of Health in **Appendix 18-C Health Impact Assessment Report**). Others may face constraints related to existing levels of education and training (refer to **Appendix 23-A Education Services Valued Component Assessment Report**). In Yukon, females comprised 21.3% of the mining, quarrying, and oil and gas extraction industry labour force, compared to 49.2% across all industries in 2011 (Statistics Canada 2013b). This balance is comparable to Dawson in 2011, which saw females comprising 32.3% of the mining industry labour force, compared to 49.5% across all industries (Statistics Canada 2013b). Moreover, in a review of 2013 workforce data from three operating mines in Yukon, approximately 88% of total employees and contractors were male (Herkes et al 2013). In terms of gender differentials related to income, all median incomes for males in the LAA and RAA (except Pelly Crossing) were $5,000 to $6,000 greater than incomes for females in 2011 (Statistics Canada 2013b). It is possible that some change in

community income patterns may emerge during the Construction and Operation Phases of the Project based on age, gender, and other demographic cohorts.

Yukon Government Economic Development conducted IO modelling for the Project, which provides an estimate of direct, indirect, and induced labour income for Yukon and outside of Yukon (**Table 4.2-5**). Section 4.2.1 provides definitions of direct, indirect, and induced effects.

Input-output modelling results for the Construction Phase of the Project rely on pre-production capital cost expenditures as the input. Construction-related expenditures for the Project will occur over a three-year period (Year –3 to Year –1), with pre-production capital costs likely to be $318.4 million over this period. Yukon Government Economic Development projected that pre-production spending would result in $83.8 million in labour income occurring in Yukon (direct, indirect, and induced), and $80.3 million in labour income occurring in the rest of Canada (indirect and induced) (YGED, Personal Communication, 2016a). In terms of Operation, the Project will likely be in production from Year –1 to Year 11. Results of YGED's IO modelling provides an indication of direct, indirect, and induced average annual labour income for Yukon and outside of Yukon associated with production output (**Table 4.2-5**). The IO modelling results are based on the total ounces produced by the mine, multiplied by the return in Canadian dollars per ounce. Similar to the pre-production estimates, IO modelling does not consider the labour or salary estimates prepared by the Proponent. Yukon Government Economic Development projected that average annual labour income during production would be $31.6 million occurring in Yukon (direct, indirect, and induced), and $17.9 million occurring in the rest of Canada (indirect and induced) (YGED, Personal Communication, 2016a, 2017).

Table 4.2-5 Projected Effects, Total Pre-Production and Average Annual Production Labour Income as a Result of the Project

Location	Labour Income (millions)	
	Pre-production (total)	Production (average annual)
Yukon		
Direct	$51.7	$21.8
Indirect	$26.5	$7.3
Induced	$5.6	$2.4
Subtotal (Yukon)	**$83.8**	**$31.6**
Outside Yukon		
Indirect	$59.1	$12.0
Induced	$21.2	$6.0
Subtotal (Outside Yukon)	**$80.3**	**$17.9**
Total (All Provinces and Territories)	**$164.1**	**$49.5**

Source: YGED, Personal Communication, 2016, 2017

The levels of income experienced by those involved in direct Project-related employment may be notably higher than existing median incomes in the LAA and RAA. The median income of Dawson and Yukon total and Aboriginal populations were $37,705 and $31,075, and $40,391 and $25,113, respectively, in 2011 (Statistics Canada 2013a, 2013b). In comparison, the wages related to direct Project employment opportunities are likely to be slightly higher. Typical labour rates for Open Pit, Process Plant, site services support, NAR, winter ice road, and general and administrative labour positions were provided by the Proponent, and were determined by referencing other northern Canadian operations (**Table 4.2-6**). The figures are not burdened labour rates, and therefore exclude items such as scheduled overtime costs, travel pay, and statutory holiday and vacation pay allowance, among others. Drill and blast, load and haul, and maintenance positions are paid an hourly rate, ranging from approximately $33 per hour for a blasting helper, tireman, or labourer to approximately $51 per hour for a heavy equipment mechanic, welder, or mechanic, electrician / instrument, or lube / PM mechanic / light-duty mechanic. Supervision and technical services positions are paid a salaried rate, ranging from approximately $65,000 per year for a clerk to $325,000 per year for a general manager.

Table 4.2-6 Unburdened Labour Costs by Staff and Hourly Positions

Grand Total Labour Costs (Unburdened)		Staff Positions	Hourly Positions
Hourly	Annually		
$24.19	$40,000	-	Housekeeping / Janitorial
$27.22	$45,000	-	Labourer Unskilled
$33.27	$55,000	-	Labourer Skilled, Blasting Helper, Tireman, Warehouse Labour
$39.31	$65,000	Mine Clerk, Admin, Training Coordinator, Purchaser	Truck Driver, Water / Ancillary Truck Driver, Assayer, Apprentice, Camp Cook
$42.34	$70,000		Crusher Operator, Driller, Blaster, Track Dozer Operator, RT Dozer Operator, Grader Operator
$45.36	$75,000	Surveyor, Geologist, Metallurgist Technician, Environmental Technician, Mine Technicians, Surveyors, Safety Medic	Control Room Operator, Leach / CIP Operator, Strip / Regeneration Operator, Gold Refining Operator, Power Plant Operator, Shovel/Loader Operator
$51.41	$85,000	Chief Assayer, HR Coordinator, Trainer, Payroll, Camp Manager	Heavy Equipment Mechanic, Electrician / Instrumentation, Welder, Millwright
$54.43	$90,000	Mill Supervisor, Maintenance Planner, Sr. Purchaser, Metallurgist, Mine Engineer, Geotechnical Engineer, Maintenance Foreman, Mine Planner, Sr. Geologist, Surface Foreman	-
$66.53	$110,000	Mill General Forman, Mine Shift Foreman, HR Superintendent, Accountant	-
$69.55	$115,000	Safety Superintendent, Warehouse Superintendent	-
$78.63	$130,000	Chief Metallurgist, Sr. Engineer, Environmental Superintendent	-
$81.65	$135,000	Mill Superintendent, Maintenance Superintendent, Mining Superintendent	-
$99.80	$165,000	Chief Engineer	-
$142.13	$235,000	Mine Manager	-
$196.57	$325,000	General Manager	-

Source: JDS, Personal Communication, 2016a

Note: Regarding unburdened labour costs, when reviewing the cost of hiring and maintaining employees for a business or for a particular job, the term unburdened labour describes the amount of wages or salaries paid directly to employees. By contrast, burdened labour costs include other expenses such as payroll taxes and employee benefits.

The potential effect of changes in income patterns will likely be noticeable in Dawson, Beaver Creek, Pelly Crossing, and Mayo, communities that exhibit smaller populations and lower median incomes. In Whitehorse where the population is greater, changes in income and income distribution patterns will not likely be perceptible. Refer to **Appendix 19-A Demographics Intermediate Component Analysis Report** for a discussion of potential changes related to populations and demographics.

The potential effect of the Project on changes in labour income across LAA communities can be viewed differently from different perspectives. While improved income levels for community members will likely be perceived positively by those who are directly employed by the Project and local business owners and operators will benefit from the spending of local workers, income differentials may be perceived negatively by community members not involved in the Project. Higher levels of income may also contribute to local community issues, requiring government response. For example, housing has been identified through primary and secondary data collection as a key community issue in Dawson, which has received considerable attention from the community and local organizations (KDO 2011c, KDO 2014a, Interview 8, Personal Communication 2016). Potential effects associated with community infrastructure and services, including potential increases in housing costs, are described in **Appendix 22-A Community Infrastructure and Services Valued Component Assessment Report**.

A concern regarding income associated with mining was identified through an informant in a TH TK study. Specifically, increased income resulting from mining can affect family and community relations (TH 2012b). Potential effects associated with community health and well-being as a result of changes in incomes are described in **Appendix 25-A Community Health and Well-being Valued Component Assessment Report**.

Overall, while the Project is likely to positively influence incomes in all LAA communities, the effect will likely be more strongly experienced in smaller LAA communities. Although it is likely that the majority of the Project labour will be male, the exact composition of the direct workforce, and indirect and induced employment will depend on the labour force characteristics and circumstances when the Project is constructed and during Operation. The precise differentials in income among various demographic cohorts cannot be predicted. Potential adverse effects associated with increases in income as a result of Project-related employment, for example community and social issues as well as the need for local government response, are addressed in **Appendix 25-A Community Health and Well-being Valued Component Assessment Report** and **Appendix 22-A Community Infrastructure and Services Valued Component Assessment Report**. Generally, increased incomes are considered desirable for communities and individuals. For individuals in the labour force engaged in direct, indirect, and induced employment opportunities as a result of the Project, increased incomes are likely to be experienced as a beneficial outcome of the Project.

4.2.3 EFFECTS ON THE LABOUR MARKET

Direct employment opportunities, as well as indirect and induced employment from Project expenditures and purchases of goods and services will likely result in changes in labour markets. In particular, the Project may reduce the availability of labour for other regional industries or projects. The Yukon's labour force has consistently exhibited low unemployment rates and high participation rates, which present challenges to filling employer needs. As described in **Section 4.2.1**, various labour force forecasting analyses in Yukon's mining sector have identified gaps in terms of available labour to meet industry occupational needs, many of which will be required to fill positions on the Project. Moreover, Yukon's historical boom and bust cycle presents challenges in terms of labour supply, and contributes to the expectation that the territorial labour market will continue to fluctuate in the future (YG 2010a).

A change in the labour market may occur specific to different demographic cohorts in the LAA. First Nation and local labour forces' engagement in non-wage and traditional economies may limit their interest or ability to participate in direct, indirect, or induced employment opportunities related to the Project. A change in the non-wage and traditional labour markets may occur, however, if individuals choose to engage in Project-related employment. Refer to **Appendix 21-A Social Economy Valued Component Assessment Report** for a discussion of potential effects related to non-wage and traditional economies.

The capacity of the labour force is dynamic, and will be influenced by the status of other projects in the RAA, in particular in the mining sector. In the context of Yukon's challenges to fill positions in the mining sector, other local and regional businesses and industries may experience reduced availability of labour to fill their needs, as workers may be drawn to participate in Project-related opportunities. This may be influenced by the income differential between typical mining jobs compared to certain service sector jobs.

Major mine projects active and proposed in Yukon include: Wolverine (Yukon Zinc Corp.); Minto (Minto Explorations Ltd.); Eagle Gold (Stratagold Corp.); Brewery Creek (Golden Predator Canada Corp.); Carmacks Copper (Carmacks Mining Corp.); Bellekeno (Alexco Keno Hill Mining Corp.); Casino (Casino Mine Corp.), and Kudzy Ze Kayah (BMC Minerals Ltd.). Each of these mines are at various stages of development, from project proposal application (e.g., Casino), to pre-production and development (e.g., Eagle Gold), to temporary closure (e.g., Wolverine, Minto), and closure (e.g., Brewery Creek). Global commodity prices will likely be a driving factor in determining when projects come out of temporary closure or begin production. While the Project will likely be able to take advantage of mining sector labour from mines that are planned to be closed at the time of Project Construction and Operation, the Project may also be competing with other major projects for labour (e.g., Casino). According to the YESAB Project Registry, Yukon Energy Corp. has recently proposed two projects: the Stewart-Keno City Transmission Project and Whitehorse Diesel-Natural Gas Conversion Project. These illustrate the potential for projects in other sectors to require labour, although the labour requirements for these two projects will likely be minimal in comparison with the Project and other major mines.

