

APPENDIX 20-A

Socio-Economic Baseline

RED MOUNTAIN UNDERGROUND GOLD PROJECT

VOLUME 8 | APPENDIX 20-A

SOCIO-ECONOMIC BASELINE REPORT

Table of Contents

Abbreviations and Acronyms	vii
1 Introduction	1
1.1 Project Overview.....	1
1.2 Applicable Legislation	4
1.3 Objectives	4
2 Methodology.....	5
2.1 Information Sources and Limitations.....	5
3 Study Areas	6
3.1 Provincial Study Area	7
3.2 Regional Study Area (RSA)	8
3.2.1 Regional District of Kitimat-Stikine (RDKS)	10
3.2.2 City of Terrace.....	10
3.2.3 Tsetsaut Skii km Lax Ha (TSKLH)	10
3.2.4 Métis Nation BC (MNBC)	12
3.3 Local Study Area (LSA)	12
3.3.1 District of Stewart.....	12
3.3.2 Nisga’a Villages	14
3.3.3 Highway 37 Settlements	14
4 Results and Discussion	16
4.1 Governance, Administration, and Planning.....	16
4.1.1 Federal Governance.....	16
4.1.2 Provincial Governance	16

4.1.3	Local and Regional Context.....	17
4.1.4	Aboriginal Governance	18
4.2	Population.....	19
4.2.1	Regional Study Area.....	19
4.2.2	Local Study Area Population.....	22
4.2.3	Summary of RSA and LSA Population and Demographics	25
4.3	Labour Force and Employment.....	26
4.3.1	Regional Study Area.....	26
4.3.2	Local Study Area	28
4.3.3	Summary of RSA and LSA Labour Force.....	29
4.4	Income Levels and Sources.....	30
4.4.1	Regional Study Area.....	30
4.4.2	Local Study Area Income.....	32
4.4.3	Summary of RSA and LSA Income Levels and Sources	33
4.5	Business Activity and Industry	34
4.5.1	Regional Study Area.....	34
4.5.2	Local Study Area	35
4.5.3	Summary of RSA and LSA Businesses Activity and Industry	36
4.6	Health, Social, and Emergency Services	36
4.6.1	Health Services.....	36
4.6.2	Emergency Services and Public Safety.....	38
4.6.3	Social Services.....	40
4.6.4	Summary of RSA and LSA Health, Social and Emergency Services	42
4.7	Education Facilities and Services	42
4.7.1	Regional Study Area.....	42
4.7.2	Local Study Area Education Services	43
4.8	Educational, Skills and Training Levels.....	45
4.8.1	Regional Study Area.....	45
4.8.2	Local Study Area	46
4.8.3	Summary of RSA and LSA Education, Skills and Training Levels	47
4.9	Housing	47
4.9.1	Regional Study Area.....	48
4.9.2	Local Study Area	49

4.9.3	Summary of RSA and LSA Housing.....	53
4.10	Infrastructure.....	53
4.10.1	Regional Study Area.....	54
4.10.2	Local Study Area	55
4.10.3	Summary of RSA and LSA Infrastructure	56
4.11	Community Health and Well-Being	56
4.11.1	Health Status and Chronic Diseases.....	56
4.11.2	Health Behaviour	60
4.11.3	Workplace Hazards	61
4.11.4	Well-being and Personal Resources	61
4.11.5	Social and Economic Determinants of Health	63
4.11.6	Summary of RSA Community Health and Well-being.....	66
4.12	Contemporary Land and Resource Use	66
4.12.1	Regional and Landscape Level Plans.....	67
4.12.2	Parks and Protected Areas.....	67
4.12.3	Hunting	70
4.12.4	Trapping	75
4.12.5	Heli-skiing.....	78
4.12.6	Forestry.....	80
4.12.7	Fisheries	82
4.12.8	Mining and Mineral Exploration	82
4.12.9	Outdoor Recreation	84
5	References	85

List of Tables

Table 3-1:	Rationale for Regional and Local Study Areas	6
Table 4.2-1:	Nisga’a Nation Community Populations, 2017	24
Table 4.3-1:	RSA Labour Force Characteristics by Community	26
Table 4.3-2:	LSA Labour Force Characteristics by Community	28
Table 4.4-1:	Median and Average Individual and Household Income in the RSA ^A , 2010	31
Table 4.4-2:	Median and Average Individual and Household Income in the LSA ^A , 2010, 2005	32
Table 4.5-1:	RSA Labour Force by Industry, 2010	34
Table 4.5-2:	Tourism Services, Retail and Hotels in Stewart	35
Table 4.7-1:	Schools and 2015/2016 Enrolment in Terrace, BC	43
Table 4.7-2:	Nisga’a Schools by Village and 2015/2016 Enrollment	44
Table 4.8-1:	Educational Attainment in the RSA, 2006 and 2011.....	45
Table 4.8-2:	Educational Attainment in the LSA, 2006 and 2011	46
Table 4.9-1:	Private Dwellings in the RSA, 2011	49
Table 4.9-2:	Private Dwelling in LSA, 2006 and 2011	49
Table 4.9-3:	Stewart Housing Characteristics, 2006.....	50
Table 4.9-4:	Available Rental Units, Houses, and Properties for Sale and Camp Areas in Stewart, BC, 2016	51
Table 4.9-5:	District of Stewart House Values, 2005 to 2013	52
Table 4.10-1:	Community Infrastructure and Utilities in the RSA and LSA, 2016.....	53
Table 4.11-1:	Health Indicators in the RSA	56
Table 4.11-2:	Chronic Condition Health Profile for Northwest HSDA and BC	58
Table 4.11-3:	Rates of Reportable Infectious Disease in Northwest HSDA and BC, 2011	59
Table 4.11-4:	Health Behaviors 2011/2012	60
Table 4.11-5:	Well-being and Perceptions of Health, 2011/2012	62
Table 4.11-6:	Community Well-being Index, 2006	63
Table 4.11-7:	Indicators of Social and Economic Determinants of Health, 2011/2012.....	64
Table 4.11-8:	Comparison of Cost of Food in Stewart and Terrace.....	65
Table 4.11-9:	Indicators of Crime, Average from 2009-2010	65
Table 4.12-1:	Wildlife Management Units and Study Area Calculations.....	70
Table 4.12-2:	Hunter Harvest Data for Wildlife Management Units 6-14 and 6-16 (2000 to 2012)	72

Table 4.12-3: Trapline Licenses within the LSA and RSA 75

Table 4.12-4: Summary of Trapline Activity and Use (1985 to 2015)..... 77

Table 4.12-5: Average Price per Pelt..... 77

Table 4.12-6: Summary of Forest License Holders in the LSA and RSA 80

List of Figures

Figure 1.1-1:	Project Location	2
Figure 1.1-2:	Project Overview.....	3
Figure 3.2-1:	Socio-Economic Regional and Local Study Areas.....	9
Figure 3.2-2:	Location of Project in Relation to Skii km La Ha Traditional Territory.....	11
Figure 3.3-1:	Location of Project in Relation to Nisga’a Lands	15
Figure 4.2-1:	Regional District of Kitimat-Stikine Population Change (1986-2016).....	19
Figure 4.2-2:	Regional District of Kitimat-Stikine Population by Age Group in 2011.....	20
Figure 4.2-3:	British Columbia Population by Age Group in 2011 (Statistics Canada, 2012).....	20
Figure 4.2-4:	City of Terrace Population Change (2001-2016).....	21
Figure 4.2-5:	City of Terrace Population by Age Group in 2011 (Statistics Canada, 2012).....	21
Figure 4.2-6:	District of Stewart Population Change (1986 to 2016)*	23
Figure 4.2-7:	District of Stewart Population by Age Group in 2011.....	23
Figure 4.2-8:	Nisga’a Population by Age Group in 2011	25
Figure 4.12-1:	Land and Resource Management Plans.....	68
Figure 4.12-2:	Parks and Protected Areas.....	69
Figure 4.12-3:	Wildlife Management Units.....	71
Figure 4.12-4:	Guide Outfitting Licenses.....	74
Figure 4.12-5:	Trapline Licenses.....	76
Figure 4.12-6:	Last Frontier Heli-skiing License Area	79
Figure 4.12-7:	Forestry Licenses and Timber Supply Areas	81
Figure 4.12-8:	Mineral Claims	83

ABBREVIATIONS AND ACRONYMS

The Application will include a list of abbreviations and acronyms including the following:

Acronym	Description
APH	Average Persons per Household
Application/EIS	Application for an Environmental Assessment Certificate/Environmental Impact Statement
BC	British Columbia
BCEAA	<i>BC Environmental Assessment Act</i>
CEAA	<i>Canadian Environmental Assessment Act</i>
CPABC	Chartered Professional Accountants of British Columbia
CRA Fisheries	Commercial, Recreational, and Aboriginal Fisheries
CWBI	Community Well-being Index
DFO	Department of Fisheries and Oceans
EA	Environmental Assessment
EAC	Environmental Assessment Certificate
EAO	BC Environmental Assessment Office
EIS	Environmental Impact Statement
FLNRO	Ministry of Forests, Lands & Natural Resource Operations
HSDA	Health Service Delivery Areas
IDM	IDM Mining Ltd.
INAC	Indigenous and Northern Affairs Canada
IRs	Indian Reserves
km	Kilometer
LHA	Local Health Authority
LNG	Liquefied Natural Gas
LSA	Local Study Area
m	metre
MCFD	Ministry of Children and Family Development
MNBC	Métis Nation of BC
Nass South SRMP	Nass South Sustainable Resource Management Plan

Acronym	Description
NCDR	North Coast Development Region
NDIT	Northern Development Initiative Trust
NFA	Nisga'a Final Agreement
NGO	Nisga'a Guide Outfitting
NHA	Northern Health Authority
NHS	national household survey
NLG	Nisga'a Lisims Government
NTL	Northwest Transmission Line
NVHA	Nisga'a Valley Health Authority
NWCC	Northwest Community College
PPSA	Provincial Police Service Agreement
PYLL	Potential Years of Life Lost
RCMP	Royal Canadian Mounted Police
RDKS	Regional District Kitimat-Stikine
RDs	Regional Districts
RSA	Regional Study Area
TDCSS	Terrace and District Community Services Society
the Project	the proposed Red Mountain Underground Gold Project
TSA	Timber Supply Area
TSKLH	Tsetsaut Skii km Lax Ha
VC	Valued Component
WHO	World Health Organization
WMU	Wildlife Management Unit
WWNI	Wilp Wilxo'oskwhl Nisga'a Institute

1 INTRODUCTION

1.1 Project Overview

IDM Mining Ltd. (IDM, the Proponent) proposes to develop and operate the Red Mountain Underground Gold Project (the Project), in the Bitter Creek valley, located approximately 18 kilometres (km) east of the District of Stewart (Stewart), in northwest British Columbia (BC) (Figure 1.1-1). The Project will extract high-grade gold and silver ore to be processed on-site. The mine will take about 20 months to construct and will operate for approximately six years. During construction, the project will employ approximately 290 workers and approximately 180 during operations.

Figure 1.1-1: Project Location

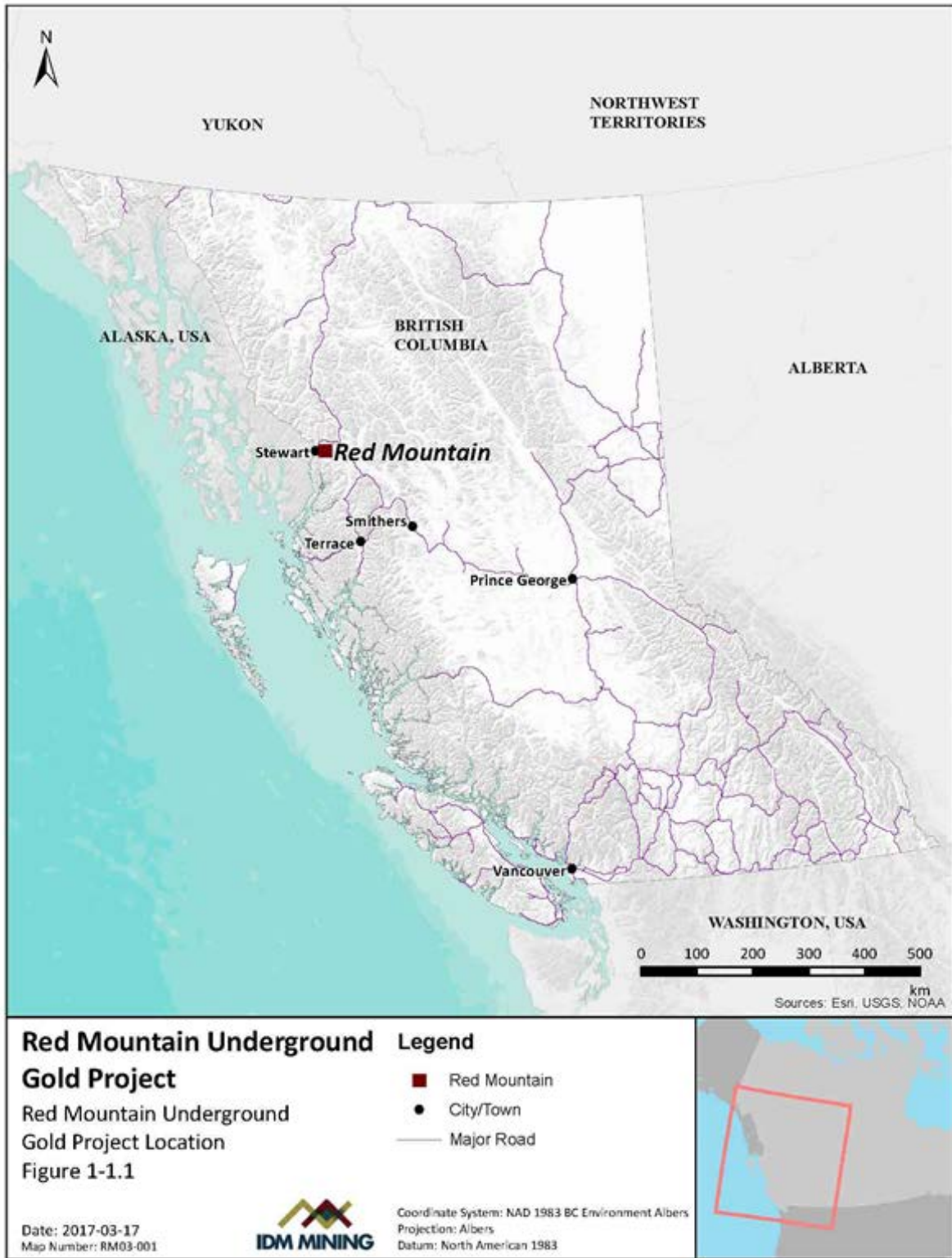
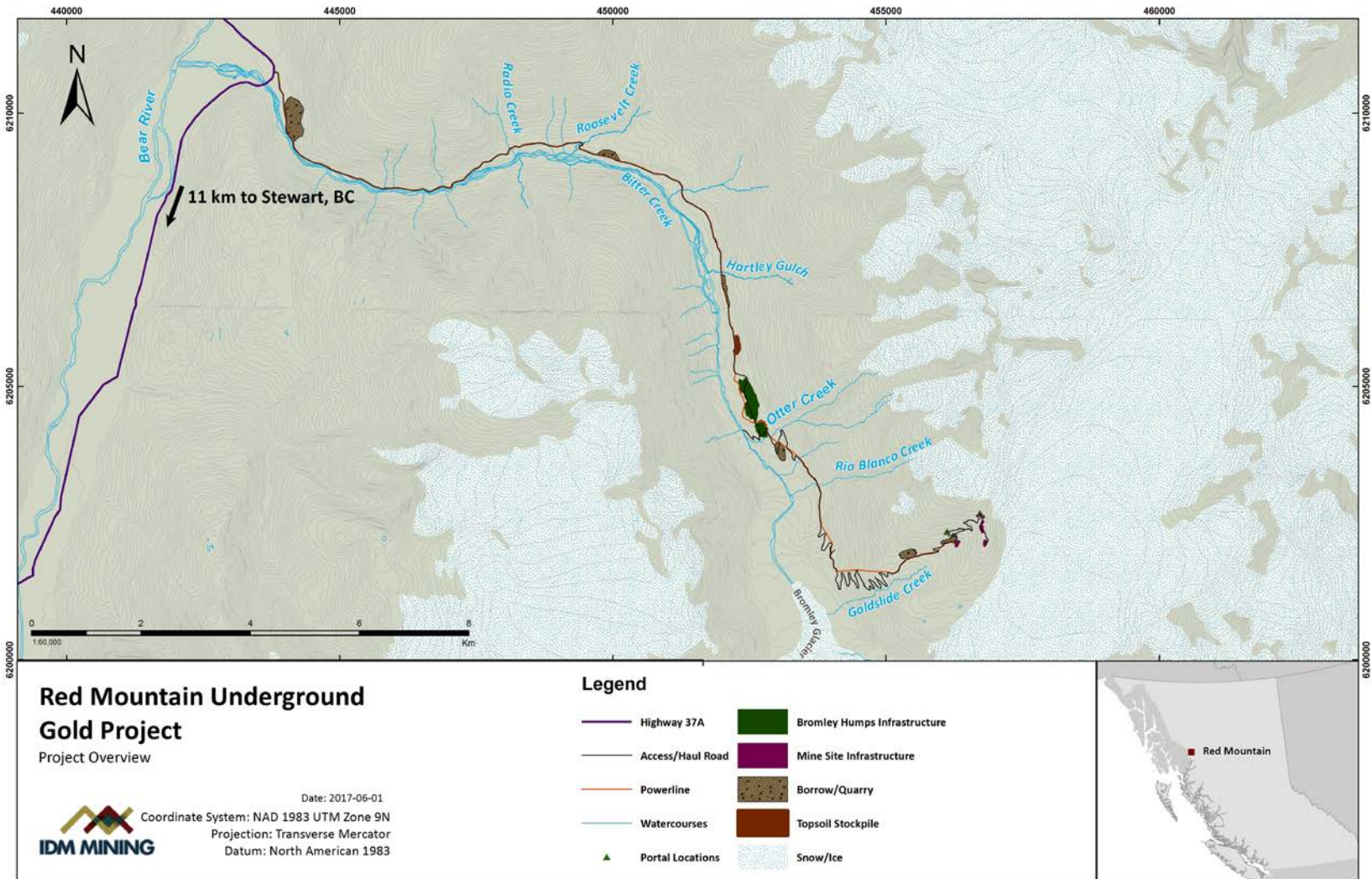


Figure 1.1-2: Project Overview



1.2 Applicable Legislation

This report is written pursuant to the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and the *British Columbia Environmental Assessment Act, 2002* (BCEAA), which both require an assessment of the potential adverse environmental, economic, social, heritage, and health effects of the Project. BCEAA requires an assessment of social and economic effects. Section 5(1) of CEAA 2012 requires an assessment of indirect effects that stem from the Project's environmental effects on the socio-economic health of Aboriginal peoples.

There is currently no federal or provincial legislation that stipulates socio-economic requirements for mine developments. Social conditions that may be affected by the Project are often the responsibility of one or more levels of government, but there is not a legislated requirement to manage such effects.

1.3 Objectives

The objectives of this report are to provide a baseline of regional and local socio-economic conditions to support the effects assessments of the Project to be presented in the Application for an Environmental Assessment Certificate/Environmental Impact Statement (the Application/EIS). It describes the social and economic contexts of areas and communities that characterize the socio-economic setting of the Project. Topics of focus include governance and government revenues, population and select demographics, education facilities and services, educational attainment, labour force and economy, business activity, income, housing, community health and well-being, and health and social services.

Specific objectives of this report are to:

- Present information about the past and present social and economic conditions and context within the local and regional areas of the Project;
- Build understanding of current community dynamics and trends;
- Identify community considerations, interests, values, and concerns about their current and future social and economic environment; and
- Provide a reference point for the assessment of potential Project and cumulative effects.

This information will be used to inform the environmental assessment process as set out by the British Columbia Environmental Assessment Office (EAO) and Canadian Environmental Assessment Agency (the Agency), including the identification and assessment of potential social and economic effects and the development and implementation of mitigation and management plans.

2 METHODOLOGY

As stipulated by EAO, the assessment process requires the production of separate social and economic effect assessment chapters within the Application/EIS. The aim of a combined socio-economic baseline report is to capture the multiple, and often interacting, social and economic conditions that shape the lives of people and communities in the area. This integrated approach will provide a more complete and meaningful basis for the assessment of social and economic effects and will reduce the redundancy inherent in producing separate social and economic baseline reports.

The report is based on review, analysis, and summary of multiple secondary sources of data and information collected between November 2016 and March 2017, including official government statistics and other data from provincial, regional, and local organizations and government agencies. Published social science literature, public and unpublished reports, media analyses, and the results of public engagement activities are also considered.

Additional context is provided by information obtained through Project-specific fieldwork, which was carried out on IDM's behalf in Stewart and the City of Terrace (Terrace) from November 28 to December 1, 2016. Key informant interviews were carried out with community leaders, administrators, and managers responsible for a range of social and economic issues, programs, and/or facilities. Notes and other information gathered during interviews are predominantly qualitative and were primarily used to supplement statistical information and to contextualize understanding of existing issues and concerns in the communities.

2.1 Information Sources and Limitations

With the results of the 2016 Census only gradually being released from February 8 to November 29, 2017, this report relies on census data generated in 2006 and 2011. Caution is necessary with respect to drawing specific conclusions about the study communities' current characteristics and outlooks based on data that is at least six years out of date.¹ At the same time, there is an element of continuity and stability in social and economic conditions such that it is reasonable to assume that while things are likely to have changed, they have not changed so much as to render the data useless for the purposes of the social and economic assessments.

For certain data sources and statistics, direct comparisons between areas or across time periods may be problematic because of variations in both geographical and statistical definitions. Regional subdivisions of the province, for example, include areas defined by

¹ Prior to Census 2011, completion of the Canadian census was mandatory for all Canadians and those who failed to comply faced penalties ranging from fines to jail time. 2011 marked the replacement of the long form census with the voluntary national household survey (NHS). The change in how Statistics Canada collects data will make comparisons with previous census years problematic. The 2016 Census returned to the mandatory long-form census.

regional districts, municipal areas, health areas, economic development zones, and land management planning units. The areas included within the borders of these regions and categories rarely coincide with one another and often change over time. Furthermore, the cultural linkages and traditional territories of relevant Aboriginal Groups transcend many of these contemporary or administrative boundaries. Efforts have been made to note inconsistencies where possible.

Availability of information varies significantly from one community to the next. Incorporated municipalities tend to have more information than unincorporated settlements. Nisga'a Nation and Aboriginal Groups have their own protocols and capacities for producing and maintaining social and economic data. Statistical information, particularly for the smaller communities, may be limited or intentionally suppressed by Statistics Canada to help protect the confidentiality of personal information of people living in small communities.

3 STUDY AREAS

Local and Regional Study Areas (LSAs and RSAs, respectively) are established to provide a spatial boundary for the purposes of social and economic assessment and are reflected in the presentation of baseline information. Study areas were selected based on their proximity to the proposed Project, the transportation routes that will be used by the Project, port location, potential downstream effects, and their anticipated interaction with Project development and operation.² Consideration was given to the potential economic effects of the Project, as Project-induced changes to employment and other economic conditions (e.g., labour supply, demand, and production systems) are often pathways to the related changes in social conditions. Specific rationale for the inclusion of specific communities in the RSA and LSA is provided in Table 3-1.

Table 3-1: Rationale for Regional and Local Study Areas

Study Area	Rationale
Regional Study Area	
Regional District of Kitimat-Stikine	The Project will rely largely on this area of northwest BC for human resources, supplies, services, and other requirements. Employment, income, and gross domestic product effects from the Project are expected across this region. Much statistical data corresponds directly or closely to the boundaries of the regional district.

² The RSA and LSA defined in this report differ from the RSA and LSA boundaries described in the various Project biophysical baseline reports and from the RSA and LSA used to define the Contemporary Land and Resource Use and the Social and Health Services valued components (VCs). The RSA and LSA for Contemporary Land and Resource Use follow the RSA and LSA outlined for the Wildlife VC, which is consistent with the Bitter Creek watershed and the Bear River watershed, respectively. The LSA for Social and Health Services was expanded to include Terrace.

Study Area	Rationale
City of Terrace ³	Terrace is the closest, large urban centre to the Project, offering a variety of health, social, and economic services.
Métis Nation BC	Required under the Environmental Impact Statement Guidelines issued for the Project (January 2016).
Tsetsaut Skii Kim La Ha	Required under the Environmental Impact Statement Guidelines issued for the Project (January 2016).
Local Study Area	
District of Stewart	The Project is located 18 km northeast of Stewart, which may provide labour and services for the Project. Stewart may also be the site of worker accommodation and, due to proximity, is likely to have the most direct interaction with the Project.
Nisga'a Villages	Nisga'a Nation may provide labour, goods, and services to the Project. The Project falls within the Nass Area as defined by the Nisga'a Final Agreement (NFA; Nisga'a Lisims Government [NLG], Province of BC, and Government of Canada 1998).
Highway 37 settlements (Bell II and Meziadin Junction)	These settlements fall within a 50 km radius from the Project and may provide labour and services to the Project.

3.1 Provincial Study Area

At the provincial scale, the Project is expected to have a beneficial socio-economic effect on employment, business opportunities, and government revenues. BC's economy has historically relied on natural resource industries. Over the course of the last few decades, the provincial economy has increasingly diversified. Natural resource industries remain important in the provincial economy; however, the balance has shifted to include value-added manufacturing and services. Direct employment in natural resource sectors (forestry, fishing, mining, and oil and gas) declined from 3.3% of the provincial labour force in 1990 to 2.3% in 2016 (BCStats 2016). This has influenced many communities in BC, which in many respects were founded upon and owe their continued existence to resource-based industries. At the same time, BC has become increasingly urbanized and more socially and economically diverse. While the overall provincial population has continued to grow, by over 22% between 1996 and 2016, many regions such as the northwest have experienced substantial population declines in step with dwindling resources, depressed commodity markets, and global competition.

From the mid-2000s, strong international commodity prices, especially for minerals and energy, driven by robust growth in China and elsewhere, rejuvenated parts of BC's resource sector industries. However, global over-supply of minerals led to a sharp decline in the

³ After consideration, Smithers was not included in the RSA as Terrace offers a much larger population and service centre and was determined to be the city-center most likely affected by the Project through employment and provision of services and supplies.

prices of many metals and resultant drop in activity (PWC 2015). Direct employment in the mining sector decreased from 10,720 in 2013 to 8,726 in 2015 and net revenue from CAD millions 7,008 to 6,289 over the same time period (PWC 2015).

Adverse socio-economic effects of the Project are best analyzed at the regional and local scale, therefore a provincial study area is not carried forward in the effects assessment.

3.2 Regional Study Area (RSA)

The RSA is defined by the boundaries of the Regional District of Kitimat-Stikine (RDKS), which includes Terrace. Aboriginal Groups discussed in the Application/EIS include Nisga'a Nation, Tsetsaut Skii km Lax Ha (TSKLH), and Métis Nation BC (MNBC). The four Nisga'a Villages are considered part of the LSA and will be introduced in Section 3.3.2. The remaining RSA administrative or cultural groups will be introduced in the following sections.

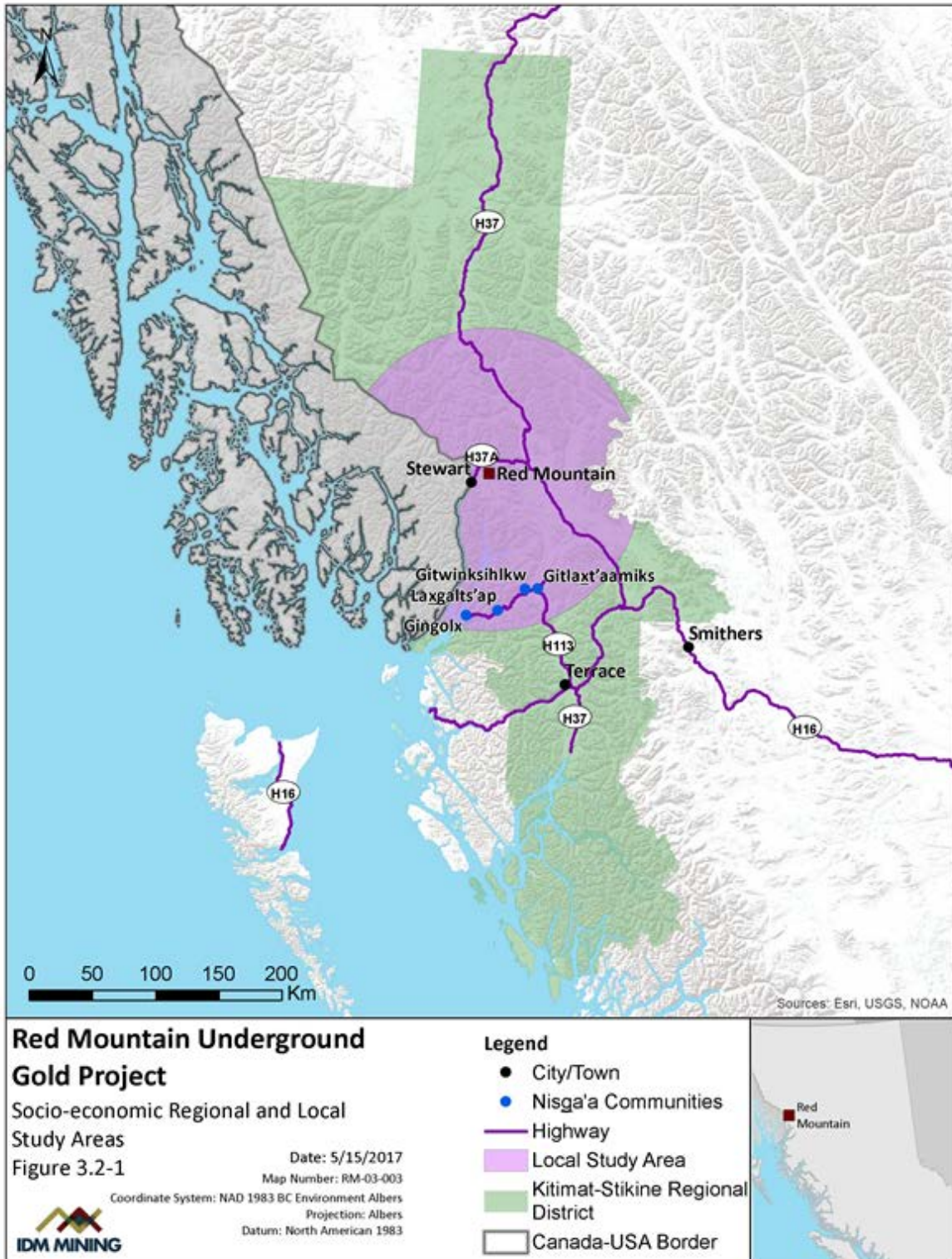
A regional analysis is included because of the potential interactions between the Project and the RSA with respect to human resources, supplies, services, and other Project demands.