The Proponent's proposed use of fly-in, fly-out rotational labour, as well as an on-site camp for workers may result in more non-local workers seeking employment. Recruitment and retention of employees is a challenge for Yukon, as well as Dawson, particularly in the context of boom and bust cycle economies reliant to the mining industry (refer to **Section 4.2.5**). In Dawson, recruiting labour has consistently been identified as a constraint to local business development. Dawson has a highly seasonal work force, reflecting key industries of mineral exploration and tourism, which exhibit short-tenure labour needs in summer months (KDO 2014a). Feedback regarding the Project's potential effect on Dawson's local economy and labour force suggested that the Project would influence the local labour market because people will come to Dawson to fill the positions that local people leave in order to work at the mine (Interview 23, Personal Communication, 2016). Residents will be able to stay in Dawson instead of leaving the community to find full-time year-round work (Interview 23, Personal Communication, 2016). It was also noted that Dawson and community members are accustomed to camp jobs and fly-in, fly-out situations (Interview 23, Personal Communication, 2016). In Dawson, existing capacity constraints on community infrastructure and services, in particular housing, may limit the community's ability to expand its local labour force. Refer to the **Appendix 22-A Valued Component Assessment Report Community Infrastructure and Services** for a discussion of potential effects related to housing and other local infrastructure and services.

In conclusion, the Project-related effect of a change in the labour market will likely be neutral overall. While other industries may experience labour shortages if employees leave for Project opportunities, the potential to recruit and retain individuals and expand the local labour force would be beneficial for LAA communities.

4.2.4 INCREASED CONTRACTING AND PROCUREMENT OPPORTUNITIES

Various contracting and procurement opportunities will be available during Construction, Operation, and Reclamation and Closure Phases of the Project. It is likely that businesses in the LAA and RAA will engage in contracts and supply goods and services to the Project. During Construction, the primary Engineering, Procurement, and Construction Management (EPCM) contract will likely be awarded to a large firm with specialized experience in open pit gold mining projects similar in scale to the Project; however, local businesses are likely to have opportunities to contract directly with the Proponent as well as with the primary EPCM contractor. Contract opportunities will also be available throughout the Project's Operation Phase, as well as during Reclamation and Closure. Project expenditures will likely be focused on procured goods and services such as accommodation, catering, logistics, vehicle maintenance, automotive parts, and hardware. For instance, it is likely that the Project will result in various specific contracting opportunities, including but not limited to:

- Ice road construction
- Camp catering
- Supply and delivery of aggregate material for site road re-surfacing and sanding during winter
- Trucking and logistics.

Dawson's proximity to the Mine Site and NAR will enable local businesses to take advantage of increased contracting and procurement opportunities. According to the 2013 Yukon Business Survey, Dawson had the second largest number of businesses (determined by office address) in the territory, behind Whitehorse (YBS 2014c). Results from the local business and economic development survey indicate that various sectors are represented by businesses in Dawson. A large proportion of businesses (59.4%) identified as belonging to the mining, tourism, and construction sectors, which reflect the community's local economy. It was identified that local businesses in Dawson were generally able to service and provide supplies for mineral exploration companies; however, considerations such as selection and price were factors in soliciting business elsewhere (KDO 2013b). It is also likely that Beaver Creek, Pelly Crossing, and Mayo will also be engaged in Project contracting and procurement opportunities; however, the larger and more diversified economy of Whitehorse has the potential to offer a greater range of needed services and materials to the Project. Feedback during primary data collection indicated that communities, in particular Dawson, have strong interests in supplying goods and services to the Project. Overall, contracting and procurement opportunities will likely be experienced as a beneficial potential effect of the Project.

4.2.5 CHANGE IN LOCAL ECONOMIES

Project expenditures, personal spending by Project workers (**Section 4.2.2),** and contracting and procurement opportunities (**Section 4.2.4)** will likely drive changes in LAA sustainable economies during Construction and Operation. Although the Project does not represent economic diversification from mining, the Project will provide a strong source of employment and goods and services spending. The highest potential for effects is anticipated in Dawson, due to Dawson's proximity to the Mine Site and NAR, as well as the Proponent's practices regarding goods and services expenditures and employment opportunities for community members and members of LAA First Nations.

Dawson's local economy is subject to annual (seasonal) boom and bust cycles associated with mineral exploration and tourism. These local economic drivers are largely reliant on outside events (e.g., global commodity prices, U.S. dollar, international tourism trends). Dawson's economy is also driven by its context within the broader territorial economy, which experiences longer-term boom and bust cycles relating to the mining sector that reflect commodity prices. Community members and city staff have strongly identified the pursuit of sustainable economic development as an important goal for the community and region. It was identified through various primary data collection activities that the Project could reduce Dawson's annual boom and bust cycle as a result of permanent year-round employment (Interview 28, Personal Communication, 2016; Local Business Focus Group, Personal Communication, 2016). Further results from the local business focus group indicate that the Project may encourage individuals to relocate to Dawson.

Feedback gathered during primary data collection indicated that the Project may result in adverse effects on the local economy. Adverse effects may occur if the Proponent changes processes and procedures part way through the Project. For example, adverse effects may occur if the Proponent shifts to resourcing goods and services from outside the local community (Interview 23, Personal Communication, 2016,

Interview 28, Personal Communication, 2016). The importance of communication and providing the local community opportunities to bid were identified during the local business focus group. Communicating and building awareness of local businesses and services in Dawson with larger regional business operators in the mining sector was identified as an area of focus to ensure local opportunities are realized (KDO 2013b).

Results from the local business and economic development survey indicate that various sectors are represented by businesses in Dawson. In terms of the mining industry, a majority (78.3%) of respondents believe that the industry has positively affected their business operations and activities in the past 5 years, with approximately 82.6% of businesses currently providing goods and / or services to the industry. Goods and or services provided to the mining industry by Dawson businesses identified in the survey include but are not limited to notary services; windshield repair; bulk water delivery; road grading; welding; environmental products; equipment rentals; entertainment; accommodations; restaurants and catering; and retail. Mining firm spending on the supply chain is largely driven by price and value, although initiatives to encourage the use of local suppliers and services supported by various organizations in Yukon have been successful. Selection and price may be obstacles in the engagement of local businesses on the Project. These goods and services will likely form part of the direct, indirect, and induced expenditures associated with the Project and its workforce.

Klondike Development Organization has identified that focusing on broader industries can lessen Dawson's challenge of cyclical recruitment and retention associated with seasonal boom and bust cycles (2014a). While local business and labour force engagement on the Project will not likely move Dawson's local economy away from its core industries (mineral exploration and tourism), the Project does present opportunities for local businesses to grow and expand. The extent to which local businesses can take advantage of Project opportunities in a way that sets them up to expand and diversify their service offerings may potentially lead toward opportunities in other industries and steps toward sustainable economic development of the community. Klondike Development Organization has identified the need to consider local procurement and economic readiness in a broader way, over a longer period, and across multiple industries (2013b). Cautious feedback was also identified regarding a community being overly reliant on a project, and needing to ensure that changes that occur during operations of projects are sustainable (Interview 28, Personal Communication, 2016).

As the Project completes its Operation Phase and moves into Reclamation and Closure, the influence of the Project on local economies, and in particular Dawson, will decrease. Specifically, Project expenditures will decrease, labour needs will substantially decrease (from a maximum of 372 in Year 4 to a maximum of 32 in Year 14), and mine Operation-related contracts with local businesses will end. Although the closure of the mine after 12 years of operation will likely leave workers and businesses searching for other opportunities, the Project does present an opportunity to shift away from Dawson's seasonal boom and bust cycle by providing year-round employment and contracting opportunities.

Overall, the Project has the potential to positively influence Dawson's local sustainable economy through direct employment opportunities and goods and services expenditures, as well as indirect and induced employment and spending. Through the Proponent's relationships with Beaver Creek, Pelly Crossing, and Mayo, it is likely that their local economies will also be influenced positively by the Project, but to a lesser extent. It is likely that the Project's potential effects on the LAA will be experienced as both neutral and positive outcomes: neutral because the Project does not present an opportunity for Dawson's desired economic expansion into industries other than mining and tourism, and positive because the Project will provide a strong, year-round source of employment and goods and services spending during its 14-year Construction and Operation Phases.

4.2.6 BENEFICIAL TERRITORIAL ECONOMIC GROWTH

Pre-production and production (Construction and Operation) of the Project will likely result in a range of economic benefits across the RAA and elsewhere in Canada, including gross output and GDP. Other beneficial sustainable economic effects anticipated for the RAA and Canada include income (discussed in **Section 4.2.1**) and FTE jobs (discussed in **Section 4.2.2**). Input-output modelling performed by YGED predicts how spending in the pre-production (Construction) phase and output during the production (Operation) phase of the Project generates direct effects, indirect effects associated with inputs needed for the Project, and induced effects as a result of employees spending wages from direct (Project) and indirect (supply chain) sources.

Results of YGED's IO modelling provides an indication of direct, indirect, and induced gross output for Yukon and outside of Yukon associated with pre-production capital cost expenditures and production output (**Table 4.2-7**). Yukon Government Economic Development projected that pre-production spending would result in $361.6 million in gross output occurring in Yukon, and $268.2 million in gross output occurring in the rest of Canada. During the production (Operation) phase, the average annual gross output would likely be $311.5 million occurring in Yukon, and $383.0 million occurring in the rest of Canada (YGED, Personal Communication, 2016, 2017).

Table 4.2-7 Projected Impacts, Total Pre-Production and Average Annual Production Output as a Result of the Project

Total Impacts	Output (millions)	
	Pre-Production (total)	Production (Annual Average)
Yukon		
Direct	$273.8	$278.2
Indirect	$62.0	$22.2
Induced	$25.8	$11.2
Subtotal (Yukon)	**$361.6**	**$311.5**

Total Impacts	Output (millions)	
	Pre-Production (total)	Production (Annual Average)
Outside Yukon		
Indirect	$192.1	$50.3
Induced	$76.1	$21.3
Subtotal (Outside Yukon)	**$268.2**	**$71.5**
Total (All Provinces and Territories)	**$629.8**	**$383.0**

Source: YGED Personal Communication, 2016, 2017

Table 4.2-8 presents the results of YGED's IO modelling for GDP. Yukon Government Economic Development projected that pre-production spending would result in $136.4 million in GDP occurring in Yukon, and $139.4 million in GDP occurring in the rest of Canada. During the production phase, the average annual GDP would likely be $251.1 million occurring in Yukon, and $34.3 million occurring in the rest of Canada (YGED Personal Communication, 2016, 2017).

Table 4.2-8 Projected Impacts, Total Pre-Production and Average Annual Production Gross Domestic Product as a Result of the Project

Total Impacts	GDP (Millions)	
	Pre-Production (Total)	Production (Annual Average)
Yukon		
Direct	$80.9	$230.4
Indirect	$37.4	$12.9
Induced	$18.1	$7.8
Subtotal (Yukon)	**$136.4**	**$251.1**
Outside Yukon		
Indirect	$96.7	$22.7
Induced	$42.7	$11.5
Subtotal (Outside Yukon)	**$139.4**	**$34.3**
Total (All Provinces and Territories)	**$275.8**	**$285.4**

Source: YGED Personal Communication, 2016, 2017

In conclusion, the influence of the Project's pre-production spending and production output on the territory's economic growth will likely be substantial, and a beneficial effect over the Construction and Operation Phases of the Project.

4.2.7 CHANGE IN GOVERNMENT FISCAL FLOWS

Changes in government fiscal flows will likely be as a result of tax and royalty payments by the Proponent, as well as the potential for local government expenditures as a result of the Project. Over the life of the mine, the Proponent expects to contribute approximately $427.5 million in government revenue in the form of corporate income taxes and Yukon mineral royalties (**Table 4.2-9**). Average annual federal and territorial taxes are expected to be $12.4 million and $12.3 million, respectively, from Year 1 to Year 12. Royalty payments, under the Yukon QMA, are expected to average $11.9 million per year from Year – 1 to Year 10. The peak in total government revenues is expected in Year 4 at $63.9 million (JDS Personal Communication, 2016a). The taxes and royalties includes federal and Yukon corporate income tax rates of 15%, and royalties under the Yukon QMA, which range from 0% to 12% based on the taxable revenue from saleable gold less deductions. The mineral royalties are calculated and referenced to the value of the output from the mine on an escalating basis. Expected government revenues as shown are estimates only, based on the understanding that gold production begins in Year – 1 with royalties due on that production in Year 1, and may change as Project planning advances.

Table 4.2-9 Expected Government Revenues, 2019 to 2031

Mine Schedule		Year	Yukon *Quartz Mining Act* Royalties	Yukon Corporate Income Tax	Federal Corporate Income Tax	Total Government Revenue
Construction	–1	2019	$12,905,114	$0	$0	$12,905,114
Operation	1	2020	$16,725,544	$3,507,886	$2,432,952[1]	$22,666,381
	2	2021	$8,500,292	$13,540,865	$13,540,865	$35,582,021
	3	2022	$13,893,811	$20,162,001	$20,162,001	$54,217,812
	4	2023	$16,337,851	$23,792,422	$23,792,422	$63,922,695
	5	2024	$14,226,795	$22,261,901	$22,261,901	$58,750,597
	6	2025	$7,460,772	$15,262,523	$15,262,523	$37,985,819
	7	2026	$9,510,683	$16,215,467	$16,215,467	$41,941,616
	8	2027	$14,141,853	$17,564,418	$17,564,418	$49,270,689
	9	2028	$15,783,720	$18,305,570	$18,305,570	$52,394,860
	10	2029	$1,582,154	($369,156)	($369,156)	$843,843
	11	2030	$0	($755,010)	($755,010)	($1,510,020)
Post-Mining Closure	12	2031	$0	($748,084)	($748,084)	($1,496,168)
Average			$11,915,326	$12,395,067	$12,305,489	$32,882,712
Total			**$131,068,589**	**$148,740,803**	**$147,665,868**	**$427,475,260**

Source: JDS, Personal Communication 2016a

Notes: Negative values indicate that the Project would be generating a taxable loss based on the Canadian exploration expenses, Canadian development expense, and capital cost allowances amounts the Coffee Gold Mine could claim during those years.

[1] Includes consideration of an investment tax credit on Canadian exploration expenses.

The Project is not likely to result in direct effects to municipal government expenditures. The Proponent will be managing and operating its own ancillary facilities such as accommodation and administrative facilities, potable water and fire protection water storage and distribution system, and waste management facilities.

Indirect and induced effects on Dawson's infrastructure and services from Project activities may occur. Specifically, the Project is likely to result in changes to housing and accommodation, and physical infrastructure and services. Potential effects associated with community infrastructure and services are described in **Appendix 22-A Community Infrastructure and Services Valued Component Assessment Report**. Some of these effects will likely be the result of in-migration to the community associated with direct, indirect, and induced employment opportunities, as well as speculative workers. Potential changes associated with migration and population are described in **Appendix 19-A Demographics Intermediate Component Analysis Report**.

The Integrated Community Sustainability Plan identifies that retaining a year-round population in the community is an objective related to the local economy (City of Dawson and TH n.d.). Specific concerns regarding local government expenditures were not identified during primary data collection activities; however, feedback was received regarding potential benefits to housing in Dawson as a result of the Project. Specifically, the Project may be an incentive to build additional housing capacity in the community (Interview 21, Personal Communication, 2016). Even after mine closure, the potential housing legacy would be beneficial to the community (Interview 21, Personal Communication, 2016).

In conclusion, the net balance of potential Project-related effects on government fiscal flows is likely to be neutral. Although taxes and incomes and royalties comprise a small portion of the Government of Yukon's revenues, they will support the government's ability to deliver services.

4.3 MITIGATION AND ENHANCEMENT MEASURES

Where non-negligible potential adverse effects are determined likely to occur from a project, mitigation measures are described that are consistent with the definition provided by YESAA (i.e., measures for the elimination, reduction, or control of adverse environmental or socio-economic effects). Mitigation measures are any practical means taken to manage potential adverse effects, and may include applicable standards, guidelines, and best management practices supported by specific guidance documents (e.g., Engaging with Yukon First Nations and Communities, A Quick Reference Guide to Effective and Respectful Engagement Practices) (FNNND, TH, and Yukon Chamber of Mines 2012). The potential effects of the Project on Economic Conditions will likely be beneficial or neutral, and in those cases mitigation is not further considered (**Section 4.2**).

This section also describes measures that will be used to enhance potential beneficial effects of the Project identified in **Section 4.2**. In some cases, measures described below as enhancements are also proposed in other VC sections as mitigation measures to address potential adverse effects that may result from the Project on those VCs.

The selection of mitigation and enhancement measures for Economic Conditions was informed by primary and secondary data collection, a review of mitigation and enhancement measures and follow-up programs undertaken for past projects, and First Nation and public input. Specific feedback was received regarding hiring policies, working with local communities, communication, training, and mine closure.

The following enhancement measures were identified through primary data collection activities:

- Working with educational institutions to identify training and requirements that people may need now so that individuals can prepare themselves and get trained in advance of the Project (Interview 23, Personal Communication, 2016)
- Identifying training and employment opportunities that offer transferable skills (Interview 23, Personal Communication, 2016)
- Support local training initiatives and opportunities (Interview 23, Personal Communication, 2016)
- Implementing a Workplace Transition Strategy in the event of a planned or unplanned closure (Interview 27, Personal Communication, 2016)
- Being transparent and fair with respect to hiring policies (Interview 23, Personal Communication, 2016)
- Communicating with the local community about the employment opportunities, such as advertising employment opportunities and working with local groups (Interview 23, Personal Communication, 2016).

Measures to mitigate and enhance Economic Conditions are described below and summarized in **Table 4.4-4**. The final column in the table identifies whether or not there is the potential for a residual effect. A potential (i.e., non-negligible) residual adverse effect must be carried forward in the assessment and mitigation proposed accordingly (see **Section 4.4**).

4.3.1 PROJECT DESIGN

The mitigation measures proposed in the next sections expand on the Proponent's objectives related to social performance under Goldcorp's Sustainability Excellence Management System (SEMS), which requires the Proponent to follow standards on, among other components, local employment, local procurement, training, closure and reclamation, and community contributions. A more detailed description of SEMS is provided in **Section 1.0 Project Overview** of the Project Proposal)

4.3.2 LOCAL HIRING PRACTICES

Enhancement measures associated with local hiring practices are intended to address the following potential effects on Economic Conditions throughout all phases of the Project:

- Increased direct, indirect, and induced employment opportunities
- Increased income levels and changes in income distribution patterns resulting from increased employment opportunities
- Effects on the labour market, and
- Change in local economies (**Table 4.3-1**).

Local hiring practices enhancement measures comprise several components, including the following:

- The Proponent will develop a local employment strategy to encourage the recruitment of local and territorial labourers in accordance with the Proponent's internal sustainability management system.
- The Proponent will provide first consideration for employment opportunities to local, regional, and First Nations residents with appropriate skills and qualifications.
- The Proponent will communicate typical job descriptions, employment requirements (including skills and qualifications), and other information in a timely manner to enable local residents to prepare and seek any required training or experience in advance of Project Construction and Operation.
- The Proponent will develop a program for First Nations employees to encourage work site integration and retention.
- The Proponent will advertise employment opportunities with appropriate local organizations and through appropriate venues.
- The Proponent will work with local communities and organizations to identify barriers to employment, and evaluate the implementation of potential solutions.
- The Proponent will track the number of local applicants and employees through socio-economic monitoring.
- The Proponent will identify and provide a Community Feedback Protocol to respond to questions and concerns regarding Project employment opportunities.
- The Proponent will engage with local businesses, industry partners, and organizations in the event potential concerns are identified related to local or regional labour competition. The Proponent will work with these groups to identify appropriate means to offset any challenges, such as additional training and education initiatives.
- The Proponent will engage educational bodies in the LAA and RAA to promote opportunities for experiential learning that will allow students to consider potential career paths within the mining industry.

The enhancement measures associated with local hiring practices will be implemented in conjunction with other Socio-economic mitigation, such as education and training activities, the Engagement Plan, local contracting and procurement strategies, and a workforce transition strategy. Several of the measures proposed to enhance local hiring practices were informed by primary data collection and other Project

communications. The local hiring practices enhancement measures are standard in the mining industry, are a fundamental component of SEMS, and reflect the Proponent's intent to continue to work closely with local communities and maximize local benefits associated with the Project.

The local hiring practices measures are expected to become effective before the Project's Construction Phase begins. Uncertainty regarding the effectiveness and the ability to implement measures to enhance local hiring practices are largely associated with the dynamic nature of labour markets, and other project labour demands in the region and territory. In the event the local hiring practices measures are not effective, potential benefits associated with the Project may not be realized to their fullest extent by local communities and residents. As part of the proposed socio-economic monitoring (refer to **Section 8.0**), the Proponent will track the effectiveness of the mitigation measures to enhance local hiring practices, and will adapt its strategies as needed based on feedback.

4.3.3 LOCAL CONTRACTING AND PROCUREMENT PRACTICES

Enhancement measures associated with local contracting and procurement practices are intended to address the following potential effects for Economic Conditions throughout all phases of the Project:

- Increased contracting and procurement opportunities
- Increased income levels and changes in income distribution patterns resulting from increased employment opportunities
- Change in local economies (**Table 4.3-1**).

Local contracting and procurement practices measures comprise several components, including the following:

- The Proponent will develop a local procurement strategy to encourage the recruitment of local and territorial businesses prior to seeking other labour sources.
- The Proponent will implement the Local Procurement Strategy through its direct contracts, as well as include incentives to procure local goods and contract services in its primary contracts.
- The Proponent will include local and regional hiring clauses in all Project contracts.
- The Proponent will communicate procurement opportunities, as well as pre-qualification factors (e.g., safety certifications) and evaluation criteria in a timely manner to enable local businesses to prepare and seek any required qualifications in advance of Project Construction and Operation.
- The Proponent will advertise procurement opportunities with appropriate local organizations and through appropriate venues.
- The Proponent will implement a Community Feedback Protocol to respond to questions and concerns regarding Project-related procurement opportunities.

The measures associated with local contracting and procurement practices will be implemented in conjunction with other Socio-economic mitigation, such as education and training activities, Engagement Plan, and local hiring practices, among others.

Several of the measures developed to enhance local contracting and procurement practices were informed by primary data collection and other Project communications. The local procurement practices and measures are standard in the mining industry, and are a requirement of the Proponent's SEMS program; these reflect the Proponent's intent to continue to work closely with local communities and maximize local benefits associated with the Project.

The proposed measures to enhance local contracting and procurement practices will likely become effective before the Project's Construction Phase begins. Uncertainty regarding the effectiveness and the ability to implement local contracting and procurement practices measures is largely associated with the dynamic nature of labour markets, and other project demands for goods and services in the region and territory. In the event the local contracting and procurement practices measures are not effective, potential benefits associated with the Project may not be realized to their fullest extent by local communities and residents. As part of the proposed socio-economic monitoring (refer to **Section 8.0**), the Proponent will track the effectiveness of local contracting and procurement practices measures, and adapt its strategies as needed based on feedback received.

4.3.4 EDUCATION AND TRAINING ACTIVITIES

Enhancement measures associated with education and training activities are intended to address the following potential effects for Economic Conditions throughout all phases of the Project:

- Increased income levels and changes in income distribution patterns resulting from increased employment opportunities
- Increased direct, indirect, and induced employment opportunities
- Effects on the labour market.