Economic development in northwest BC, including the RSA, stems largely from development of the area's abundant natural resources. Forestry, fisheries, and mining all have rich histories in the region. Fluctuations in population can be directly linked to changes in resource and industrial development (RDKS 2016). In recent decades, forestry and fishing have waned and, while mining enjoyed a prolonged resurgence from the mid-1980s, mineral exploration declined for the third consecutive year in 2015 and several proposed mine developments were put on hold due to poor prices for some metals and minerals (CPABC 2016b).

In recent years, development of infrastructure, transportation, power generation and transmission, and mining projects have created new jobs, businesses, and investment opportunities. In 2015, the estimated value of major projects increased by 51% and decreased by 4.9% 2016⁴ (Ministry of Jobs, Tourism and Skill Training and Ministry Responsible for Labour 2016). As of June 2016, there were 64 projects either under construction (6 projects), proposed (43 projects), or on hold (15 projects). The value of these projects was estimated at \$202 billion with 94% of this investment attributed to the estimated cost of proposed Liquid Natural Gas (LNG) projects (17 projects) and 5% to mining projects. LNG projects are being pushed further into the future due to poor energy markets and regulatory challenges (CPABC 2016a).

⁴ Based on quarter 2 estimates

Figure 3.2-1: Socio-Economic Regional and Local Study Areas



3.2.1 Regional District of Kitimat-Stikine (RDKS)

RDKS provides local government services to approximately 37,000 residents within an area of 100,000 km² in northwest BC, including residents of the City of Terrace, District of Kitimat, District of Stewart, Village of Hazelton, and District of New Hazelton as well as six Electoral Areas: A (Nass Valley, Meziadin), B (Hazelton's rural areas, Kispiox Valley, Moricetown through Cedarvale), D (Telegraph Creek, Iskut, Bob Quinn), E (Thornhill), F (Dease Lake), and C (Rural Terrace area, south coast) (Statistics Canada 2012). Services range from rural land use planning to community water and sewage systems, emergency services, fire protection, environmental services (including solid waste), and library services, among others. The economy across the RDKS is focused on mining, forestry, fishing, and transportation industries (RDKS 2017).

3.2.2 City of Terrace

Terrace is the main city centre within the RSA and is situated on a key freight corridor at the junction of Highways 16 and 37. It is a strategic regional centre for business, retail, medical, and government services, as well as a hub for highway, rail, and air transportation (NDIT 2015a). Terrace's economic development strategy includes a focus on supplying goods and services to the mineral sector, both in exploration and development. Its strategic location as a key transportation and distribution centre along Canada's Pacific Gateway links Canada and North America to Asian markets. It has an integrated transportation network of airports, seaports, railways, and roadways. Terrace's relatively large population and recent exposure to resource development projects means that it is potentially an important source of human resources for the Project.

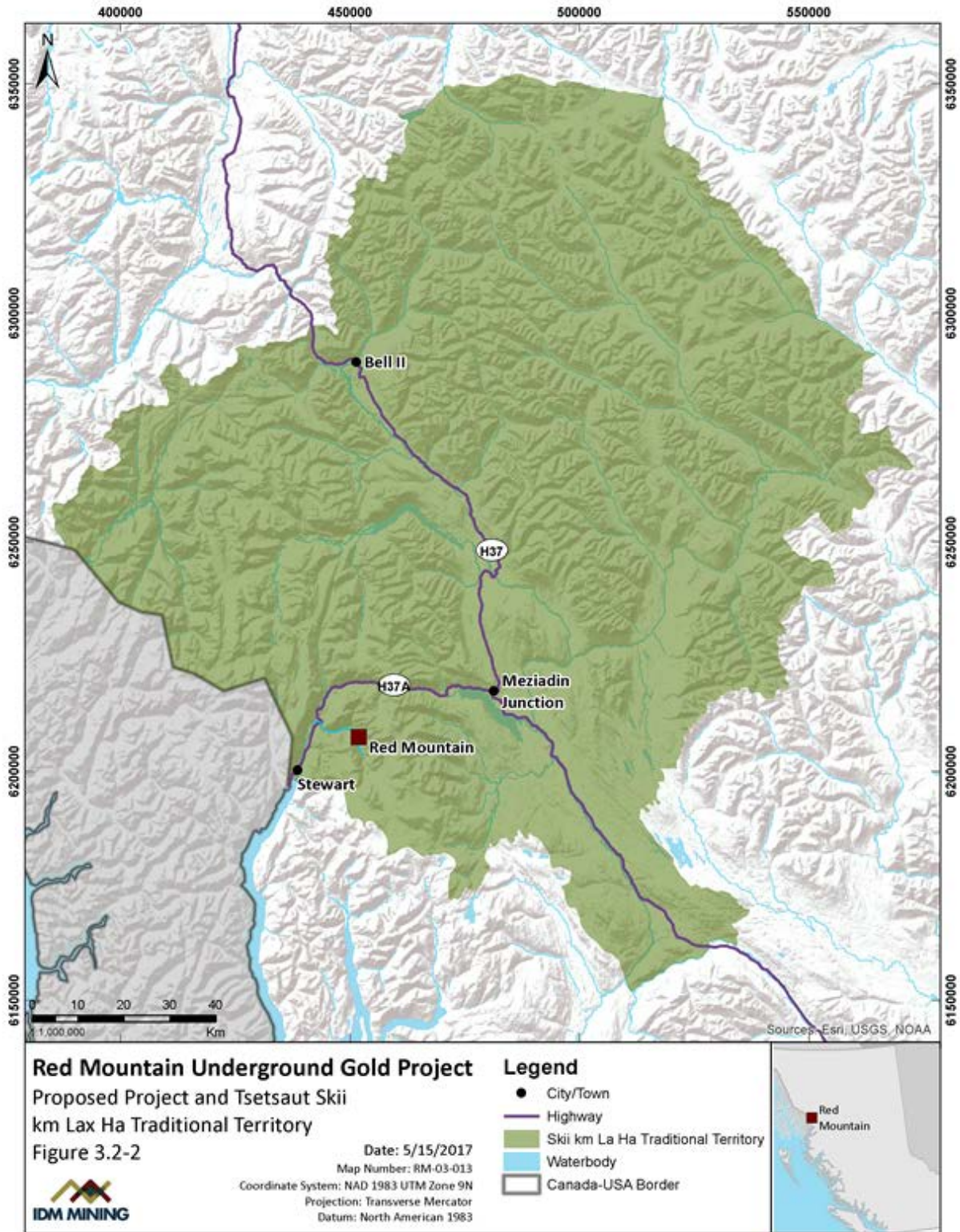
The residents of Terrace enjoy many social, cultural, and economic opportunities that are absent, or much less readily available, to residents of many other communities within the RSA due to its size and relative social and economic diversity. Terrace is an important centre for social, health, and medical services in the region.

3.2.3 Tsetsaut Skii km Lax Ha (TSKLH)

Tsetsaut Skii km Lax Ha estimate there are approximately 15 members (D. Simpson D. Pers. Comm., 2016). TSKLH members primarily live in Hazelton and New Hazelton (ERM Rescan, 2014b). TSKLH members self-identify as descendants of the Tsetsaut ethnographic group; however, they are not currently recognized by the Government of Canada as a distinct "band" under the *Indian Act*. TSKLH's traditional territory is approximately 19,800 km² in total area and is shown in Figure 3.2-2.

Consideration of TSKLH's Aboriginal Interests and their potential interaction with the Project are addressed in Volume 4, Part C, Chapter 25 (Tsetsaut Skii km Lax Ha) and in Volume 3, Chapter 20 (Social Effects Assessment), Section 20.10 (Current Use of Lands and Resources for Traditional Purposes) of the Application/EIS.

Figure 3.2-2: Location of Project in Relation to Skii km La Ha Traditional Territory



3.2.4 Métis Nation BC (MNBC)

Métis are descendants from the union of European (predominantly French and Scottish) men and First Nation women during the 17th and 18th century fur trade. The Métis Nation's historic homeland includes the three present-day Prairie Provinces and extends into Ontario, BC, and the Northwest Territories (Métis National Council 2011). MNBC, unlike other Aboriginal Groups, do not claim territories; instead, on behalf of their citizens, they assert rights and traditional land uses in BC (MNBC 2017a). As per the MNBC Constitution, MNBC also asserts rights to self-government and title (MNBC 2013).

Métis Nation BC (MNBC) is divided into seven regions and subsequently into chartered communities. One chartered community lies within the RSA: the Northwest Métis Association, located in Terrace. The Northwest Métis Association has approximately 164 members (ERM Rescan 2014a).

Consideration of Métis citizens' Aboriginal Interests and their potential interaction with the Project are addressed in Volume 4, Part C, Chapter 26 (Métis Nation BC) and Volume 3, Chapter 20 (Social Effects Assessment), Section 20.10 (Current Use of Lands and Resources for Traditional Purposes) of the Application/EIS.

3.3 Local Study Area (LSA)

The LSA is not a contiguous geographic area; rather it is comprised of a number of communities spread out over a 50 km radius area centred on the Project. Communities are broadly defined as locales where people live, go to school, and raise their families. During the Construction, Operation, and Closure and Reclamation phases of the Project, these communities are expected to be involved and/or influenced to varying degrees by the Project (e.g., labour, services, well-being, and supplies).

Communities included in the LSA are a mixture of small, unincorporated settlements, Nisga'a Nation Villages, and municipalities ranging in size from a few hundred to several thousand inhabitants. The LSA for this report consists of Stewart, the four Nisga'a Villages located in the Nass Valley, Bell II, and Meziadin Junction.

3.3.1 District of Stewart

The District of Stewart is governed by six councilors and a mayor, last elected in 2014 (District of Stewart 2014a). Stewart is located on the west coast of BC, at the mouth of the Bear River, the head of Portland Canal, and the western terminus of Highway 37A. Stewart was established in 1905 and experienced rapid population growth driven by northern BC's early gold rush history. The town has a rich history of gold, silver, and copper mining (IRJ 2013). The economy of Stewart supports a varied range of industries from logging, forestry, mining and exploration, and tourism. The community also lies within the boundaries of the RDKS and has a close relationship with its American neighbour, the town of Hyder, which is directly across the border in Alaska. The Stewart-Hyder International Chamber of Commerce addresses joint community interests primarily regarding the local tourist economy.

Proximity to Alaska, its coastal location, and ample tourism and recreation opportunities are marketed to help grow the tourism sector and bolster the local economy (Tourism BC 2010).

Stewart is home to two facilities that provide the most northerly, ice-free port access to Asian markets.⁵ The ports are an important transit point for shipping concentrate from various mining projects in northwest BC and the Yukon Territory. Stewart Bulk Terminals is a privately owned facility that serves as the shipment facility for ore concentrate to international destinations and the Stewart log storage and handling facility (NDIT 2017). The Port of Stewart has terminals with capacity to berth large international freighters up to 50,000 deadweight tonnage (District of Stewart 2017). Facilities provide for both shallow and deep water barges, include two storage facilities, and an average loading rate of 700 to 800 tonnes/hour. Stewart World Port completed construction in 2016 at the former Cassiar (Arrow) Dock owned by the District of Stewart (Northern Connector 2012). Stewart World Port added capacity to help meet the shipping needs of the anticipated expansion of mining and LNG projects in northwest BC.

Stewart's history is punctuated by cycles of economic boom and bust, most often tied to the immediate fortunes of the mining industry. Mining projects contributing to Stewart economy or in progress include:

- Huckleberry Mine, currently on care and maintenance, supports employment within the community, as it trucks ore concentrate from its mill near Houston, BC to the Port of Stewart;
- Brucejack Gold Mine Project, currently under construction 65 km north-northwest of Stewart, will ship concentrate through the Port of Stewart for shipment overseas;
- The proposed Kerr-Sulphurets-Mitchell (KSM) Mine, 65 km north of Stewart, estimates that 1,800 jobs will be required during construction, and the Project plans on transporting concentrate through the Port of Stewart; and
- Premier, Granduc, Jumbo, Red Chris, and Porter-Idaho projects, which have contributed to the socio-economic well-being of Stewart..

Stewart still serves as an export centre for raw logs and other forestry related activities. Northwest BC has long supported logging activities, wood products manufacturing, and trucking employment. In 2015, increased demand for lumber from the United States increased shipments by 13.2% from 2014 (CPABC 2016b).

The Long Lake Hydro Project commenced operation in 2013 and has an installed capacity of 31 MW (Regional Power 2017). Power is distributed via a new 10-km 138 kV transmission line, which will connect to the BC Hydro grid and provide additional energy resources for communities and potential resource development projects (Regional Power 2017). The Northwest Transmission Line (NTL) Project, a 344 km, 287 kilovolt transmission line between Skeena Substation (near Terrace) and a new substation near Bob Quinn Lake, was completed in 2014 (BC Hydro 2017).

⁵ The ports at Stewart are, like the Port in Prince Rupert, about a day closer by ship to Asia than southern ports such as Vancouver and Seattle.

Although the community's economy has suffered in recent years, the completion of large infrastructure projects such as the NTL, Long Lake Hydro Project, and Stewart World Port, as well as the increase in mineral exploration, have renewed activity in the area.

3.3.2 Nisga'a Villages

The LSA also includes the Nisga'a Villages of Gitlaxt'aamiks (formerly New Aiyansh), Gitwinksihlkw (formerly Canyon City), Laxgalts'ap (formerly Greenville), and Gingolx (formerly Kincolith). Nisga'a Lands, as defined in the NFA, encompass about 2,000 km² around the estuary and lower reaches of the Nass River (NLG 2017a) (Figure 3.3-1). The Nisga'a Villages fall along the Nass floodplain to the mouth of the Nass River. The Villages are connected by road to Highway 113, the Nisga'a Highway, which links Nisga'a Lands to Terrace, about 100 km to the south.