Education and training measures comprise several components, including the following:

- The Proponent will work with local education and training organizations and institutions to identify programs or courses necessary for Project employment to encourage that the availability of programs or courses necessary for Project employment to local and regional residents.
- Certain on-the-job training opportunities will be available for employees who identify a need or who express an interest in furthering their career.
- Career development opportunities will be available to encourage retention of employees and further develop the skills of the local labour force.
- New employee orientation will include cultural awareness training.
- The Proponent will provide or facilitate training opportunities for under-represented groups in the mining sector, such as First Nations and women.
- The Proponent will offer an Employee Assistance Program that provides support for career development.

Developing education and training measures will assist in maximizing direct employment and employment-related incomes of local (LAA) and territorial (RAA) labour. Facilitating, developing, and implementing education and training programs specific to affected First Nations will assist in addressing under-representation by identifying strategies for capacity building and overcoming barriers to employment. The measures associated with education and training activities will be implemented in conjunction with other Socio-economic mitigation, such as an Engagement Plan and local hiring practices, among others.

Several of the education and training measures were informed by primary data collection and other Project communications. The education and training measures are generally standard in the industry, and reflect the Proponent's intent to continue to work closely with local communities and maximize local benefits associated with the Project. The education and training measures will likely become effective before the Project's Construction Phase begins. Uncertainty regarding the effectiveness and the ability to implement education and training measures are largely associated with the dynamic nature of labour markets, other project demands for labour in the region and territory, and individual choices. In the event the education and training measures are not effective, potential benefits associated with the Project may not be realized to their fullest extent by local communities and residents. As part of the proposed socio-economic monitoring (refer to **Section 8.0**), the Proponent will track the effectiveness education and training measures, and adapt its strategies as needed based on feedback.

4.3.5 ENGAGEMENT PLAN

The Proponent recognizes the importance of engaging and consulting First Nations, on whose traditional territory the proposed mine is located, as well as engaging local communities, and establishing long-term, good-neighbour relationships. As part of this recognition, and the Proponent's engagement practices, the Proponent will develop an Engagement Plan for the Project. Enhancement measures associated with the Engagement Plan are intended to address the following potential effects for Economic Conditions throughout all phases of the Project:

- Increased direct, indirect, and induced employment opportunities
- Increased income levels and changes in income distribution patterns resulting from increased employment opportunities
- Effects on the labour market
- Increased contracting and procurement opportunities
- Change in local economies
- Change in government fiscal flows (**Table 4.3-1**).

The Engagement Plan will comprise several specific measures relative to Economic Conditions, including the following:

- The Proponent will continue to communicate the status and schedule of the Project with local communities, residents, and organizations.

- The Proponent will implement a Community Response Protocol to respond to questions and concerns regarding the Project. The Engagement Plan will lay out the strategy and actions required to publicize this protocol through the course of ongoing engagement.
- The Proponent will communicate with its contractors and employees, as well as with government agency representatives and all assessment area communities regarding the Project's status and schedule. In particular, the Proponent will communicate any temporary and seasonal closure.

Successful engagement and consultation has and will continue to lead to First Nations and local communities' understanding the Project, and facilitate sharing in the benefits and economic opportunities it will provide. Engagement and consultation will also allow the Proponent to have first-hand knowledge of the concerns and priorities First Nations and local communities have with the Project. The measures associated with the Engagement Plan will be implemented in conjunction with other Socio-economic mitigation such as local hiring practices, local contracting and procurement practices, and workforce transition strategy, among others.

Several of the Engagement Plan measures were informed by primary data collection and other Project communications. The Engagement Plan measures are generally standard in the industry, and reflect the Proponent's intent to continue to work closely with First Nations and local communities. These measures will likely become effective before the Project's Construction Phase begins. Communications regarding status and schedule as the Project transitions from the Operation to Reclamation and Closure Phases will allow employees and local businesses to begin planning employment and other contracts as labour and goods and services needs on the Project diminish. Uncertainty regarding the effectiveness and the ability to implement Engagement Plan measures were not identified. In the event the Engagement Plan measures are not effective, potential benefits associated with the Project may not be realized to their fullest extent by local communities and residents, and miscommunications may occur. As part of the proposed socio-economic monitoring (refer to **Section 8.0**), the Proponent will track the effectiveness of Engagement Plan measures, and adapt its strategies as needed based on feedback received.

4.3.6 WORKFORCE TRANSITION STRATEGY

Enhancement measures associated with the workforce transition strategy are intended to address the following potential effects for Economic Conditions throughout all phases of the Project, and in the event of a planned or unplanned temporary or permanent closure:

- Increased direct, indirect, and induced employment opportunities
- Increased income levels and changes in income distribution patterns resulting from increased employment opportunities
- Effects on the labour market
- Change in local economies (**Table 4.3-1**).

The workforce transition strategy is comprised of several components, including the following:

- The Proponent will endeavour to use a staged reduction of workforce in the event of a temporary or permanent closure.
- The Proponent will fulfill all conditions for terminations as defined in contracts, including severance payments. The Proponent will offer an Employee Assistance Program to support employees during transition in the event of a temporary or permanent closure.
- The Proponent will communicate the proposed schedule and activities associated with temporary or permanent closure of the mine to employees, local communities, governments and businesses, and appropriate local non-profit and non-governmental organizations, allowing those engaged in indirect and induced employment and businesses to prepare for the transition, and begin to seek other opportunities
- The Proponent will offer on the job training to employees.
- The Proponent will identify and provide a local workforce transition contact to respond to questions and concerns regarding temporary or permanent closure status, schedule, and activities.

The workforce transition strategy will include support for education, training, and career development opportunities. Project-specific training opportunities (**Section 4.3.4**) and job experience will likely be beneficial for employees seeking other opportunities following the Operation Phase of the Project. The measures associated with the workforce transition strategy will be implemented in conjunction with other socio-economic mitigation, such as development and implementation of an Engagement Plan and local hiring practices, among others.

Several of the workforce transition strategy measures were informed by primary data collection and other Project communications. The workforce transition strategy measures are generally standard in the industry, and reflect the Proponent's intent to continue to work closely with local communities and maximize long-term local benefits associated with the Project. The workforce transition strategy measures will likely become effective in advance of a planned or unplanned temporary or permanent closure. Uncertainty regarding the effectiveness and the ability to implement workforce transition strategy measures are largely associated with the dynamic nature of labour markets, other project demands for labour in the region and territory, and individual choices. As part of the proposed socio-economic monitoring (refer to **Section 8.0**), the Proponent will track the effectiveness workforce transition strategy measures, and adapt its strategies as needed based on feedback.

4.3.7 SUMMARY OF ENHANCEMENT MEASURES

The mitigation measures for Economic Conditions comprise several topics, including local hiring practices, local contracting and procurement practices, education and training activities, cultural awareness training, an Engagement Plan, and following a workforce transition strategy. **Table 4.3-1** summarizes the potential effects, enhancement measures, and whether residual effects are likely.

Table 4.3-1 Summary of Potential Effects and Enhancement Measures for Economic Conditions

Summary of Potential Effect	Project Components	Contributing Project Activities	Proposed Mitigation and / or Enhancement Measures	Detectable / Measurable Residual Effect (Yes / No)
Increased direct, indirect, and induced employment Opportunities	Overall Construction and Operation Phases	Labour needs and goods and services spending during the Construction and Operation Phases will result in employment opportunities.	• Local Hiring Practices • Education and Training Activities • Engagement Plan • Workforce Transition Strategy	Yes
Increased income levels and changes in income distribution patterns resulting from increased employment opportunities	Overall Construction and Operation Phases	Labour needs and goods and services spending during the Construction and Operation Phases will result in positive changes in income patterns.	• Local Hiring Practices • Local Contracting and Procurement Practices • Education and Training Activities • Engagement Plan • Workforce Transition Strategy	Yes
Effects on the labour market	Overall Construction and Operation Phases	Labour needs and goods and services spending during the Construction and Operation Phases will result in a neutral change in the labour market.	• Local Hiring Practices • Local Contracting and Procurement Practices • Education and Training Activities • Engagement Plan • Workforce Transition Strategy	Yes
Increased contracting and procurement opportunities	Overall Construction and Operation Phases	Labour needs and goods and services spending during the Construction and Operation Phases will result in contracting and procurement opportunities	• Local Contracting and Procurement Practices • Engagement Plan	Yes
Change in local economies	Overall Construction and Operation Phases	Labour needs and goods and services spending during the Construction and Operation Phases will result in a neutral and positive change in local economies	• Local Hiring Practices • Education and Training Activities • Workforce Transition Strategy • Local Contracting and Procurement Practices • Engagement Plan	Yes
Benefits to territorial economic growth	Overall Construction and Operation Phases	Labour needs and goods and services spending during the Construction and Operation Phases will result in territorial economic growth	• Local Hiring Practices • Local Contracting and Procurement Practices	Yes

Summary of Potential Effect	Project Components	Contributing Project Activities	Proposed Mitigation and / or Enhancement Measures	Detectable / Measurable Residual Effect (Yes / No)
Change in government fiscal flows	Overall Construction and Operation Phases	Labour needs and goods and services spending during the Construction and Operation Phases will result in a neutral change in government fiscal flows	• Engagement Plan • Refer to the Community Infrastructure and Services Valued Component Assessment Report (**Appendix 22-A**) for additional mitigation and enhancement measures	Yes

4.4 RESIDUAL EFFECTS AND SIGNIFICANCE OF RESIDUAL EFFECTS

This section describes anticipated Project-related residual effects that may occur due to interactions with the Project's labour needs, goods and services spending, and local economies. Residual effects are defined as effects that are likely to occur after mitigation and enhancement measures are applied. The significance of each residual effect for Economic Conditions is discussed, as well as the likelihood of the residual effect, and the level of confidence associated with the determinations of significance and probability. The determination of significance for the potential residual effects on the VC is based on a consideration of the residual effects characteristics and the socio-economic context of Economic Conditions.

4.4.1 RESIDUAL EFFECTS CHARACTERISTICS AND SIGNIFICANCE DEFINITIONS

This section provides definitions and ratings for the characteristics of the potential Project-related residual effects to Economic Conditions. Definitions for ratings applied to residual effects characteristics developed with specific reference to the Economic Conditions VC are presented in **Table 4.4-1**. Timing as a residual effect characteristic was determined to be not applicable to the Economic Conditions VC.

Table 4.4-1 Effect Characteristics Considered When Determining the Significance of Residual Effects to Economic Conditions

Residual Effect Characteristic	Definition	Rating
Direction	Identifies whether the residual effect will be adverse or positive.	• Adverse – the trend of the effect is considered undesirable or worsening from baseline conditions. • Neutral – the trend of the effect is considered neither a worsening nor improvement from baseline conditions. • Positive – the trend of the effect is considered desirable or an improvement from baseline conditions.