The Nisga'a Final Agreement (NFA) (NLG, Province of BC, and Government of Canada 1998) came into effect in of May 2000 under the *Constitution Act* (1982).

The Nisga'a economy, like most of northwest BC, is tied to resource based industries, especially forestry and commercial fishing (NLG 2017b). In recent decades, tourism, infrastructure projects, and mining have provided new jobs as well as employment in the government, education and healthcare sectors.

3.3.3 Highway 37 Settlements

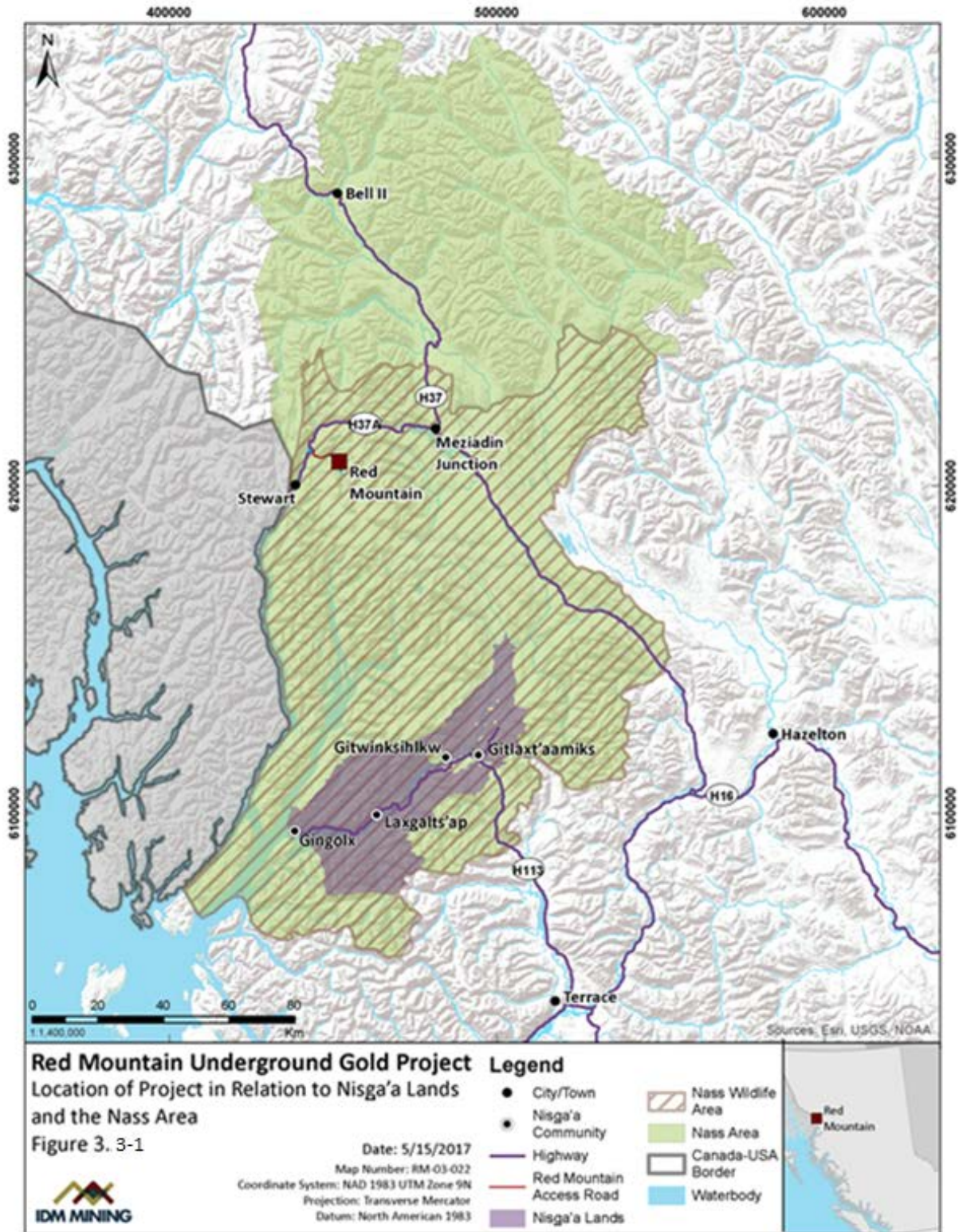
The Highway 37 settlements of Bell II and Meziadin Junction officially fall under the jurisdiction of the RDKS and are located within the 50 km radius used to determine the LSA.

Bell II is located 94 km north from Meziadin Junction and was established in 1979 as a service station for travelers along Highway 37 (Bell 2 Lodge 2017). Additional facilities and services developed over the years and the site. Bell 2 Lodge is now a wilderness destination as well as a service station for travelers. Today, the Bell 2 Lodge attracts visitors from around the world on a seasonal basis. Annually each fall, international tourists and recreationists pursue steelhead fishing on the Bell-Irving, Nass, and other rivers, while heli-skiing dominates the winter months. The lodge offers guiding services for heli-skiing through Last Frontier Heli-skiing. Last Frontier additionally offers helicopter and small-plane tours, wildlife viewing, and heli-hiking expeditions during the summer months (Last Frontier Heliskiing 2014).

The Bell 2 Lodge includes a central lodge, restaurant, and five chalets. Other services include fuel (gas, diesel, and propane), camping and RV hook-ups, helicopter landing and fueling facilities, and a garage for minor automotive repairs (Bell 2 Lodge 2017).

Meziadin Junction is located 65 km from Stewart at the junction of Highways 37 and 37A. Gas and diesel services were formerly available, as well as a café, repair shop, and campground/RV park. However, facilities closed in 2006, have been decommissioned, and the property has been for sale for several years (Destination BC Corp. 2014).

Figure 3.3-1: Location of Project in Relation to Nisga'a Lands



4 RESULTS AND DISCUSSION

4.1 Governance, Administration, and Planning

4.1.1 Federal Governance

Within the LSA, the federal government presence is limited to services such as Royal Canadian Mounted Police (RCMP) and Department of Fisheries and Oceans (DFO). Indigenous and Northern Affairs Canada (INAC) and Health Canada are involved with Aboriginal communities throughout the RSA.

Effective April 1, 2012, the province signed a new 20-year Provincial Police Service Agreement (PPSA) with the government of Canada to contract the RCMP as BC's provincial police service (Ministry of Public Safety and Solicitor General Police Services Division 2016). Under the terms of the PPSA, the provincial government pays 70% of the cost-base described in the Agreement, and the federal government pays the remaining 30%.

4.1.2 Provincial Governance

The provincial government is represented by regional offices across the province, including in Terrace, Smithers (not included in the RSA) and, to a lesser extent, in Stewart. Provincial ministries are responsible for delivering services within provincial jurisdiction, including:

- The Ministry of Health is responsible for health service delivery to BC residents. Key legislation include the *Ministry of Health Act* (1996), the *Medicare Protection Act* (1996), and the *Pharmaceutical Services Act* (2012). The Northern Health Authority (Northern Health or NHA) is responsible for health care services across northern BC, including acute (hospital) care, mental health and addictions services, public health services, and home and community care. The BC Ambulance Service, under BC Emergency Health Services, provides ambulatory services.
- The Ministry of Education supervises the administration of school districts, administers provincial funding, and supervises finances under the *School Act* (1996). The BC Ministry of Advanced Education provides funding to post-secondary institutions under the *University Act* (1996) and the *College and Institute Act* (1996).
- The Ministry of Forests, Lands, and Natural Resource Operations (FLNRO) is responsible for wildfire suppression on Crown land (*Fire Services Act, RSC. C. 144* 1996).
- Social and family services are principally the responsibility of the Ministry of Children and Family Development (*Child, Family and Community Services Act, RSBC. C. 46* 1996).

4.1.3 Local and Regional Context

Local governments in BC include municipalities, Regional Districts (RDs), and Improvement Districts. Community services are largely the responsibility of local governments as empowered through the *Local Government Act* (1996) and the *Community Charter* (2003). The *Local Government Act* is the primary legislation for RDs and Improvement Districts, setting out governance and structure as well as the main powers and responsibilities. Certain municipal provisions remain in effect for matters not covered by the Community Charter. The Act sets out statutory requirements for elections, planning, and land use. The Community Charter identifies broad powers for municipalities relating to taxation, financial management, and bylaw enforcement. Key community services under local jurisdiction include fire protection, emergency response, engineering services (including water supply, waste management, and transportation), parks and recreation, housing as affected by zoning, Official Community Plans, and other plans. Local governments are also empowered to form committees and task forces to address specific community issues.

Several community services are the responsibility of regional-level local governance, including health care services (health authorities under the *Health Authorities Act* [1996]), education (school districts under the *School Act* [1996]), services provided by a RD in the absence of a municipality, and housing as affected by regional planning initiatives.

RDs were instituted in the 1960s to fulfil three basic roles: i) to provide regional representation, governance, and services at a broader level than that of the municipality; ii) to enable groups of municipalities to work together either to leverage funds or capacity or take advantage of economies of scale to meet local and/or regional needs; and iii) to provide a vehicle for local governance for rural areas, unincorporated communities, and other settlements that would otherwise have no representation or capacity to plan or administer local affairs and services (Ministry of Community, Sport and Cultural Development 2017). RDs provide certain municipal services to areas outside municipalities as well as regional services. Service provision varies depending on the needs of each RD, which is governed by a board comprising representatives of each municipality and electoral area (Ministry of Community, Sport and Cultural Development 2017).

RDs provide an administrative and political framework for:

- Providing region-wide services, such as regional parks and emergency telephone services, such as 911;
- Providing inter-municipal or sub-regional services, such as recreation facilities where residents of a municipality and residents in areas outside the municipality benefit from the service; and
- Acting as local government for the electoral areas and providing local services, such as waterworks and fire protection, to incorporated communities within the electoral areas (Ministry of Community, Sport and Cultural Development 2017).

4.1.4 Aboriginal Governance

Aboriginal governance takes several forms in BC, most of which are represented in the RSA, and range from hereditary systems to those outlined in the *Indian Act* (1985). Aboriginal reserve communities are typically governed by an elected chief and council, following rules and conventions set out in the *Indian Act* (1985).

4.1.4.1 Nisga'a Nation

Nisga'a Nation is governed by the Nisga'a Lisims Government (NLG), as established under the NFA between Nisga'a Nation and the governments of Canada and BC, which came into effect in May 2000 (NLG, Province of BC, and Government of Canada 1998; AANDC 2010c). The overarching framework of Nisga'a Nation governance is derived from the traditional laws and practices of Nisga'a citizens, known as *Ayuukhl Nisga'a*, with guidance and interpretation provided by the Council of Elders (NLG 2002). NLG governance is also guided by, and operates within, the *Constitution Act* (1982) and the Canadian Charter of Rights and Freedoms.

The structure of NLG consists of executive and legislative branches as well as a Council of Elders. NLG has jurisdiction over Nisga'a Lands, which includes the four Nisga'a Villages. The president, chairperson, secretary-treasurer of NLG and the chairperson of the Council of Elders are elected at-large by Nisga'a citizens. The remaining members of the Council of Elders are appointed by NLG. The executive also includes representatives in each Nisga'a Urban Local (Terrace, Prince Rupert and Vancouver) to represent Nisga'a citizens who do not live in the Nass Valley (NLG 2002, n.d.-a). Each of the four Nisga'a Villages is administered by its own village government, led by a chief and council elected by village residents.

4.1.4.2 Tsetsaut Skii km Lax Ha

The leader of TSKLH is the hereditary chief currently working to establish wider recognition of TSKLH as a First Nation under the *Indian Act*. TSKLH do not have a formal band structure under the *Indian Act*.

4.1.4.3 Métis Nation BC

MNBC is the governing body in BC recognized by the Canada-wide Métis National Council. The Métis Provincial Council of British Columbia was established in 1996 and, in 2003, the MNBC Constitution was ratified, thereby establishing a new Métis Nation governance structure (MNBC 2017b). MNBC represents 36 Métis Chartered Communities in BC and is "mandated to develop and enhance opportunities for Métis communities by implementing culturally relevant social and economic programs and services," (MNBC 2017b). According to the MNBC Constitution, to qualify as a Métis Chartered Community, the community must have at least 25 Métis citizens who are over 18 years of age (MNBC 2008).

In 2006, MNBC and the Province of BC signed the *Métis Nation Relationship Accord* (MNBC 2017c). The Accord commits the provincial government to support MNBC to address health care, housing, education, and employment initiatives, which are intended to improve the life

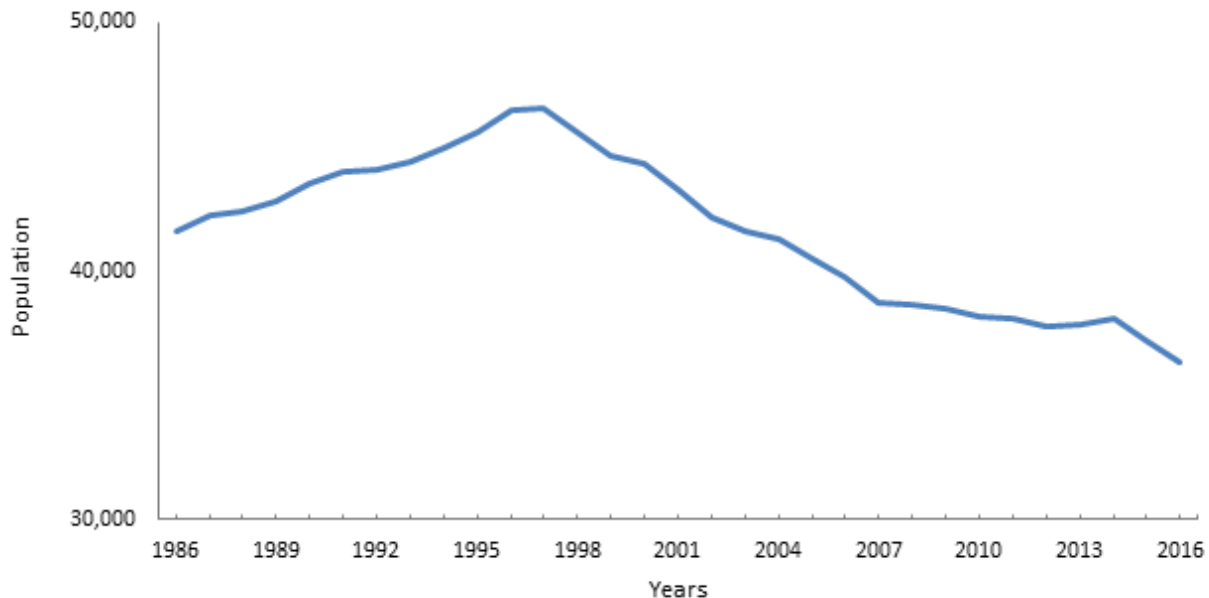
circumstances of Métis citizens. In 2016, the Province of British Columbia signed a new accord *Métis Nation Relationship Accord II* (MNBC 2017c). The new accord commits support to the additional areas of children and families, information sharing, justice, and wildlife stewardship.

4.2 Population

4.2.1 Regional Study Area

The population in the RDKS has been declining since the mid-1990s, having reached a peak of approximately 45,000 people in 1996 (Figure 4.2-1). In 2016, the population was estimated to be approximately 36,000 people. Between 2011 and 2016, the population declined by approximately 4%.

Figure 4.2-1: Regional District of Kitimat-Stikine Population Change (1986-2016)



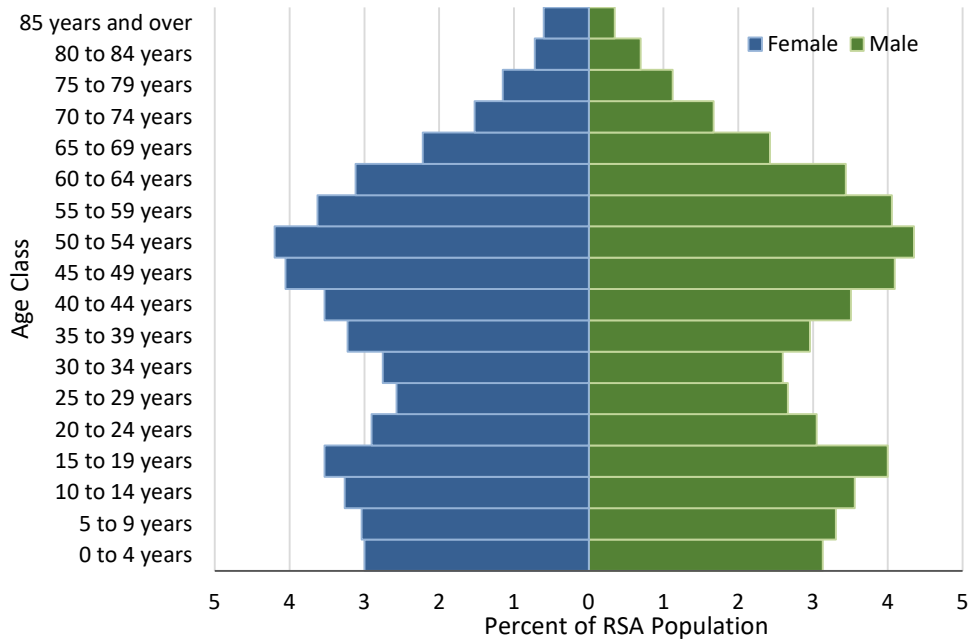
Source: (BC Stats 2017)

The distribution of age and gender in the RSA population is depicted in Figure 4.2-2 and illustrates that the RSA, in general terms, has a high proportion of working age people with a slightly higher proportion of males (53% males: 47% females). The RDKS' population pyramid is similar to BC's and is indicative of low population growth and an ageing workforce (Figure 4.2-3). A quarter of the population in the RDKS is below the age of 19 and approximately 10% of the population is above the age of 65. In comparison to 2006 Census results, there has also been a growth in the number of seniors (> 65 years).

A large majority of the RDKS population are third generation Canadian from European origins, with approximately 4% identifying as a visible minority, predominantly South Asian

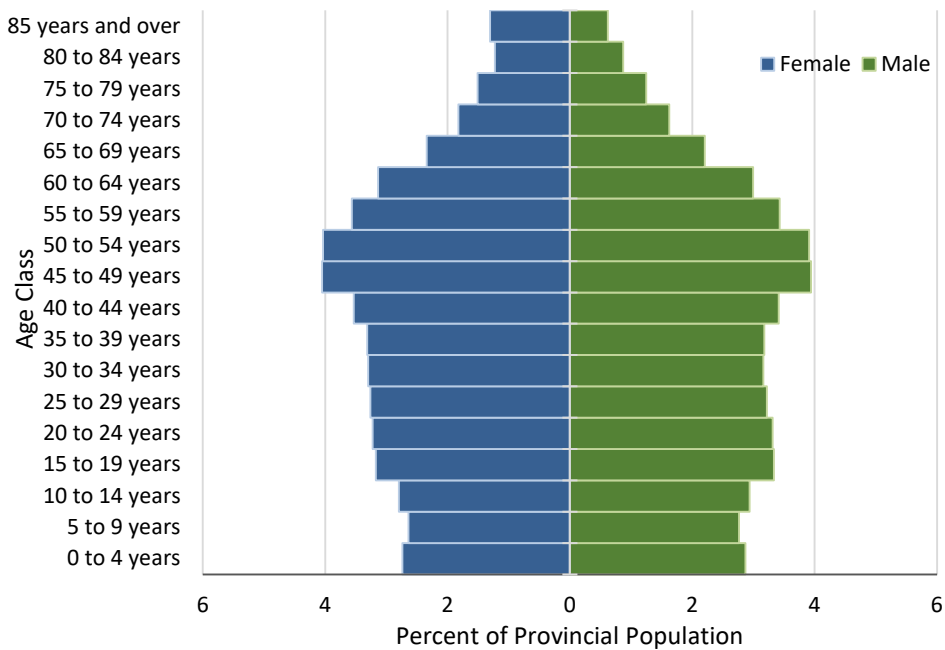
and Filipino (Statistics Canada 2011a). The RDKS also has a higher proportion of people who identify as Aboriginal compared to other areas of the province. This is further discussed in Section 4.2.1.1 (Statistics Canada 2011a, 2011b).

Figure 4.2-2: Regional District of Kitimat-Stikine Population by Age Group in 2011



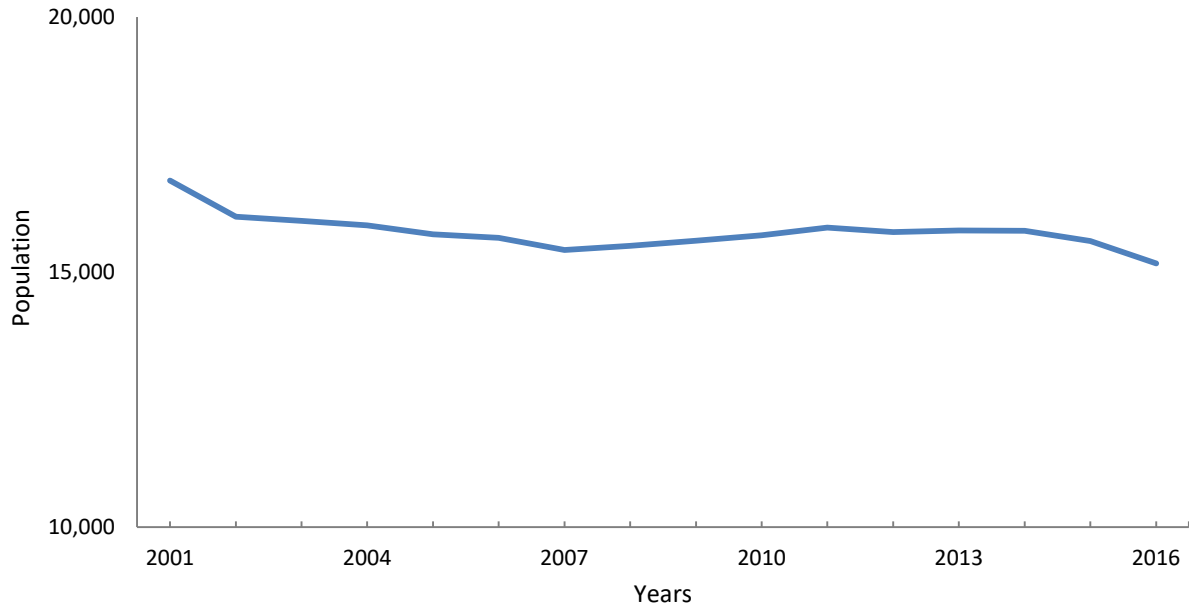
Source: (Statistics Canada 2012)

Figure 4.2-3: British Columbia Population by Age Group in 2011 (Statistics Canada, 2012)



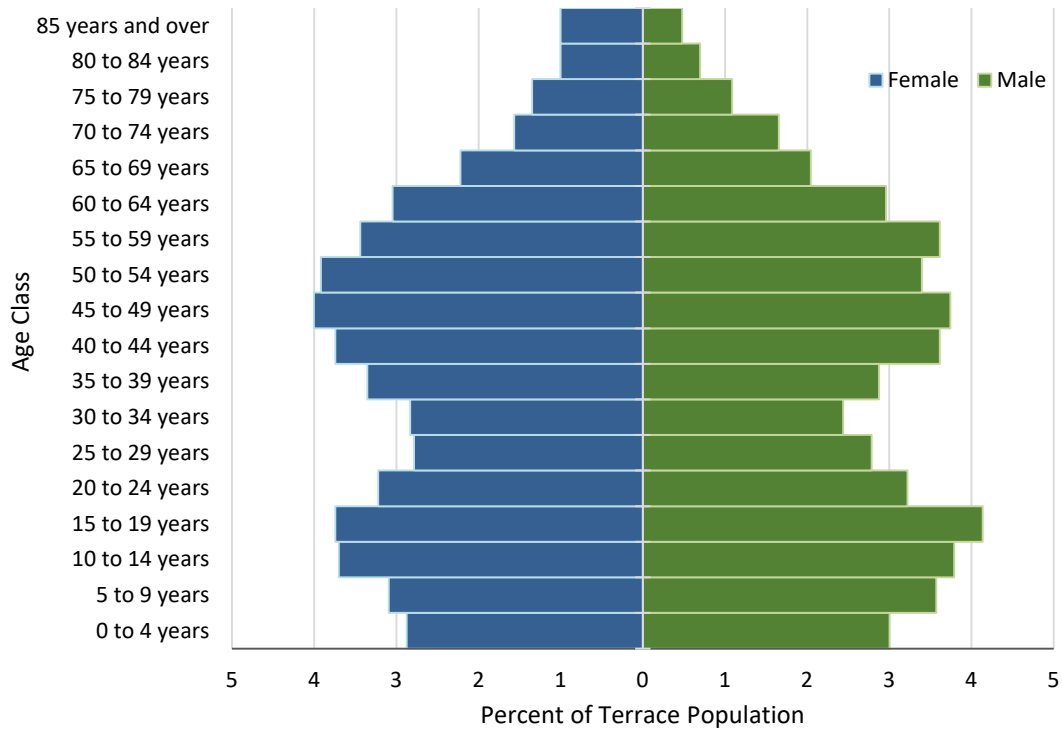
Source: (BC Stats 2017)

Figure 4.2-4: City of Terrace Population Change (2001-2016)



Source: (BC Stats 2017)

Figure 4.2-5: City of Terrace Population by Age Group in 2011 (Statistics Canada, 2012)



Source: (BC Stats 2017)

Terrace population has also experienced a slight decline since 2001, with a 10% change between 2001 and 2016 (Figure 4.2-4). The distribution of age and gender in the Terrace population is similar to that of the RDKS, with a high proportion of working age people and a fairly balanced gender distribution (Figure 4.2-5). Approximately 59% of the population is between the ages of 20 and 65 years, with 28% below the age of 19 years and 12% above the age of 65 years.

4.2.1.1 Aboriginal Population

Aboriginal Groups have a physical, cultural, and historical presence throughout the RSA. The RSA includes the Nisga'a Villages as well as Indian Reserves for the Tahltan Nation, Gitksan Nation, Gitanyow First Nation, Lax Kw'alaams Band, Metlakatla First Nation, Haisla Nation, and Wet'suwet'en First Nation. TSKLH and MNBC also have a presence in the RSA. Most of the RSA's smaller communities, particularly those located along the north-south corridor of Highway 37 and east-west near Highway 16, are predominantly Aboriginal.

About 5.3% of the provincial population self-identifies as of Aboriginal descent. In 2011, a total of 12,660 people, 34% of the RDKS population, identified as Aboriginal (Statistics Canada 2011b). Approximately 800 people identify as Métis in the RDKS and 55 people as having multiple Aboriginal identities (i.e., persons reporting as being two or more of the following: First Nations, Métis or Inuk) (Statistics Canada 2011b).

4.2.2 Local Study Area Population

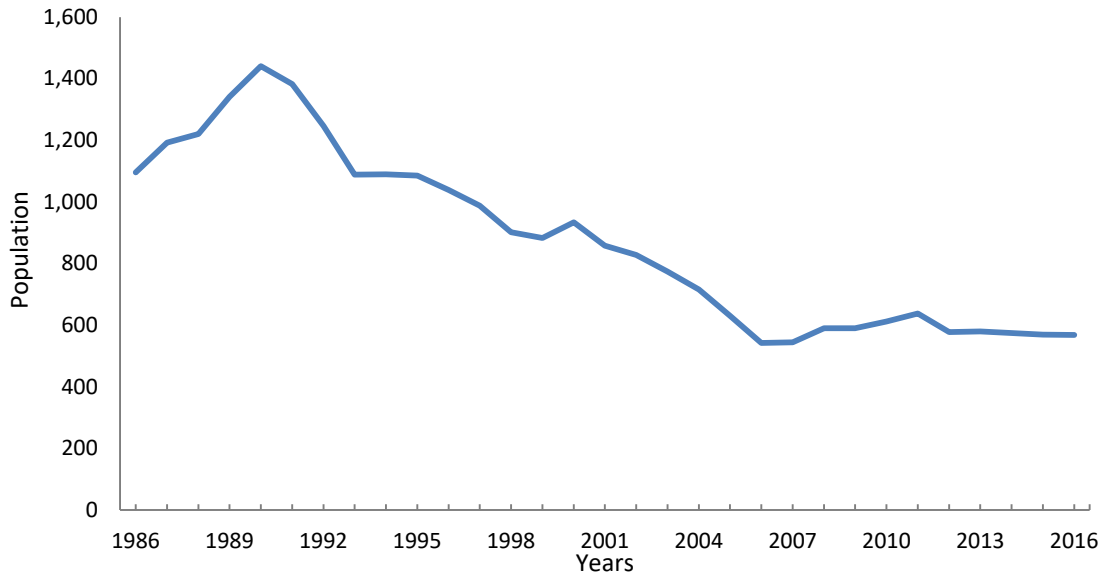
4.2.2.1 District of Stewart

Stewart's population has fallen dramatically in the past twenty years, coinciding with the downturns in mining and forestry. The highest population between 1986 and 2016 was observed in 1990 with approximately 1,400 residents living in the Snow Country Local Health Authority (LHA).⁶ The population declined by approximately 50% between 1996 and 2016 (Figure 4.2-6). Notably, the trend appears to have stabilized between 2006 and 2011. The population pyramid for Stewart shows an ageing population with slightly more males overall, but more females of working age (Figure 4.2-7).

Data from the 2011 census is suppressed for Stewart; however in 2006, 11% of the population identified as Aboriginal (Statistics Canada 2006b). Only 10 people (less than 2% of the population) were listed as belonging to a visible minority in 2006 (Statistics Canada 2006b).