Residual Effect Characteristic	Definition	Rating
Magnitude	Size or severity of the residual effect – generally measured in terms of the proportion of the VC affected within the LAA, relative to the range of historic variation.	• Negligible – no effect is detectable from baseline conditions, or is in the normal range of variability in the socio-economic. • Low – effect is detectable, but is not likely to be experienced at the community-wide level. The effect is limited to an inconvenience or nuisance. • Moderate – effect would result in demonstrable change and is possible at the community-wide level, but remains within historic norms and does not present a management challenge. • High – effect would result in changes beyond historic norms, and presents a management challenge.
Geographic Extent	Spatial scale over which the residual effect is likely to occur.	• Local (limited to LAA). • Regional (limited to RAA or beyond RAA).
Timing	Occurrence of the residual effect with respect a temporal attribute important to the VC (e.g., time of day, season, stage in life cycle, etc.).	• Not applicable. The Project interactions with Economic Conditions during all mine life stages are likely to occur year-round.
Frequency	How often the residual effect is likely to occur.	• Infrequent – occurs once. • Frequent – occurs at irregular intervals. • Continuous – occurs on a regular basis and at regular intervals.
Duration	Length of time over which the residual effect is likely to persist.	• Short-term – occurs during the Construction Phase. • Long-term – occurs throughout the Operation and Reclamation and Closure Phases. • Permanent – occurs during the Post-closure Phase and beyond.
Reversibility	Whether or not the residual effect can be reversed once the activity causing the residual effect ceases. Irreversible effects are considered to be permanent.	• Reversible – effect can be reversed to baseline or equivalent conditions, considering non-Project-related change in the socio-economic. • Partially reversible – effect can be reversed partially to baseline or equivalent conditions. • Irreversible – effect is permanent.
Probability of occurrence	Likelihood that the residual effect will occur.	• Likely – past experience indicates that the effect is likely to occur as a result of the Project. • Unlikely – past experience indicates that the effect is not likely to occur as a result of the Project.
Context	The extent to which the VC has been affected by past and present socio-economic processes and conditions, its potential sensitivity to the Project-related residual effect, and its ability to recover from that effect (i.e., resilience).	• Low – limited ability of community economies to respond to disturbances. • Moderate – moderate ability of community economies to respond to disturbances. • High – strong ability of community economies to respond to disturbances.

The description of each residual effect includes a narrative description of the socio-economic context of Economic Conditions. Context is defined as the extent to which economic conditions have been affected by past processes and conditions, sensitivity to the Project-related residual effect, and economic resilience. The resilience of community economies is defined as the ability of communities to adapt to change, which may be natural, economic, social, and/or political. Economic resilience can also be defined as maintaining a satisfactory economic standard of living (Dinh and Pearson 2015). Components of community economic resilience can include:

- Dependence on vulnerable economies and diversity of the economy
- Ability of the local labour supply to participate in the current and future economy
- Social inclusion and the availability of local employment opportunities
- Labour forces with human capital acquired through education, training, and experience
- Financial capital investment
- Ability to provide a flow of goods and services
- Social capital, or the networks and bonds between groups in a community
- Accessibility to opportunities (Advantage West Midlands Strategy Team 2010, Dinh and Pearson 2015).

4.4.1.1 Significance Definition

The significance of potential residual effects was determined based on the residual effect characteristic rating, a review of secondary data sources, consultation with government agencies, feedback obtained through primary data collection, and professional judgement. The level of each residual effect has been rated as not significant, or significant, as follows:

Not Significant Effects determined to be not significant are those that are greater than negligible but do not meet the definition of significant. Adverse residual effects that are determined to be not significant are carried forward to the cumulative effects assessment.

Significant Effects determined to be significant are those characterized as high magnitude, any geographic extent, continuous frequency, long-term duration, and likely to occur. Context, and in particular low or moderate resilience, is also considered. Significant adverse residual effects are carried forward to the cumulative effects assessment.

The level of confidence (i.e., low, moderate, high) for each predicted Project-related effect represents the level of uncertainty associated with significance determinations. External influences such as global markets and individual choices adds to the qualitative nature of the characterization of residual effects. The level of confidence is typically based on professional judgement and is characterized as follows:

- **Low** – Judgement is hampered by an incomplete understanding of the cause-effect relationship, or a lack of data or primary data feedback on a specific topic.

- **Moderate** – Reasonable understanding of the cause-effect relationship exists, and there is adequate data; however, outcomes may be influenced by external influences, preferences, and choices.
- **High** – There is a good understanding of the cause-effect relationship and ample data, including regular feedback during primary data collection.

For Socio-economic VCs, standards, guidelines, objectives, and thresholds are not well defined, understood, nor agreed-upon (YESAB 2005); therefore, characterizing the significance of residual Socio-economic effects is subjective, and strongly based on professional judgment, feedback, and input from primary data collection. For example, through primary data collection activities, a significant effect to economic conditions was defined in various ways, including:

- Individuals gain five to six years of work experience on the Project and learn transferable skills during that time, enabling them to work and live in Dawson for the long term, beyond the Project (Interview 23, Personal Communication, 2016).
- The 20- to 40-year-old demographic will stay in Dawson, and having the City's population grow as a result of the Project (Interview 23, Personal Communication, 2016).
- Proponent workers living in and contributing to the community, rather than being flown through Dawson (Interview 23, Personal Communication, 2016).
- Local businesses operating year-round, or for an extended period during the year (Interview 28, Personal Communication, 2016).
- Influencing the career choice and development of TH citizens (Interview 27, Personal Communication, 2016).

The above feedback describes how individual interpretations of significance can vary, reflecting the perceptions and values of affected communities. Incorporating feedback identified through primary data collection is a means for the assessment of socio-economic VCs to consider the context in which residual effects will likely be experienced. The lack of defined thresholds, challenges related to integrating community context, resilience and perceptions, and inherent uncertainty regarding the dynamic nature of the socio-economic environment results in a qualitative assessment approach for Socio-economic VCs, informed by both quantitative and qualitative data.

4.4.2 ECONOMIC CONDITIONS

This section describes the residual effects anticipated for the Economic Conditions VC. As discussed above, the socio-economic context of the communities in the LAA and RAA plays an important role in characterizing the significance of residual effects. The context in the LAA and RAA will likely shape the way residual effects materialize in the different communities.

Communities in the LAA and RAA are familiar with mining and the boom and bust cycles (annual or longer term) that accompany the industry. Mining is a key economic driver, which influences the labour market, economic growth, and government fiscal flows in communities across the assessment area. The communities in the LAA and RAA have experienced historical up and down cycles tied to external

factors such as commodity prices and the U.S. dollar. Specific to gold as a commodity, up cycles were experienced from 1985 to 1988, 1993 to 1996, and 2001 to 2011 (Paradigm Capital 2016). Communities in the assessment areas have identified sustainable economic development as a priority and a step toward other community visions, such as growing local populations and labour forces.

Although mining comprises a portion of Yukon's economy, other sectors in the RAA such as tourism and public administration are also strong economic contributors. The Proponent recognizes the need to bring diversity to local economies and be cautious about the benefits associated with large mining projects. Awareness of key economic drivers and the drive toward sustainable economic development are demonstrations of the social capital of communities in the LAA and RAA. This self-awareness will help communities to harness economic opportunities that will arise through the lifetime of the Project, and take advantage of other opportunities that will arise at the time of mine closure. Ultimately, the smaller populations, labour forces, and focused local economies of the LAA render individual communities less resilient than the broader RAA, but they are still capable of responding to Project-related influences.

In summary, the residual effects are characterized as moderate context in the LAA, reflecting a moderate ability of community economies to respond to disturbances, and high context in the RAA, reflecting a strong collective ability of the regional economy to respond to change.

4.4.2.1 Increased Direct, Indirect, and Induced Employment Opportunities during Construction and Operation

The residual effect to employment opportunities is likely to occur during the Construction Phase, and will extend through the Operation Phase of the Project. The maximum annual labour estimated for the Project is 663 during the Construction Phase and 372 during the Operation Phase.

The effects characteristics ratings for employment opportunities are summarized in **Table 4.4-2**. Employment opportunities will likely occur during Construction and Operation in the LAA and RAA as a result of direct Project employment, as well as indirect and induced employment resulting from Project expenditures and purchases of goods and services. Ultimately, the number of local and regional residents hired for direct employment opportunities associated with the Project will depend on the availability of qualified workers. The demand of other projects in the RAA for skilled workers in the mining sector influences worker availability (Refer to **Section 4.2.2**). While the Project will likely be required to hire from labour markets beyond the RAA to fill labour demands, the LAA is likely to strongly experience the effect of direct, indirect and induced employment opportunities associated with the Project. A strong effect is likely in Dawson, due to Dawson's geographic location in relation to the Mine Site and NAR, as well as the Proponent's practices regarding goods and services expenditures and employment opportunities for community members and members of TH.

The Proponent's local hiring and procurement strategies as well as education and training activities, will likely enhance opportunities for local residents to engage in the Project through direct employment opportunities. The Proponent's proposed inclusion of preferences to contract and procure local goods and services in its primary contracts (e.g., with EPC contractor), as well as include local and regional hiring clauses in all Project contracts will also enhance indirect and induced employment opportunities associated with the Project. Enhancement measures such as communicating typical job descriptions and employment requirements (including skills and qualifications), developing a mentorship program for First Nations employees, advertising opportunities locally, identifying and responding to barriers to employment, and providing a local contact to respond to questions and concerns, among others, will likely assist in expanding hires to include demographic cohorts that are typically under-represented in the mining sector. These measures, in turn, will assist in mitigating changes in employment based on age, gender, and other demographic cohorts.

Residual effects associated with employment opportunities in the event of a temporary or permanent closure will depend on economic conditions at that time. For example, if other projects are proposed in the region at the time of closure, it may be possible for employees to transition onto new projects with the skills and experiences gained from working on the Project, and obtain comparable positions. If there are few employment opportunities in the region at the time of closure, however, the availability of comparable employment may be limited. The Proponent anticipates implementing a workforce transition strategy in the event of a temporary or permanent closure. This strategy includes communicating the proposed schedule and activities associated with temporary or permanent closure to employees, local businesses, local communities, residents, and local organizations to allow those engaged directly and indirectly with the Project to prepare for the transition and begin to seek other opportunities. Training and employment opportunities associated with the Project will likely result in employees gaining transferable skills, which will be applicable to the mining sector and other industries.

Overall, it is likely that individuals in the LAA and RAA labour forces will be engaged in direct, indirect, and induced employment opportunities associated with the Project. Feedback during primary data collection emphasized the importance of local workers gaining employment and transferable skills in the Project (**Section 4.4.1.1**). Although the majority of the Project labour will likely be male, the exact composition of the direct workforce, and indirect and induced employment will depend on the labour force characteristics and circumstances over the lifetime of the Project. Therefore, the gender ratio and precise differentials among various demographic cohorts cannot be explicitly defined. It is likely that the employment opportunities associated with the Project will be experienced differently within and across communities, resulting in an overall residual effect that is characterized as not significant to significant.

In summary, the effect of increased direct, indirect, and induced employment opportunities during Construction and Operation is positive, moderate to high in magnitude, local to regional in geographic extent, continuous in frequency, long-term in duration, fully reversible, and likely to occur, and in moderate to high context. The level of confidence in this significance determination is moderate; the confidence rating is based on an understanding that outcomes may be influenced by external influences, preferences, and choices.

Table 4.4-2 Summary of Effect Characteristics Ratings for Increased Direct, Indirect, and Induced Employment Opportunities during Construction and Operation

Residual Effect Characteristic	Rating	Rationale for Rating
Direction	Positive	Direct, indirect, and induced employment opportunities as a result of the Project will be available to individuals in the LAA and RAA, and will be experienced as a beneficial outcome of the Project.
Magnitude	Moderate to High	Engagement of LAA labour forces in the Project through employment opportunities may be highly detectable, but would be considered demonstrable in the RAA.
Geographic Extent	Local to Regional	Although the residual effect is likely to occur across all assessment areas, employment opportunities will likely be more pronounced in Dawson.
Frequency	Continuous	Employment opportunities will likely occur throughout the Construction and Operation Phases.
Duration	Long-term	Employment opportunities are likely to occur throughout the Construction and Operation Phases.
Reversibility	Fully reversible	Employment opportunities are likely to diminish after the Operation Phase of the Project, although the experience gained through Project employment will be permanent.
Probability of Occurrence	Likely	Some employment opportunities will likely be filled by LAA labour forces.
Context	Moderate to High	The smaller populations, labour forces, and focused local economies of Dawson, Beaver Creek, Pelly Crossing, and Mayo. render these communities less resilient than the broader RAA, but still capable of responding to influences as a result of the Project.

4.4.2.2 Increased Income Levels and Changes in Income Distribution Patterns Resulting from Increased Employment Opportunities during Construction and Operation

The residual effect changes in income patterns will likely begin in the Construction Phase and extend through the Operation Phase. The maximum annual labour estimated for the Project is 663 during the Construction Phase and 372 during the Operation Phase.

The effects characteristics ratings for changes in income patterns are summarized in **Table 4.4-3**. Changes in income patterns will likely occur in the LAA and RAA as a result of direct Project employment, as well as indirect and induced employment resulting from Project expenditures and purchases of goods and services. Economic opportunities and corresponding incomes related to the Project may be experienced differently

by different cohorts, genders, and cultural backgrounds of the LAA and RAA populations. Although the residual effect is likely to occur across all assessment areas, changes in income patterns will likely be more pronounced in LAA communities with smaller populations and lower median incomes. Due to Dawson's size and geographic location in relation to the Mine Site and NAR, as well as the Project's anticipated effect in terms of increased goods and services expenditures and employment opportunities for community members and members of First Nations, Dawson will likely strongly experience a change in income patterns associated with the Project.

The Proponent's practices with regard to local participation in the Project including local hiring and contracting and procurement strategies, as well as education and training activities will likely enhance opportunities for local residents to engage in the Project and benefit from increased incomes. Enhancement measures include communicating typical job descriptions and employment requirements (including skills and qualifications), developing a mentorship program for First Nations employees, advertising opportunities locally, identifying barriers to employment, and providing a local contact to respond to questions and concerns. These measures will likely assist in expanding hires to include demographic cohorts that are typically under-represented in the mining sector. These measures, in turn, will assist in mitigating changes in community income patterns based on age, gender, and other demographic cohorts.

Residual effects associated with income patterns in the event of a temporary or permanent closure will depend on economic conditions at that time. For example, if other projects are proposed in the region, it may be possible for employees to transition onto new projects with the skills and experiences gained from working on the Project, and obtain positions with similar salaries. If there is a lack of employment opportunities in the region at the time of closure, the availability of comparable employment and corresponding incomes may be limited.

Overall, individuals in the LAA and RAA labour forces will likely be engaged in direct, indirect, and induced employment opportunities associated with the Project. Corresponding increases in income are likely to be substantial, and experienced as a likely positive outcome of the Project. Although it is likely that the majority of the Project labour will be male, the exact composition of the direct workforce, and indirect and induced employment will depend on the labour force characteristics and circumstances when the Project is in Construction and Operation Phases. Though the precise differentials in income among various demographic cohorts cannot be explicitly defined, it is likely that the changes in income patterns will be experienced differently within and across communities, resulting in an overall residual effect that is characterized as not significant to significant, depending on the geographic extent.

In summary, the effect of increased income levels and changes in income distribution patterns resulting from increased employment opportunities during Construction and Operation is positive, moderate to high in magnitude, local to regional in geographic extent, continuous in frequency, long-term in duration, fully reversible, and likely to occur, in moderate to high context. The level of confidence in this significance determination is moderate. The confidence rating is based on an understanding that outcomes may be influenced by external influences, preferences, and choices.

Table 4.4-3 Summary of Effect Characteristics Ratings for Increased Income Levels and Changes in Income Distribution Patterns Resulting from Increased Employment Opportunities during Construction and Operation Phases

Residual Effect Characteristic	Rating	Rationale for Rating
Direction	Positive	For individuals in the LAA and RAA labour forces engaged in direct, indirect, and induced employment opportunities as a result of the Project, increased incomes are likely to be substantial, and experienced as a beneficial outcome of the Project.
Magnitude	Moderate to High	Any changes in income patterns may be highly detectable in LAA communities, and would be considered detectable in the RAA.
Geographic Extent	Local to Regional	Although the residual effect is likely to occur across all assessment areas, changes in income patterns will likely be more pronounced in LAA communities which exhibit smaller populations and lower median incomes.
Frequency	Continuous	Employment opportunities and resulting changes in incomes are likely to occur throughout the Construction and Operation Phases.
Duration	Long-term	Employment opportunities and resulting changes in incomes are likely to occur throughout the Construction and Operation Phases.
Reversibility	Fully reversible	Employment opportunities and resulting changes in incomes are likely to diminish after the Operation Phase of the Project.
Probability of Occurrence	Likely	Incomes will likely change as a result of employment opportunities associated with the Project.
Context	Moderate to High	The smaller populations, labour forces, and focused local economies of Dawson, Beaver Creek, Pelly Crossing, and Mayo. render these communities less resilient than the broader RAA, but still capable of responding to influences as a result of the Project.

4.4.2.3 Effects on the Labour Market during Construction and Operation

The residual effects on the labour market will likely begin in the Construction Phase and extend through the Operation Phase of the Project. In particular, the Project may change the availability of labour for other regional industries and projects in the event of low levels of labour supply. As described in **Section 4.2.1**, various labour force forecasting analyses in Yukon's mining sector have identified gaps in terms of available labour to meet industry occupational needs, many of which will be required to fill positions on the Project. Moreover, Yukon's historical boom and bust cycle presents challenges in terms of labour supply, and contributes to the expectation that the territorial labour market will continue to fluctuate in the future (YG 2010a).

The effects characteristics ratings for effects on the labour market are summarized in **Table 4.4-4**. Direct employment opportunities as well as indirect and induced employment from Project expenditures and purchases of goods and services will likely result in changes in the LAA and RAA labour markets. The capacity of the labour force is dynamic, and will be influenced by the status of other projects in the RAA, particularly in the mining sector. Major mine projects in the territory are in various stages of development and production, their progress being largely driven by global commodity prices. In the context of Yukon's challenges to fill positions in the mining sector, other local and regional businesses and

industries may experience reduced availability of labour to fill their needs, as workers may be drawn to participate in Project-related opportunities. This effect is likely influenced by the income differential between typical mining jobs compared to certain service sector jobs.

The Proponent's local hiring and contracting and procurement strategies, as well as education and training activities, will likely enhance opportunities for local residents to engage in the Project through direct employment opportunities. These measures may also encourage those who are unemployed or underemployed to enter the workforce. Enhancement measures such as communicating typical job descriptions and employment requirements (including skills and qualifications), developing a mentorship program for First Nations employees, advertising opportunities locally, identifying barriers to employment, and providing a local contact to respond to questions and concerns, among others, will likely assist in expanding hires to include demographic cohorts that are typically under-represented in the mining sector. These measures may alleviate broader pressures on the territory's labour force in the mining sector.

Residual effects associated with a change in the labour market in the event of a temporary or permanent closure will depend on economic conditions at that time. As described in **Section 4.4.2.1**, if other projects are proposed in the region, it may be possible for employees to transition onto new projects with the skills and experiences gained from working on the Project, and obtain comparable positions. If there are few employment opportunities in the region at the time of closure, however, the availability of comparable employment may be limited. The Proponent anticipates implementing a workforce transition strategy in the event of a temporary or permanent closure. Training and employment opportunities associated with the Project will likely result in transferable skills, which will be applicable to the mining sector and other industries.

Overall, the Project's residual effect on the labour market is anticipated to be neutral, on balance. While other industries may experience labour shortages if employees leave for Project opportunities, the potential to recruit and retain individuals and expand the local labour force would be beneficial for LAA and RAA communities. Feedback from primary data collection indicated that an expanded labour force with year-round employment in Dawson would be a positive effect of the Project (Interview 23, Personal Communication, 2016). It is likely that the residual effect will be not significant.

In summary, the effects on the labour market during Construction and Operation is neutral, moderate in magnitude, local to regional in geographic extent, continuous in frequency, long-term in duration, fully reversible, and likely to occur, in moderate to high context. The level of confidence in this significance determination is moderate. The confidence rating is based on an understanding that outcomes may be influenced by external influences, preferences, and choices.

Table 4.4-4 Summary of Effect Characteristics Ratings for Effects on the Labour Market during Construction and Operation

Residual Effect Characteristic	Rating	Rationale for Rating
Direction	Neutral	While other industries may experience labour shortages if employees leave for Project opportunities, the potential to recruit and retain individuals and expand the local labour force will be beneficial for LAA, as well as RAA communities.
Magnitude	Moderate	The change in the labour market is likely to be demonstrable across all assessment areas, although the magnitude will be smaller for the smaller communities compared to the larger communities.
Geographic Extent	Local to Regional	The potential effect is likely to occur across all assessment areas.
Frequency	Continuous	Change in the labour market is likely to occur throughout the Construction and Operation Phases.
Duration	Long-term	Change in the labour market is likely to occur throughout the Construction and Operation Phases.
Reversibility	Fully reversible	Change in the labour market is likely to diminish after the Operation Phase of the Project.
Probability of Occurrence	Likely	A change in the labour market will likely occur as a result of the Project.
Context	Moderate to High	The smaller populations, labour forces, and focused local economies of Dawson, Beaver Creek, Pelly Crossing, and Mayo. render these communities less resilient than the broader RAA, but still capable of responding to influences as a result of the Project.

4.4.2.4 Increased Contracting and Procurement Opportunities during Construction and Operation

The residual effect of increased contracting and procurement opportunities will likely occur in the Construction Phase and extend through the Operation Phase of the Project. It is likely that businesses in the LAA and RAA will engage in contracts to supply goods and services to the Project. As discussed in **Section 4.2.4**, Project expenditures will likely be focused on procured goods and services such as accommodation, catering, logistics, vehicle maintenance, automotive parts, and hardware. Specifically, the Project will likely result in various contracting opportunities, including but not limited to:

- Ice road construction
- Explosives supplier
- Camp catering
- Supply and delivery of aggregate material for site road re-surfacing and sanding during winter
- Trucking
- Grade control drilling.

The effects characteristics ratings for contracting and procurement opportunities are summarized in **Table 4.4-5**. It is likely that due to Dawson's proximity in relation to the Mine Site and NAR, local businesses will be able to take advantage of contracting and procurement opportunities. It is also likely that smaller LAA communities (Beaver Creek, Pelly Crossing, and Mayo) will also be engaged in Project contracting and procurement opportunities; however, the larger and more diversified economy of Whitehorse has the potential to offer a greater range of needed services and materials to the Project.The Proponent will seek local and regional businesses. Local and regional hiring clauses in all Project contracts will further encourage local engagement in the Project. Following measures identified in the Engagement Plan, the Proponent will communicate contracting and procurement opportunities, as well as pre-qualification factors, in advance of the Project's Construction and Operation Phases. Working with local organizations focused on local economic development will also support effective communication.

It was identified through primary data collection that LAA communities, in particular Dawson, have strong interests in supplying goods and services to the Project. Overall, contracting and procurement opportunities will likely be experienced as a beneficial residual effect of the Project. It is likely that the effect will be more strongly felt and therefore significant in the smaller LAA communities, due to smaller populations and economies. The effect will likely be not significant in the RAA. The Proponent looks forward to continuing to work closely with local communities and maximize local benefits associated with the Project. In summary, the effect of increased contracting and procurement opportunities during Construction and Operation is positive, moderate to high in magnitude, local to regional in geographic extent, continuous in frequency, long-term in duration, fully reversible, and likely to occur, in moderate to high context. The level of confidence in this significance determination is moderate. The confidence rating is based on an understanding that outcomes may be influenced by external influences, preferences, and choices.