⁶ District of Stewart Population is represented by the Snow County Local Health Area (LHA). District of Stewart represents 77.4% of the LHA population (Northern Health 2016b)

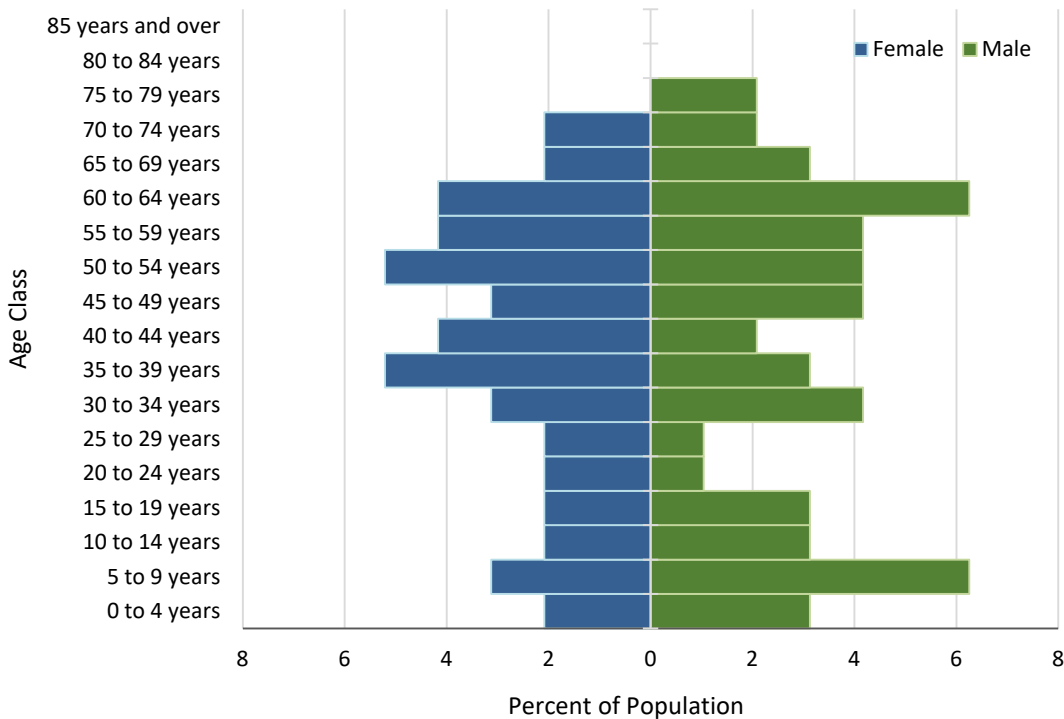
Figure 4.2-6: District of Stewart Population Change (1986 to 2016)*



Source: (BC Stats 2017)

* District of Stewart Population is represented by the Snow County Local Health Area (LHA). District of Stewart represents 77.4% of the LHA population (Northern Health 2016b)

Figure 4.2-7: District of Stewart Population by Age Group in 2011



Source: (Statistics Canada 2012)

4.2.2.2 Nisga'a Nation

Nisga'a Nation consists of approximately 6,066 members, approximately 2,048 of whom reside in one of the four Nisga'a Villages located within Nisga'a Lands, along the Nass River (Table 4.2-1; INAC 2011). Nisga'a citizens also live in Terrace, Prince Rupert/Port Edward, Vancouver, and elsewhere.

Table 4.2-1 summarizes the populations of the four Nisga'a Villages and the number of Nisga'a Nation citizens living outside of Nisga'a Lands.

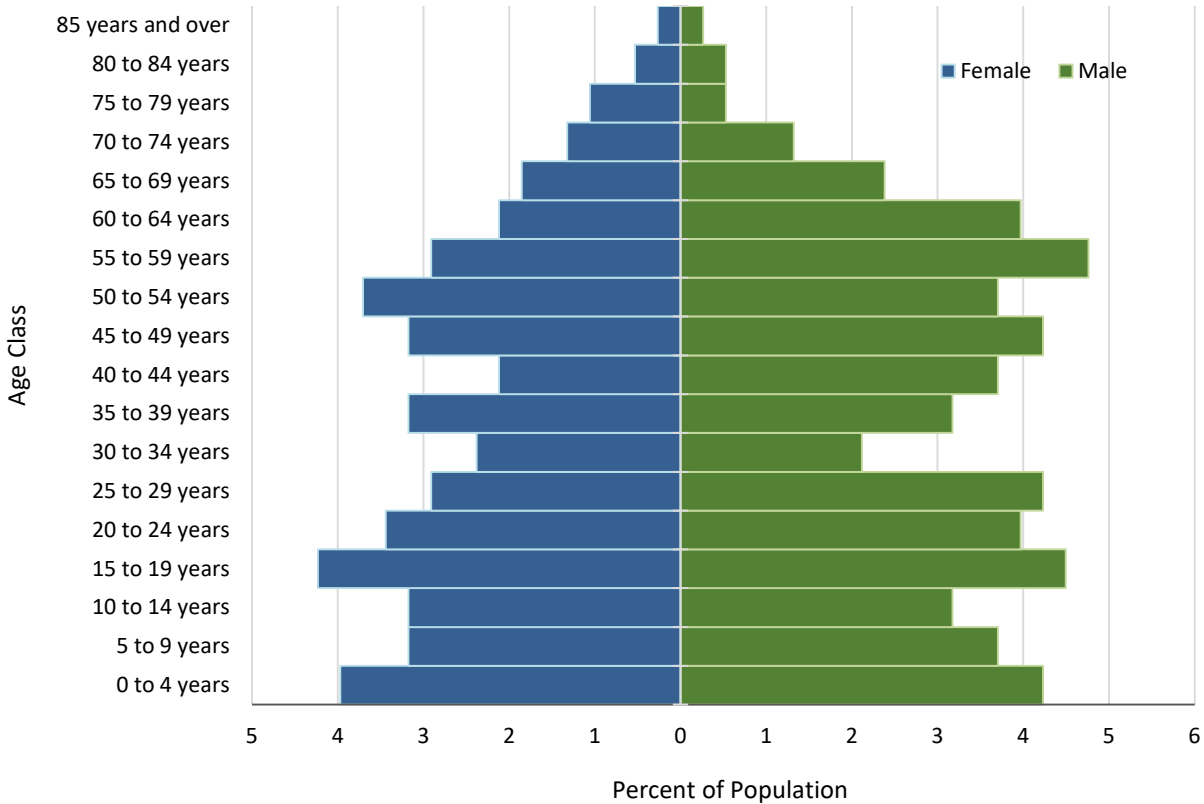
Table 4.2-1: Nisga'a Nation Community Populations, 2017

Community	Community Population	Population on other Reserves	Population not on Nisga'a Lands	Total Population
Gitlaxt'aamiks	869	47	941	1,857
Gitwinksihlkw	182	30	185	3,97
Laxgalts'ap	587	66	1,149	1,803
Gingolx	410	69	1,528	2,009
Total	2048	212	3,803	5,769

Source: (INAC 2017)

Village populations have fluctuated since 2006. The population of Gitwinksihlkw, for example, was reported to have dropped over 40% between 2006 and 2011 (INAC 2011, 2006). Approximately 55% of residents were male and 45% female. The portion of the population considered of working age was about 64%, which is slightly higher than the provincial average of 62% (Figure 4.2-8).

Figure 4.2-8: Nisga’a Population by Age Group in 2011



Source:(Statistics Canada 2011b)

4.2.3 Summary of RSA and LSA Population and Demographics

In general, the population in the LSA and RSA has declined between 1996 and 2011. This decline is most evident in Stewart, where the loss of population has been associated with the loss of jobs related to mine closures. The RSA experienced an average drop in population of 18% in this 15-year period, with the rate of decline lessening, and in some cases stabilizing, from 2006 onwards. The reduced rate and potential reversal of population loss for certain communities in the region may be due to the increased level of primary natural resources-based economic activity in the RSA.

The RSA (RDKS) has a large Aboriginal population relative to other areas in the province. However, in contrast, Stewart has a relatively lower Aboriginal population with only 55 people identifying as Aboriginal in 2006, amounting to 11% of the population. Residents of most of the smaller communities in the RSA are predominantly of Aboriginal descent. It is typical that >95% of the residents of reserve communities and of the Nisga’a Villages are Aboriginal. Nevertheless, most Aboriginal people in the RSA live off-reserve or outside of Nisga’a Lands. The gender balance is tipped slightly towards males in Aboriginal communities.

4.3 Labour Force and Employment

4.3.1 Regional Study Area

Table 4.3-1 presents key statistics related to labour and employment in the region. In the RDKS, the active labour force decreased by 4% between 2006 and 2011 with reductions also observed in the unemployment and employment rates (Statistics Canada 2006b, 2011a).⁷ Low employment rates or high unemployment rates are causes for concern and indicate a potential lack of jobs. Additionally, low participation rate should also be considered as it suggests that people have removed themselves from the labour force. This may be related to a lack of jobs and/or low confidence in the possibility of jobs in the future.

Participation and employment rates in RDKS were only slightly lower than the province, but the unemployment rates were nearly double (Table 4.3-1). In 2011, approximately 2,400 people were unemployed in the RDKS (12.9%) compared to 2,700 in 2006 (14.1%; Statistics Canada 2011a; Statistics Canada 2006b). The Annual Chartered Professional Accountants of British Columbia's (CPABC) Regional Check-up reported that the northwest region was the only region to report a decrease in unemployment in 2015, however for youth (i.e. workers aged 19 to 24) unemployment increased by 1.6% (CPABC 2016b).

Participation rates were lower in all regions in 2011 compared to 2006 and varied by gender; in 2011 participation in the labour force amongst males in the RDKS was 64.4% compared to 59.9% for females (Statistics Canada 2011a). These were slightly lower than the rates for the province and Terrace, which were 68.9% for males and 60.45 for females and 67.6% for males and 63.5% for females, respectively (Statistics Canada 2011a).

Table 4.3-1: RSA Labour Force Characteristics by Community

Labour Force	Terrace	RDKS	BC
2011^A			
Total Potential Labour Force ^B	9,005	29,795	3,646,840
Active Labour Force ^C	5,890	18,530	2,354,245
Participation Rate ^D	65.4%	62.2%	64.6%
Employment Rate	60.3%	54.2%	59.5%
Unemployment Rate	7.8%	12.9%	7.8%
Employment Insurance Beneficiaries ^D	2.6%	3.1%	1.5%
2006			
Total Potential Labour Force	8,735	29,740	3,394,910
Active Labour Force	5,995	19,340	2,226,380

⁷ Employment and unemployment rates do not add to 100% because they are measured against the total population 15 years or older, which includes people who are not in the active labour force.

Labour Force	Terrace	RDKS	BC
Participation Rate	69%	65%	65.5%
Employment Rate	62%	55.8%	61.6%
Unemployment Rate	9.3%	14.1%	6.0%

Source: (Statistics Canada 2012, 2011a, 2006b, BC Stats 2012a, 2012d)

^A 2011 marked the temporary replacement of the long form census with the voluntary household survey. The change in how Statistics Canada collects data means that direct comparisons with previous years should be considered with caution.

^B Total potential labour force includes anyone aged 15 and over.

^C The active labour force counts those people who were employed and those who were unemployed but available to work.

^D The labour participation rate is a useful comparative measure of the people engaged in work or who are looking for work.

^E Based on most recent 4 quarter average from September 2012.

The total potential workforce grew in Terrace with a decrease in the active labour force and participation rates (Table 4.3-1). Participation rates in both 2006 and 2011 were higher than the RDKS and provincial averages. Unemployment fell slightly, was equal with the provincial rates, and lower than the RDKS average.

Employment opportunities in the Northwest Development Region are expected to increase as a result of major projects in the mining and oil and gas sectors (NW BC Regional Workforce Table 2012). In 2012, an increase of more than 6,000 jobs was predicted for the period between 2010 and 2020. Additionally, the Northwest's ageing population will mean that a large percentage of the workforce will be retiring in the next 15 to 20 years. The Northwest Regional Skills and Training Plan (2013-2018) noted that employment opportunities will require highly skilled workers with two-to-four years of training, and that "it is unlikely that local labour supply will be available to fully meet demand in the short-term," (NW BC Regional Workforce Table 2012).

The North Coast Development Region typically has lower than average high school completion rates (40.1% did not graduate) compared to the province (26.2% did not graduate), but higher rates of trades skills (BC Stats 2012a; NW BC Regional Workforce Table 2012). Education and training levels are further discussed in Section 4.6. While formal education and qualifications are one barrier to employment, another challenge for youth and newly trained workers seeking employment are opportunities for apprenticeships and on-the-job training or experience in their fields (Toews et al. Pers. Comm., 2016).

Another challenge for the labour force in the northwest noted during a focus group discussion with Northwest Training Ltd., is transportation barriers (Toews et al. Pers. Comm. 2016). The lack of a driver's license or access to public transportation limits many people from accessing training and jobs (NW BC Regional Workforce Table 2012).

4.3.2 Local Study Area

Statistical data on the labour force in the LSA was limited in many cases to the 2006 census (Table 4.3-2). Much census data is suppressed for RDKS Electoral Area A, which includes Bell II and Meziadin Junction, due to low absolute numbers. For the Nisga'a Villages, official data retrieved directly from Statistics Canada was limited to Laxgalts'ap and Gingolx for 2011 and Gingolx for 2006.

Table 4.3-2: LSA Labour Force Characteristics by Community

Labour Force	Stewart	Electoral A - RDKS	Nisga'a Villages			
			Gitlaxt'aamiks	Gitwinksihlkw	Laxgalts'ap	Gingolx
2011 ^A Data for the District of Stewart, RDKS Electoral Area A and some Nisga'a villages were suppressed for the 2011 National Household Survey.						
Total Potential Labour Force ^B	395	-	-	140	305	285
Active Labour Force ^D	-	-	-	85	150	150
Participation Rate ^F	-	-	-	67.9	49.2%	52.6%
Employment Rate	-	-	-	57.1	39.3%	28.1%
Unemployment Rate	-	-	-	15.8	20%	46.7%
Employment Insurance Beneficiaries ^C	-	-	7.4%			
2006						
Total Potential Labour Force	385	-	690	240	-	245
Active Labour Force ^D	305	-	490	-	-	145
Participation Rate ^E	79.2%	-	67.2%	70.8%	-	59.2%
Employment Rate	72.7%	-	51.1%	56.3%	-	32.7%
Unemployment Rate	8.2%	-	22.8%	20.6%	-	48.3%

Source: (Statistics Canada 2011a, 2006b, INAC 2011, 2006)

^A 2011 marked the temporary replacement of the long form census with the voluntary household survey. The change in how Statistics Canada collects data means that direct comparisons with previous years should be considered with caution

^B Based on most recent 4 quarter average from September 2012

^C Total potential labour force includes anyone aged 15 and over

^D The active labour force counts those people who were employed and those who were unemployed but available to work

^E The labour participation rate is a useful comparative measure of the people engaged in work or who are looking for work.