Table 4.4-5 Summary of Effect Characteristics Ratings for Increased Contracting and Procurement Opportunities during Construction and Operation

Residual Effect Characteristic	Rating	Rationale for Rating
Direction	Positive	Direct, indirect, and induced contracting and procurement opportunities as a result of the Project will be available to individuals and businesses in the LAA and RAA, and will be experienced as a beneficial outcome of the Project.
Magnitude	Moderate to High	Engagement of LAA businesses and labour forces in the Project through contracting and procurement opportunities may be highly detectable, but are considered demonstrable in the RAA.
Geographic Extent	Local to Regional	Although the potential effect is likely to occur across all assessment areas, contracting and procurement opportunities will likely be more pronounced in smaller LAA communities.
Frequency	Continuous	Contracting and procurement opportunities are likely to occur throughout the Construction and Operation Phases.
Duration	Long-term	Contracting and procurement opportunities are likely to occur throughout the Construction and Operation Phases.
Reversibility	Fully reversible	Contracting and procurement opportunities are likely to diminish after the Operation Phase of the Project.
Probability of Occurrence	Likely	Some contracting and procurement opportunities will likely be filled by businesses and labour forces in the LAA.
Context	Moderate to High	The smaller populations, labour forces, and focused local economies of Dawson, Beaver Creek, Pelly Crossing, and Mayo. render these communities less resilient than the broader RAA, but still capable of responding to influences as a result of the Project.

4.4.2.5 Change in Local Economies during Construction and Operation

The residual effect change in local economies is likely to occur in the Construction Phase and extend through the Operation Phase, and will be driven by Project expenditures, contracting and procurement opportunities, and personal spending by Project workers in LAA communities, particularly Dawson. Due to Dawson's geographic location in relation to the Mine Site and NAR, as well as the Proponent's local strategies regarding goods and services expenditures and employment opportunities, Dawson likely will strongly experience a change in its local economy associated with the Project.

The effects characteristics ratings for a change in local economies are summarized in **Table 4.4-6**. Results from the local business and economic development survey indicate that various sectors are represented by businesses in Dawson, and that many businesses in the community can likely supply goods and services to the Project. Feedback from primary data collection activities identified that the Project can help provide a more stable economy for Dawson during the life of mine, and can support stores staying open longer (Interview 20, Personal Communication, 2016). It was also identified through various primary data collection activities that the Project could reduce Dawson's annual boom and bust cycle by providing permanent

year-round employment (Interview 28, Personal Communication, 2016; Local Business Focus Group, Personal Communication, 2016).

Mining is an important component of the local and regional economies, and a source of the territory's longer-term boom and bust cycles, as well as Dawson's seasonal boom and bust cycles. Mining and tourism comprise the majority of Dawson's local economy, and both are largely reliant on outside events (e.g., global commodity prices, the U.S. dollar, and international tourism trends). The Project may likely reduce Dawson's seasonal boom and bust cycle, with year-round needs for labour, goods and services. Enhancement measures, such as the Proponent's Local Hiring and Procurement Strategies, will likely strengthen this positive effect. The Proponent is aware, through primary data collection activities, that the community is cautious about changes while the Project is operating, and will endeavor to support sustainable changes over the long term (Interview 28, Personal Communication, 2016). The Proponent understands that the community is interested in sustainable, strategic growth over the long term, rather than short-term boom growth (Interview 20, Personal Communication, 2016). Although the Project itself does not advance Dawson's economic diversity goals by virtue of it being in the mining industry, the Proponent anticipates supporting the continued sustainable economic development of local communities. Through direct, indirect, and induced employment and expenditures associated with the Project, Proponent and Project will contribute to opportunities for local economic diversification. This proposed change is supported by one comment obtained through primary data collection – that the NAR may lead to spinoff businesses in the tourism and logging industries, among others (Interview 20, Personal Communication, 2016).

As the Project transitions from the Operation Phase to the Reclamation and Closure Phase, its contribution to the local economy will diminish. Whether during the planned closure phase, or in the event of an unplanned temporary or permanent closure, the Proponent has no direct control over how local economies will respond at the time of closure. Through mitigation such as communicating the Project status, schedule, and activities associated with temporary or permanent mine closure, as well as implementing the broader worker transition strategy, local communities and businesses will likely have adequate notice to prepare for other opportunities.

Overall, the Project has the potential to strongly influence local economies in the LAA, resulting in a significant effect. It is likely that the Project's residual effects on the local economy will be experienced as both neutral and positive outcomes: neutral because the Project does not present an opportunity for LAA communities' desired economic expansion into industries other than mining and tourism, and positive because the Project will provide a strong source of year-round employment and goods and services spending over its 14-year Construction and Operation Phases. The residual effect will likely be experienced more strongly in Dawson.

In summary, the effect of in change in local economies during Construction and Operation is high in magnitude, local in geographic extent, continuous in frequency, long-term in duration, fully reversible, and likely to occur, in moderate context. The level of confidence in this significance determination is moderate. The confidence rating is based on an understanding that outcomes may be influenced by external influences, preferences, and choices.

Table 4.4-6 Summary of Effect Characteristics Ratings for Change in Local Economies during Construction and Operation

Residual Effect Characteristic	Rating	Rationale for Rating
Direction	Neutral and Positive	Direct, indirect, and induced employment opportunities and goods and services spending as a result of the Project will be experienced as a beneficial outcome, although the Project does not present an opportunity for LAA communities' desired economic expansion into industries beyond mining and tourism.
Magnitude	High	Changes in the local economy are likely to be highly detectable in LAA communities, and in particular Dawson.
Geographic Extent	Local	Although the potential effect is likely to occur across all assessment areas, changes in income patterns will likely be more pronounced in LAA communities, which exhibit smaller populations and lower median incomes.
Frequency	Continuous	Change in local economies is likely to occur throughout the Construction and Operation Phases.
Duration	Long-term	Change in local economies is likely to occur throughout the Construction and Operation Phases.
Reversibility	Fully reversible	The Project's influence on local economies is likely to diminish after the Operation Phase of the Project.
Probability of Occurrence	Likely	The local economies of LAA communities will likely change as a result of the Project.
Context	Moderate	The smaller populations, labour forces, and focused local economies of Dawson, Beaver Creek, Pelly Crossing, and Mayo. render these communities less resilient than the broader RAA, but still capable of responding to influences as a result of the Project.

4.4.2.6 Beneficial Territorial Economic Growth during Construction and Operation

Pre-production and production activities (Construction and Operation Phases) of the Project will likely result in a range of economic benefits across the RAA and Canada, including increased gross output and GDP. Other beneficial economic effects anticipated for the RAA and Canada include income (discussed in **Section 4.4.2.1**) and FTE jobs (discussed in **Section 4.4.2.2**). Input-output modelling performed by YGED predicts how spending in the pre-production phase and output during the production phase of the Project generates direct effects, indirect (supply chain) effects associated with inputs needed for the Project, and induced effects as a result of employees spending wages from direct (Project) and indirect (supply chain) sources. The influence of the Project's pre-production spending and production output on the territory's

economic growth will likely be substantial, and will result in a positive residual effect over the Construction and Operation of the Project.

The effects characteristics ratings for a change in local economies are summarized in **Table 4.4-7**. Yukon Government Economic Development's IO modelling projected that pre-production spending would result in $361.6 million in gross output occurring in Yukon, and $311.5 million average annual gross output during the production phase of the Project. In terms of GDP, YGED projected that pre-production spending would result in $136.4 million in GDP occurring in Yukon, and $251.1 million average annual GDP during the production phase. Based on Yukon's 2015 real GDP of $2.2 billion, the Project will likely contribute an additional 6% to the territory's GDP during pre-production, and 11% to the territory's GDP during the production phase, representing a high magnitude, and ultimately significant effect.

Although there are no direct enhancement measures to increase the Project's influence on territorial economic growth, the Proponent's local Hiring and Procurement strategies will contribute to the beneficial effect. The decrease in the Project's contribution to territorial economic growth during the Reclamation and Closure Phase of the Project, or in the event of a temporary closure, will likely be unavoidable, and likely. While mining comprises a portion of Yukon's economy, other sectors such as tourism and public administration are also strong contributors. In terms of industries, the Yukon labour force comprises a greater proportion of service-producing, or supporting industries, when compared to goods-producing industries (Statistics Canada 2013b). This can indicate a more diversified economy, able to offer services to basic industry activities. In summary, the effect of beneficial territorial economic growth during construction and Operation is positive, high in magnitude, regional in geographic extent, continuous in frequency, long-term in duration, fully reversible, and likely to occur, in high context. The level of confidence in this significance determination is moderate. The confidence rating is based on an understanding that outcomes may be influenced by external influences, preferences, and choices.

Table 4.4-7 Summary of Effect Characteristics Ratings for Beneficial Territorial Economic Growth during Construction and Operation

Residual Effect Characteristic	Rating	Rationale for Rating
Direction	Positive	Project expenditures will contribute positively to the territory's economic growth.
Magnitude	High	The residual effect of the Project on territorial economic growth is likely to be highly detectable in the RAA.
Geographic Extent	Regional	The residual effect will be experienced at the territorial scale.
Frequency	Continuous	Territorial economic growth is likely to occur throughout the Construction and Operation Phases.
Duration	Long-term	Territorial economic growth will likely occur throughout the Construction and Operation Phases.
Reversibility	Fully reversible	The Project's influence on territorial economic growth is likely to diminish after the Operation Phase of the Project.
Probability of Occurrence	Likely	The territory will likely experience economic growth as a result of the Project.
Context	High	The larger broader and more diverse economy of the RAA will allow it to respond to influences as a result of the Project.

4.4.2.7 Change in Government Fiscal Flows during Construction and Operation

Changes in government fiscal flows are likely as a result of tax and royalty payments by the Proponent, as well as the potential for local government expenditures as a result of the Project. Royalty payments, under the Yukon QMA, are expected to average an estimated $11.9 million per year from Year –1 to Year 10, which accounts for less than 1% of the territory's revenue. Moreover, it is substantially less than the Casino Project, which estimates an average annual of $88.2 million in Yukon royalties during Operation (Casino Mining Corp. 2014). Over the life of the mine, the Proponent expects to contribute approximately $427.5 million in government revenue in the form of corporate income taxes and Yukon mineral royalties. Average annual federal and territorial taxes are expected to be $12.4 million and $12.3 million, respectively, from Year 1 to Year 12. Based on Yukon's 2014 revenues of $1.3 billion, the Project will likely contribute an additional less than 1% to the territory's revenue during the Operation Phase. Combined with the royalty payments, this represents a moderate magnitude of the residual effect.

Although some local government expenditures may occur as a result of indirect and induced effects associated with the Project, concerns regarding local government expenditures were not identified during primary data collection activities. The net balance of potential Project-related effects on government fiscal flows is likely to be neutral. Although taxes and incomes and royalties comprise a small portion of YG's revenues, they will support the government's ability to deliver services, provided they are distributed and spent appropriately. Moreover, the expected population influx to Dawson and Whitehorse (refer to **Appendix 19-A Demographics Intermediate Component Analysis Report**) will likely result in additional municipal taxes for the community, which will form part of the municipal annual operating budget. Ultimately,

the determination of tax and royalty rates, as well as intergovernmental revenue transfers and grants, are beyond the control of the Proponent.

The effects characteristics ratings for a change in local economies are summarized in **Table 4.4-8.** Although there are no direct enhancement measures to increase the Project's contribution to government fiscal flows, the Proponent's practices regarding communication with local and territorial governments regarding Project status and schedule, among other topics, will provide governments with prior knowledge regarding potential changes in fiscal flows. Moreover, the Proponent will also be implementing various mitigation measures specific to residual effects on infrastructure and services (refer to **Appendix 22-A Community Infrastructure and Services Valued Component Assessment Report**).

The decrease in the Project's contribution to changes in government fiscal flows during the Reclamation and Closure Phase of the Project, or in the event of a temporary closure, will likely be unavoidable and likely. At the RAA scale, temporary or permanent closure would result in diminished royalties and taxes. At the LAA scale, a temporary or permanent closure may result in reduced expenditures if temporary populations leave the region. In summary, the effect of change in government fiscal flow during Construction and Operation is neutral, moderate in magnitude, local to regional in geographic extent, continuous in frequency, long-term in duration, fully reversible, and likely to occur, in moderate to high context. The level of confidence in this significance determination is moderate. The confidence rating is based on an understanding that outcomes may be influenced by external influences, preferences, and choices.

Table 4.4-8 Summary of Effect Characteristics Ratings for Change in Government Fiscal Flow during Construction and Operation

Residual Effect Characteristic	Rating	Rationale for Rating
Direction	Neutral	Although taxes, incomes, and royalties comprise a small portion of YG's revenues, they will support the government's ability to deliver services.
Magnitude	Moderate	The residual effect of the Project on changes in government fiscal flows is likely to be demonstrable in the assessment areas.
Geographic Extent	Local to Regional	The residual effect will be experienced from the local to territorial scale.
Frequency	Continuous	Change in government fiscal flows is likely to occur throughout the Construction and Operation Phases.
Duration	Long-term	Change in government fiscal flows is likely to occur throughout the Construction and Operation Phases.
Reversibility	Fully reversible	The Project's influence on government fiscal flows will likely diminish after the Operation Phase of the Project.
Probability of Occurrence	Likely	Changes in government fiscal flows will likely occur as a result of the Project.
Context	Moderate to High	The smaller populations, labour forces, and focused local economies of Dawson, Beaver Creek, Pelly Crossing, and Mayo. render these communities less resilient than the broader RAA, but still capable of responding to influences as a result of the Project.

4.4.3 SUMMARY OF PROJECT–RELATED RESIDUAL EFFECTS AND SIGNIFICANCE

The Project is not likely to result in residual adverse effects on Economic Conditions, but is likely to result in a number of beneficial and neutral effects. While most residual effects will likely extend across both the LAA and RAA, the way in which they materialize in each community will be unique. In many cases, the magnitude of the residual effect will likely be greater in LAA communities, and in particular Dawson, than in the RAA. **Table 4.4-9** summarizes the residual effects of the Project on Economic Conditions and the determination of significance of these residual effects on Economic Conditions.

Table 4.4-9 Summary of Potential Residual Effects for Economic Conditions

Potential Residual Effects	Contributing Project Activities	Proposed Mitigation and Enhancement Measures	Residual Effects Characterization (see Notes for details)									
			Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood	Context	Significance	Level of Confidence
Construction and Operation Phase												
Increased direct, indirect, and induced employment opportunities during Construction and Operation	Labour needs and goods and services spending during the Construction and Operation Phases will result in employment opportunities.	• Local Hiring Practices • Education and Training Activities • Cultural Awareness Training • Engagement Plan • Workforce Transition Strategy	P	MM	RAA	LT	C	R	L	H	NS	M
			P	HM	LAA	LT	C	R	L	M	S	M
Increased income levels and changes in income distribution patterns resulting from increased employment opportunities during Construction and Operation	Labour needs and goods and services spending during the Construction and Operation Phases will result in changes in income patterns.	• Local Hiring Practices • Local Contracting and Procurement Practices • Education and Training Activities • Engagement Plan	P	MM	RAA	LT	C	R	L	H	NS	M
			P	HM	LAA	LT	C	R	L	M	S	M
Effects on the labour market during Construction and Operation	Labour needs and goods and services spending during the Construction and Operation Phases will result in a change in the labour market.	• Local Hiring Practices • Local Contracting and Procurement Practices • Education and Training Activities • Engagement Plan • Workforce Transition Strategy	N	MM	RAA	LT	C	R	L	H	NS	M
			N	MM	LAA	LT	C	R	L	M	NS	M

Potential Residual Effects	Contributing Project Activities	Proposed Mitigation and Enhancement Measures	Residual Effects Characterization (see Notes for details)									
			Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood	Context	Significance	Level of Confidence
Increased contracting and procurement opportunities	Labour needs and goods and services spending during the Construction and Operation Phases will result in contracting and procurement opportunities.	• Local Contracting and Procurement Practices • Engagement Plan	P	MM	RAA	LT	C	R	L	H	NS	M
			P	HM	LAA	LT	C	R	L	M	S	M
Change in local economies	Labour needs and goods and services spending during the Construction and Operation Phases will result in change in local economies.	• Local Hiring Practices • Education and Training Activities • Workforce Transition Strategy • Local Contracting and Procurement Practices • Engagement Plan	N and P	HM	LAA	LT	C	R	L	M	S	M
Beneficial territorial economic growth	Labour needs and goods and services spending during the Construction and Operation Phases will result in territorial economic growth.	• Local Hiring Practices • Local Contracting and Procurement Practices	P	HM	RAA	LT	C	R	L	H	S	M

Potential Residual Effects	Contributing Project Activities	Proposed Mitigation and Enhancement Measures	Residual Effects Characterization (see Notes for details)									
			Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood	Context	Significance	Level of Confidence
Change in government fiscal flows	Labour needs and goods and services spending during the Construction and Operation Phases will result in a change in government fiscal flows.	• Engagement Plan • Refer to **Appendix 22-A Community Infrastructure and Services Valued Component Assessment Report** for additional mitigation and enhancement measures	N	MM	LAA to RAA	LT	C	R	L	M to H	NS	M

Notes:

Direction	Positive (P), Neutral (N), Adverse (A).
Magnitude:	NM = Negligible magnitude, LM = Low magnitude, MM = Moderate magnitude, HM = High magnitude
Geographic Extent:	LAA = local, RAA = regional
Duration:	ST = Short-term, LT = Long-term, P = Permanent
Frequency:	CF = Continuous, FF = Frequent, IF = Infrequent
Reversibility:	R = Reversible, PR = Partially Reversible, I = Irreversible
Context:	L=Low, M=Moderate, H=High
Likelihood:	L=Likely, U=Unlikely
Significance:	NS = Not-Significant, S = Significant
Level of Confidence:	L=Low, M=Moderate, H=High

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Based on the significance determination for the five residual effects listed in **Table 4.4-9** Summary of Potential Residual Effects for Economic Conditions, it is concluded that there is a potential for significant positive residual effects on Economic Conditions during the Project Construction and Operation Phases. As discussed above, the residual effects will likely materialize in different ways depending on the community, and in particular the assessment area. While the residual effect on beneficial territorial economic growth will likely result in a significant positive effect at the RAA scale, no other residual effects are anticipated to be significant in the RAA. By comparison, four residual effects will likely be significant in the LAA, and in particular in the community of Dawson, due to the community's geographic location in relation to the Mine Site and NAR, as well as the Proponent's local hiring and procurement strategies.

5.0 CUMULATIVE EFFECTS ASSESSMENT

This section presents an assessment of potential cumulative effects to Economic Conditions. Cumulative effects result from interactions between Project-related residual effects and the incremental effects on the VC of other past, present, and reasonably foreseeable projects and activities.

5.1 PROJECT-RELATED RESIDUAL EFFECTS

The Project may result in several potential positive and neutral effects on Economic Conditions. Following implementation of enhancement measures, all potential effects are likely to be positive or neutral in direction, and no residual adverse effects are likely to result from the Project on Economic Conditions. The assessment is therefore not carried forward to a cumulative effects assessment step for the Economic Conditions VC (**Table 5.1-1**).

Table 5.1-1 Project-related Residual Effects Considered in the Cumulative Effects Assessment

Project-related Residual Effect	Included in Cumulative Effects Assessment	Rationale
Increased direct, indirect, and induced employment opportunities	No	Employment opportunities is likely to be positive with no residual adverse effect.
Increased income levels and changes in income distribution patterns resulting from increased employment opportunities	No	Change in income patterns is likely to be positive with no residual adverse effect.
Effects on the labour market	No	Change in the labour market is likely to be neutral and positive with no residual adverse effect.
Increased contracting and procurement opportunities	No	Contracting and procurement opportunities is likely to be positive with no residual adverse effect.
Change in local economies	No	Change in local economies is likely to be neutral and positive with no residual adverse effect.
Beneficial territorial economic growth	No	Territorial economic growth is likely to be positive with no residual adverse effect.
Change in government fiscal flows	No	Change in government fiscal flows is likely to be neutral with no residual adverse effect.

6.0 SUMMARY OF EFFECTS ASSESSMENT ON ECONOMIC CONDITIONS

Potential interactions between the Project and Economic Conditions are likely during the Construction and Operation Phases. Although employment opportunities associated with the Project will occur during the Reclamation and Closure and Post-closure Phases, the interaction is likely to be negligible due to the disparity in employment numbers across the different Project phases. The Project is anticipated to interact with Economic Conditions through positive and neutral changes in income patterns, employment opportunities, change in the labour market, contracting and procurement opportunities, change in local economies, territorial economic growth, and change in government fiscal flows.

The selection of enhancement measures for Economic Conditions was informed by primary and secondary data collection, a review of ad enhancement measures and follow-up programs undertaken for past projects, and First Nation and public input. Specifically, feedback was received regarding hiring policies, working with local communities, communication, training, and mine closure. Key mitigation and enhancement measures for Economic Conditions include:

- Local hiring strategy
- Local procurement strategy
- Education and training activities
- Engagement plan
- Workforce transition strategy.

With the application of mitigation and enhancement measures, seven residual positive and neutral effects, including five significant residual positive effects, are likely to result from the Project at various assessment area scales. No residual adverse effects were identified. The residual effects characterized as significant include:

- Change in income patterns in the LAA (positive)
- Employment opportunities in the LAA (positive)
- Contracting and procurement opportunities in the LAA (positive)
- Change in local economies in the LAA (neutral and positive)
- Territorial economic growth in the RAA (positive).

The residual effects will likely materialize in different ways depending on the community, and in particular the assessment area. Ultimately, the smaller populations, labour forces, and focused local economies of the LAA render these communities less resilient than the broader RAA, but still capable of responding to influences as a result of the Project. Due to Dawson's geographic location in relation to the Mine Site and NAR, as well as the Proponent's strategies regarding local goods and services expenditures and employment opportunities, it is likely that the LAA will strongly experience Project-related residual effects to Economic Conditions. Due to the neutral and positive nature of the residual effects, the assessment was not carried forward to a cumulative effects assessment for Economic Conditions.

7.0 EFFECTS MONITORING AND ADAPTIVE MANAGEMENT

Due to the dynamic nature of the socio-economic environment, the Proponent will develop a socio-economic monitoring program (refer to **Section 31.0 Environmental and Socio-economic Management Program** of the Project Proposal) to 1) verify the accuracy of the residual effects predictions and the value of proposed mitigation measures; 2) assess the efficacy of proposed mitigation measures and the need for modifications to those measures to confirm effects predictions remain valid; 3) identify unexpected socio-economic outcomes or problems; and 4) implement additional mitigation measures as per the adaptive management plans developed for the Project.

The socio-economic monitoring program will provide a mechanism to track and respond to various topics across the socio-economic VCs and IC, including Economic Conditions, as well as Social Economy, Community Infrastructure and Services, Education Services, Land and Resource Use, Community Health and Well-being, and Demographics. The approach and methods, including data sources, will be developed in conjunction with the Governments of the LAA, and Yukon Government. The Proponent anticipates developing a socio-economic monitoring program with these parties as the Project proceeds.

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8.1 PERSONAL COMMUNICATION

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Interview 20, February 12, 2016. Anonymous Contributor. Klondike Development Organization (KDO), The City of Dawson, Yukon.

Interview 21. February 17, 2016. Realtor, Coldwell Banker Redwood Realty, The City of Dawson, Yukon.

Interview 23, March 1, 2016. Anonymous Contributor. Klondike Outreach (KO), The City of Dawson, Yukon.

Interview 27. March 2, 2016. Employment and Training Officer, Tr'ondëk Hwëch'in (TH) Human Resources, Education and Training Department, The City of Dawson, Yukon.

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