'-' data was suppressed by Statistics Canada

4.3.2.1 District of Stewart

Stewart's potential labour force increased very slightly from 2006 to 2011 but remains below the 525 inhabitants documented in 2001 (Table 4.3-2; Statistics Canada 2001). In 2006, Stewart's unemployment rate was lower than the RDKS average and slightly higher than the provincial (Table 4.3-1 and Table 4.3-2). When disaggregated by gender, the unemployment rate was 11.4% for men and 0.0% for women and the participation rates were 92.1% and 66.7%, respectively. This suggests that women not currently employed are not trying to engage in the formal economy and instead focus on informal work such as childcare, community programming, etc. This may also indicate potential barriers to employment of more than one adult per family, such as lack of adequate transportation or childcare.

Employment opportunities in RDKS include a number of public sector agencies (School District 82, BC Services, Canada Customs, RCMP, and Northern Health), tourism services (hotels, restaurants), and primary sector and primary sector support businesses (mining, ship loading, hauling, and construction).

4.3.2.2 Nisga'a Villages

The Northern Development Initiative Trust (NDIT) developed an investment ready community profile for the Nass region and reported a total potential labour force of 1,340 people with active labour force of 900 people in 2006 (NDIT n.d). The participation rate was 67.8%, higher than the rates reported for the RDKS and the province but lower than Terrace and Stewart (Table 4.3-1 and Table 4.3-2). Participation rates by gender were 71.4% for males and 61.2% for females for the Nass region (NDIT n.d). The gender differences were comparable to the provincial averages but larger compared to Terrace and the RDKS. The unemployment rate reported (36.7%) was considerably higher than those observed for Terrace, Stewart, RDKS, and the province.

In 2011, the majority of the Nisga'a Nation labour force was employed in service industries, followed by health and education sector and agriculture and resources based industries (INAC 2011).

4.3.3 Summary of RSA and LSA Labour Force

The northwest region, including the RSA and LSA, has gone through a number of economic boom and bust cycles with associated changes in labour force and employment. In 2011, unemployment rates were double the provincial average and are expected to continue to be high as new employment opportunities predicted for the period 2012 to 2018 will require highly skilled professionals.

An ageing labour force exists in the northwest with high numbers of retirees expected in the next 15 to 20 years. With slightly less than half of 18 year olds not graduating from high school in the North Coast Development Region,⁸ compared to a quarter for the province, there are concerns that the available labour force will not have the skills to meet the

⁸ Averaged over 2009/2011-2011/2012

demand (BC Stats 2012a). Other barriers to employment faced by the existing labour force include availability of targeted training, particularly emphasis on Aboriginal-specific training, availability of apprenticeships and job training, and transportation.

4.4 Income Levels and Sources

4.4.1 Regional Study Area

The median and average annual income for individuals, households, families, and lone-parent families are all lower in the RDKS compared to the province. Terrace has a slightly higher median and average income level than the RDKS (Table 4.4-1). The main source of income in the RSA as well as Terrace and the province was employment. Income from employment composed approximately 74% of total income for RDKS, Terrace, and the province (Table 4.4-1). The share of total income from government transfers was also slightly higher than the provincial rate for both the RDKS and Terrace.

The median and average annual income was approximately \$10-16,000 more for males compared to females in the RSA, province of BC, and Terrace. The gender disparity was largest in the province, followed by the RDKS.

The latest income dependency⁹ analysis was completed in 2009 and was based on 2006 Census data. It shows that incomes (after-tax) in the RDKS were highly dependent on the public sector (26%) and primary resource industries: mining and mine processing (22%) and forestry sectors (14%) (Horne 2009).

Using a composite index of human economic hardship across the 26 RDs in BC, the province in 2011 ranked the RSA (RDKS) as second worst (BC Stats 2011).¹⁰ The total percentage of the population (aged 0-64) on income assistance (as of September 2012) was 4% compared to the BC average of 1.7%.¹¹ The prevalence of low income was higher in both RDKS and Terrace compared to the provincial average. Of a total population in the RDKS, more than half were in the bottom half of the Canadian distribution of adjusted after-tax family income (Statistics Canada 2011a).

⁹ Income dependencies estimate the extent to which specific industries directly and indirectly generate incomes for particular regions.

¹⁰ The composite index is comprised of the proportion of the population age 0 to 64 on Income Assistance (IA), the length of time on IA, the proportion of the labour force receiving Employment Insurance (EI), per capita income, income inequality and net taxes paid.

¹¹ This does not include Aboriginal persons on-reserve and the disabled.

Table 4.4-1: Median and Average Individual and Household Income in the RSA^A, 2010

Income		BC	RDKS	City of Terrace
Median Annual Income for Individuals	Total	\$28,765	\$26,752	\$30,071
	Male	\$35,627	\$32,592	\$36,372
	Female	\$23,624	\$22,317	\$24,418
Average Annual Income for Individuals	Total	\$39,415	\$35,795	\$37,609
	Male	\$47,480	\$42,319	\$44,319
	Female	\$31,683	\$28,959	\$31,359
Median Household Income		\$60,333	\$54,871	\$58,592
Average Household Income		\$77,378	\$67,746	\$71,373
Median Family Income		\$75,797	\$66,498	\$75,844
Average Family Income		\$91,967	\$78,569	\$84,322
Average size of Family		3.0	3.1	3.1
Lone-parent median family income		\$42,610	\$33,942	\$33,401
Lone-parent average family income		\$53,115	\$43,009	\$38,919
Average lone-parent family size		2.6	2.7	2.7
Composition of total income (%)	Employment income (%) ^B	73.7	73.4	73.9
	Government transfers (%) ^C	11.7	15.3	14.9
	Other money income (%)	1.7	2.1	1.5
Prevalence of low income (%) ^D		16.4	17.5	19.3

Source: (Statistics Canada 2011a)

^A Total and average income refers to total income before taxes and deductions. Annual income is defined as the total income from all sources, including employment income, income from government programs, pension income, investment income, and any other monetary income.

^B Employment income is defined as the total income received as wages and salaries, net income from a non-farm unincorporated business and/or professional practice, and/or net farm self-employment income.

^C Government transfer payments refer to all cash benefits received from federal, provincial, territorial or municipal governments. These include: the Old Age Security pension and Guaranteed Income Supplement, Allowance and Allowance for the Survivor; benefits from Canada Pension Plan; benefits from Employment Insurance; child benefits; other income from government sources.

^D Based on after-tax low income measure.

4.4.2 Local Study Area Income

Due to data suppression, income statistics from 2011 are only publically available for two Nisga'a Villages in the LSA: Laxgalts'ap and Gingolx. The remaining statistics reported in Table 4.4-2 are from the 2006 census and/or INAC's First Nation Profiles.

Table 4.4-2: Median and Average Individual and Household Income in the LSA^A, 2010, 2005

Income		Stewart (2005)	Nisga'a villages			
			Gitlaxt'aamiks (2005)	Gitwinksihlkw (2005)	Laxgalts'ap (2010)	Gingolx (2010)
Median Annual Income for Individuals	Total	\$29,991	-	-	\$13,312	\$15,262
	Male	\$41,349	-	-	\$10,187	\$13,478
	Female	\$23,405	-	-	\$15,280	\$17,363
Average Annual Income for Individuals	Total	-	\$21,674	\$26,305	\$17,515	\$18,601
	Male	-	\$21,490	\$29,507	\$16,508	\$17,442
	Female	-	\$21,891	\$22,270	\$18,987	\$20,152
Median Household Income		\$56,355	-	-	\$33,838	\$33,841
Average Household Income		-	-	-	\$41,051	\$37,090
Composition of total income (%)	Employment income (%) ^B	81.3	76	76	64	64
	Government transfers (%) ^C	11	20	17	34	34
	Other money income (%)	7.8	4	6	1	3
Prevalence of low income (%) ^D		6.1	-	-	-	-

Source: (Statistics Canada 2006b; INAC 2011, 2006)

^A Total and average income refers to total income before taxes and deductions. Annual income is defined as the total income from all sources, including employment income, income from government programs, pension income, investment income, and any other monetary income

^B Employment income is defined as the total income received as wages and salaries, net income from a non-farm unincorporated business and/or professional practice, and/or net farm self-employment income

^C Government transfer payments refer to all cash benefits received from federal, provincial, territorial or municipal governments. These include: the Old Age Security pension and Guaranteed Income Supplement, Allowance and Allowance for the Survivor; benefits from Canada Pension Plan; benefits from Employment Insurance; child benefits; other income from government sources

^D Based on after-tax low income measure

4.4.2.1 District of Stewart

In Stewart, the median income was in line with the provincial median observed in 2005 of \$24,867 (Table 4.4-2). The gender divergence in median income was large with men earning on average almost \$18,000 more than women. Median full time earnings for Stewart was \$38,190 in 2005 and \$60,556 for men compared to \$34,125 for women. This was low with marked gender difference compared to the provincial and regional average.¹²

4.4.2.2 Nisga'a Nation

Total median and average income in Laxgalts'ap and Gingolx for persons over 15 years old, including full-time, seasonal, and part-time workers, was low compared to the provincial and RDKS median (Table 4.4-1 and Table 4.4-2). In a notable departure from provincial and regional trends, median and average income among women surpassed that of men in 2010 (Table 4.4-2). In contrast, median income in Gitlaxt'aamiks and Gitwinksihlkw in 2005 was higher for men compared to women and similar to the provincial median of \$24,867 in 2005 (Table 4.4-2; Statistics Canada 2006).

Full-time average income in Laxgalts'ap and Gingolx were \$34,839 and \$28,664, respectively, in 2011, which were both lower than the RDKS average of \$55,590 and the Province of \$58,016 (Statistics Canada 2011a, 2011b).

4.4.3 Summary of RSA and LSA Income Levels and Sources

Only limited and outdated information on income levels and sources was available for the LSA communities, resulting in a primary focus on the RSA or RDKS. In general, incomes in the RDKS were lower than the provincial average. It is suspected that income levels within city centres in the RDKS, such as Terrace, are driving-up the average for the region. Terrace had higher average and median annual incomes for individuals, households, and families compared to the RDKS. Employment opportunities provide the large majority of incomes with small percentage from government transfers. The reliance on primary sectors for income increases vulnerability of the RDKS population to economic swings and results in high economic hardship ratings. Income assistance levels are also coupled to market swings.¹³ Income assistance dependency rate in the North Coast Development Region is consistently one of the highest in BC (CPABC 2012).

¹² Provincial average median earning for full time work was \$42,230 in 2005 and \$48,070 for men and \$36,739 for women; RDKS median earning for full time work was \$47,395 in 2005 and \$59,832 for men and \$36,538 for women

¹³ Although there is a share of the population that is dependent on income assistance because they are unable to work.

4.5 Business Activity and Industry

4.5.1 Regional Study Area

In 2011, retail trade and other services accounted for largest proportion of employment in the RDKS and Terrace, which was comparable to the provincial distribution (Table 4.5-1). This is a departure from 2006 Census data that showed RDKS to rely primarily on manufacturing, primary industries, and construction (Statistics Canada 2006 as quoted in ERM Rescan 2013).

Table 4.5-1: RSA Labour Force by Industry, 2010

Total Labour Force Population Aged 15 Years and Over by Industry	City of Terrace	RDKS	BC
Total labour force population aged 15 years and over	5,890	18,530	2,354,245
Agriculture, forestry, fishing and hunting	185 (3%)	865 (5%)	61,210 (3%)
Mining, quarrying, and oil and gas extraction	60 (1%)	420 (2%)	25,450 (1%)
Construction	255 (4.3%)	1,275 (7%)	181,510 (8%)
Manufacturing	250 (4%)	1,755 (9%)	148,810 (6%)
Wholesale trade	195 (3%)	380 (2%)	90,560 (4%)
Retail trade	895(15%)	1,955 (11%)	266,265 (11%)
Transportation and warehousing	270 (5%)	965 (5%)	118,675 (5%)
Educational services	630 (11%)	1,740 (9%)	167,875 (7%)
Health care and social assistance	775 (13%)	2,105 (11%)	249,030 (11%)
Public administration	560 (10%)	1,960 (11%)	149,875 (6%)
Other services ^A	1,665 (28%)	4,430 (24%)	852,050 (36%)

Source: (Statistics Canada 2011a)

^A Other services include: utilities; 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; arts, entertainment and recreation; accommodation and foods services; and other services (except public administration).

Terrace is an important economic hub within the RSA. It has a diversified economy with a range of tertiary sector businesses, including: retail, financial, transportation, shipping, and business support services (NDIT 2015a). Several businesses in Terrace support the mining industry through services and provision of materials, including communications, heavy-duty equipment repair and maintenance, helicopter services, bulk fuel storage, drilling contractors, explosives, and trades contractors.

The top three employers in Terrace are School District 82, Northern Health, and Bear Creek Contracting, which is followed closely by the Northwest Community College (NDIT 2015a).

4.5.2 Local Study Area

4.5.2.1 District of Stewart

Stewart continues to work to diversify its economy, which remains largely reliant on tourism, logging, transportation, and mining (District of Stewart 2014b).

The community's tourism, retail services, and facilities include restaurants, a gas station, gift shops, grocery and general store, and hotels (Table 4.5-2).

Logging, mining, mineral exploration, and international shipping ports are key business and industries in Stewart that have enabled the development of several support businesses offering construction services, petroleum products, expediting, highway maintenance, and hauling and bulk transport.

Table 4.5-2: Tourism Services, Retail and Hotels in Stewart

Businesses	Services
King Edward Hotel	Accommodation – 30 rooms
King Edward Motel	Accommodation – 20 rooms
Alpine Motel	Accommodation – 16 rooms
Ripley Creek Inn	Accommodation – 38 rooms [owner additionally owns the Empress which has 72 units but requires restoration/repairs]
Bear River RV Park	Camping, RVs – 72 RV sites
Rainey Creek Municipal Campground and RV Park	Camping, RVs – 98 RV and tent sites
Silverado Café and Pizza Parlor	Restaurant
King Edward Hotel Restaurant	Restaurant
Harbour Light Market	General store
Bob's mercantile - Cut-rate foods	Grocery store
Marmot Bay Trading	Open's in summer
Stewart Visitor Centre	Open June to October

Source: (Community Tourism Foundation 2010)

Top employers in Stewart include Ascot Resources, Mountain Boy Minerals, Billabong Highway Maintenance, King Edward Hotel, School District 82, Granmac Services, Ripley Creek Hotel, and Arrow Transportation (NDIT n.d).

4.5.2.2 Nisga'a Villages

A number of small-to-medium sized Nisga'a Nation businesses operate within the RSA. These include construction, bed and breakfasts, courier/transportation, tour operators, Village Government commercial enterprises, Village Government public works, and Village Government administration (ERM Rescan 2012).

NLG developed and launched Nisga'a Pacific Ventures LP in 2015 to manage Nisga'a Nation businesses, including Nisga'a Fisheries Ltd., Lisims Forest Resources LLP., Lisims Backcountry Adventures Inc., Nass Area Properties LP, and Lisims Communication LP. Nisga'a Pacific Ventures LP has also recently acquired the guide outfitting license in the Project area, previously held by Coast Mountain Outfitters (no. 601084).

4.5.3 Summary of RSA and LSA Businesses Activity and Industry

The economy in the RSA and LSA continues to be driven mainly by the primary resource sector. Although tourism, retail trade, health care, and social services are also important employers, the viability of these activities is largely dependent upon the economic activity that is driven by resource extraction.

4.6 Health, Social, and Emergency Services

The delivery of emergency, health, and social services varies across the RSA and between LSA communities. Many services are provincial responsibilities that are delivered through ministry-specific, agency, or affiliate organization offices depending on the size and location of the community. Federal agencies, especially INAC, tend to have a larger role, at least in funding if not delivery, of such services in Aboriginal reserve communities. Volunteers and non-government organizations play an increasingly important role in the delivery of many social and health services, especially in smaller communities. Such organizations will often receive some, but rarely all, of their operating and/or programming funding from provincial or federal ministries. It is not unusual for the demands on community volunteer capacity to be especially high in smaller communities.

For health and social services, Terrace is considered part of the LSA.

4.6.1 Health Services

Northern Health is the principle health service provider within the RSA, covering the northwest, the northeast, and the northern interior of BC. Health services are of particular concern in the RSA, which are currently considered 'at capacity' by Northern Health, and where, in some cases, great distances between communities and healthcare facilities exist (Northern Health 2015). Northern Health provides emergency and in-patient care as well as community services such as public health, mental health and addictions, and home care services. Emergency, in-patient care, and community services are resourced based on the size and demographic profile of the resident population. The number of physicians, beds, and types of services available can change rapidly depending on anticipated demand (Northern Health 2015).

Within the Northwest Health Service Delivery Areas (HSDA), community hospitals are located in Smithers, Kitimat, Hazelton, Terrace, Prince Rupert, Queen Charlotte, and Masset. Diagnostic services for the northwest are located in Prince Rupert and Terrace, while MRI diagnostic services are conducted in Prince George. Critical care is available in Terrace and Prince Rupert. Specialist and primary care practice vacancies usually exist in the HSDA (Northern Health 2016a).

4.6.1.1 City of Terrace

Patients from Stewart, Bell II, Meziadin Junction, and the Nisga'a Villages with moderate to serious health issues are transported to Mills Memorial Hospital in Terrace, the primary health care facility in the RSA. Mills Memorial Hospital is a Level 5 accredited, full service, trauma, and teaching hospital with 44 beds (RCCBC, n.d.). Of the beds available, 10 are reserved for the regional inpatient psychiatry program. Terrace also has a 3-bed ICU fully staffed with registered critical care nurses and ICU physicians. The hospital has the only inpatient unit in the HSDA, three surgical suites, an emergency room that operates 24 hours per day/7 days per week, ambulance services, and an extensive day care service (RCCBC, n.d.). Other health services available on-site include extended care, home care nursing, x-ray services, physiotherapy and occupational therapy services, anesthetics services (two general practitioners), mental health and addictions counseling services, social work services, and outreach centres (RCCBC, n.d.).

Northern Health also operates the Terrace Health Unit, which focuses on environmental health, audiology, speech, and dental services (Office of Health and Resource Development, Northern Health 2017). Home support, home care nursing, long-term care case management, community occupational therapy, physiotherapy, mental health and addictions services, and public health services are also offered through an inter-professional team. A psychiatrist and Northwest Specialized services are also located at this location.

Primary care (through 4 clinics) and dental services are provided by a number of privately owned and operated facilities in Terrace through a fee for service model from Medical Services Plan or private pay (PRGT Ltd. 2014). Terrace is also the closest city centre with pharmacies.

4.6.1.2 District of Stewart

The Stewart Health Centre has physicians on staff supported by two nurses. One is a primary care nurse who is able to offer basic mental health, home support, and public health functions on an outpatient basis. The other is an emergency care nurse (CPSBC 2017; RCCBC 2017; Office of Health and Resource Development, Northern Health 2017). The health centre operates Monday to Friday, from 8:30 to 16:30, with after hour services available on an on-call basis for traumas and emergencies (Office of Health and Resource Development, Northern Health 2017). The health centre emergency room received 635 unscheduled visits in 2013/2014 (Northern Health 2016b). Mental health services are available through video teleconferencing from Terrace (Reid, Y. Pers Comm. 2016). Telehealth in Stewart is used to connect to clinicians in Terrace; mental health and dietician counseling are currently the only services offered through this venue (Office of Health and Resource Development, Northern Health 2017).

Northern Health reported that visits to the health centre typically fluctuate seasonally, with higher volumes in the summer months pushing resources to near capacity. High levels of demand for medical services, attributed to industrial development, were experienced in the winter of 2016/2017. There are concerns that year-round high demand will place further strains on resources (Office of Health and Resource Development, Northern Health 2017).

There are no private clinics, dental offices, or pharmacies in Stewart. The Stewart Health Centre has developed a relationship with pharmacies in Terrace for prescriptions issued at the Stewart Health Centre to be couriered to the health centre for pick-up by local patients (Office of Health and Resource Development, Northern Health 2017).

4.6.1.3 Nisga'a Villages

The Nisga'a Valley Health Authority (NVHA) was created by Nisga'a Nation in 1986 and is managed by six board members, one from each of the four Nisga'a Villages, one non-Nisga'a citizen, and an appointed representative from NLG. In July 2011, the main health centre in Gitlaxt'aamiks was designated as a hospital under the *Hospital Act* (NVHA 2015). Satellite clinics are additionally present in the other three villages (NVHA 2015).

Health programs and services are organized around the central themes of acute/emergency care, preventative care, and the non-insured health benefits program. The hospital in Gitlaxt'aamiks has a full-time doctor and nurse on staff, with the NVHA employing 72 people, 6 physicians, and 3 dentists (NVHA 2012; NDIT n.d). The Nisga'a Valley Health Plan (2015-2020) noted that physician visits have decreased from 13,266 visits in 2011 to 5,916 visits in 2013 as a result of increased immunization, preventative care programs, and a shortage of physicians during the reporting period (NVHA 2015). Use of diagnostic services increased over the reporting period (2011 to 2013) from 1,260 to 1,860 visits, as did mental health psychologist visits (72 to 91).

Other local health services include dental clinics, home support and residence care, cultural and community health, mental health and wellness (including alcohol and drug counseling, family therapy, and psychological services), medical transportation, and youth enrichment.

4.6.2 Emergency Services and Public Safety

The RCMP, municipal fire departments, BC Ambulance, and search and rescue services provide emergency and protection services in the RSA and LSA.

4.6.2.1 City of Terrace

Police services in Terrace are provided by both the RCMP and municipal forces under contract to the RCMP for larger communities. Terrace RCMP Municipal had 60 personnel in 2017, a crime rate of 236, and a case load of 105 in 2015 (City of Terrace 2017b; Ministry of Public Safety and Solicitor General Police Services Division 2016). The caseload for a municipal force of a medium-sized community was approximately 45% higher than the average for BC, which may be related to increases in drug-related crime (Ministry of Public Safety and Solicitor General Police Services Division 2016; PRGT Ltd. 2014).

The RCMP provides protection and law enforcement services in rural areas and communities of less than 5,000 people. The RCMP detachment area extends north on the Nass Road, 24 km south towards Kitimat, 70 km east towards Cedarvale, and 70 km west towards Prince Rupert (City of Terrace 2017b). The Terrace RCMP detachment provides 24-hour police services, forensic examination, drug cases, crime prevention and victims' services, crime reduction, and First Nations policing.

The Terrace fire department consists of eight full time firefighters, two Chief Officers, a clerk/dispatcher, and a voluntary team of 28 individuals that respond to highway traffic accidents, medical emergencies, hazardous materials spills, and fires (City of Terrace 2017a). The team offers in-house training programs and practice sessions as well as regional fire school courses. After three to four years of training, an individual will meet the professional qualification for basic fire-fighter, as set out by the Province of BC and the National Fire Protection Association (City of Terrace 2017a).

The BC Ambulance Service in Terrace is designated as an urban service. While there are no fulltime (24-hour) ambulances, the community has one daytime ambulance and two part-time call-out ambulances (ERM Rescan 2013).

Search and rescue activities in northern areas are generally a combined effort between provincial search and rescue groups, such as the BC Search and Rescue Association, and local search and rescue organizations (Tera Environmental Consulting 2014). Terrace Search and Rescue services Terrace and surrounding areas.

4.6.2.2 District of Stewart

The service area for both the Stewart RCMP and fire departments covers approximately 44,000 km². This includes all of Highway 37A, plus Highway 37 from Cranberry Junction to Bell II. The Stewart RCMP detachment employs three officers, which is reportedly sufficient as there is minimal crime in Stewart (K. Wright. Pers Comm. 2016). In 2015, the crime rate in Stewart was 95 and the department managed a case load of 10 (Ministry of Public Safety and Solicitor General Police Services Division 2016).

The District of Stewart Volunteer Fire Department is well-equipped and has 12 volunteers who receive compensation for their participation in training and fire control (G. Drury, T. Baker, and J. Larson. Pers Comm. 2016).

There is BC Ambulance Services detachment in the community, serving Highway 37A and Highway 37, from Cranberry Junction to Bell II. The ambulance service is challenged by being under-staffed, with only enough resources to handle one emergency callout at a time. Victims must wait for an ambulance from Terrace if the Stewart crew are out on another call or drive themselves to the Stewart Health Centre or Terrace to access emergency care. The number of paramedics, vehicles, and drivers is an ongoing concern in Stewart, particularly in conjunction with the large territory being covered and the number of resources development projects (Massey 2014; The Canadian Press 2013).

4.6.2.3 Nisga'a Villages

The Lisims/Nass Valley RCMP detachment, based in Gitlaxt'aamiks, provides services to the four Nisga'a Villages (ERM Rescan 2013). Each of the four Villages is responsible for providing fire suppression services. The fire departments typically consist of one paid chief and volunteer members.

As treaty negotiation for the NFA did not include ambulance services on Nisga'a Lands, Nisga'a Nation employs a modified vehicle for the purposes of emergency transport to Terrace. BC Ambulance Services will travel to Nisga'a Lands for an emergency (Tera Environmental Consulting 2014).

4.6.3 Social Services

4.6.3.1 City of Terrace

Social services are available in Terrace and are provided by both government agencies and not-for-profit groups. Services include employment assistance, family and children services, senior citizen affairs, public library, and programs to support disadvantaged and vulnerable groups.

Government agencies available in Terrace providing social services include:

- Front Counter BC, which provides information and authorizations for clients of provincial natural resource ministries and agencies;
- Services BC, allowing for birth, death, and marriage certificate applications, BC Hydro payments, driver's license applications, employment insurance applications, Medical Services Plan registration and billing, property tax collection, etc.;
- Ministry of Children and Family Development (MCFD), which manages support for children and youth with special needs, youth justice, adoption and fostering, child care subsidy program, the provincial office of domestic violence, child protection services, and Aboriginal child and family development. MCFD also operates the Child and Youth Mental Health Terrace Office, which provides child and youth mental health assessment and treatment, counseling and therapy services, foster family supports, integrative community mental health services, and family supports;
- Ministry of Jobs, Tourism, and Skill Training, which provides labour market information, support with hiring programs, foreign credentials etc.; and
- Work BC Employment Centre.

Several community organizations are geared toward employment, training, and management of social issues such as addiction and domestic abuse. The Terrace and District Community Services Society (TDCSS) provides community living services, youth and family services (including the Big Brothers/Big Sisters Program), employment services, and

counseling and support services (TDCSS 2012). Other initiatives include (TDCSS, n.d.; Northern Health 2010):

- Ksan Emergency Shelters for families and individuals and one for women and children only;
- Soup kitchen and food bank;
- Discount shopping (i.e. Salvation Army, Hospital Auxiliary, TDCSS Core Store);
- Kalum Community School Society (food programs, Hungry Kids Project);
- Salvation Army food share;
- Kermode Friendship Society, which provides an early childhood development program, a connection to well-being health program, and an Aboriginal child and youth mental health program; and
- Northwest Addiction Services.

4.6.3.2 District of Stewart

The MCFD, in partnership with the Union of British Columbia Municipalities, developed the *Community Poverty Reduction Strategy*, a focused approach to connect families to key services and, beginning in May 2012, piloted the approach in 7 communities across BC, including Stewart. A Poverty Reduction Consultant under the MCFD was placed in the community and worked with community partners and service providers to develop and implement Community Action Plans. Barriers to poverty reduction in Stewart will be discussed in Section 4.11, however through the Community Poverty Reduction Strategy as well as the Northern Health *Healthy Community Initiative*, Stewart residents have developed programs to address social issues. These include:

- Stewart food bank;
- Christmas hamper program;
- Success-by-Six;
- The Stewart Community Emergency Fund; and
- The Stewart Services Society (currently not functioning).

Other MCFD programs, such as child protection and addiction counseling, require either families or MCFD staff to travel to or from Terrace.

Stewart also has a public library located within the Bear Valley School. The old Stewart elementary school, which closed in 2002, is being considered as a community centre and a new location for the public library (G. Drury, T. Baker, and J. Larson. Pers Comm. 2016).

4.6.3.3 Nisga'a Villages

NLG also provides a number of social services including (NLG 2017d):

- Basic and special needs;
- Home care for seniors and/or disabled;
- Training and education support;
- Employment initiatives;
- Domestic violence prevention; and
- Community preventative services.

Nisga'a Child and Family Services (NCFS) has offices in Gitlaxt'aamiks, Terrace, and Prince Rupert. NCFS coordinates and provides services in compliance with the child welfare statutes of BC as well as *Ayuukhl Nisga'a* (Nisga'a traditional law) (NLG 2017c). NCFS is funded by both the governments of Canada and BC and provides both statutory services (an extension of the child welfare law) and non-statutory services (volunteer community services).

NLG also provides justice department support to prevent and help resolve conflicts through increased awareness of *Ayuukhl Nisga'a* and Canadian laws and legal processes; youth programming; and housing support including support with housing grants and general housing needs.

There are a number of daycare and pre-school facilities in the Nisga'a Villages, including the New Aiyansh Nursery School, Ksi xyans Daycare Headstart in Laxgalts'ap, and Gingolx Headstart Daycare Centre (ERM Rescan 2013).

4.6.4 Summary of RSA and LSA Health, Social and Emergency Services

Health, emergency, and social services have improved within Stewart and the Nisga'a Villages, however, in general, the populations are still reliant on accessing services from larger city centres, such as Terrace and Prince George, for more complex health issues.

In Stewart, many of the social programs that exist are reliant on a network community volunteers, but this dependence on volunteers puts programs at risk to volunteer burnout or other social dynamics that can quickly undermine their capacity to operate.

4.7 Education Facilities and Services

The RSA communities are located in School District 82, which is managed by the Coast Mountain Board of Education, and School District 92 (Nisga'a), which coincides with the boundary of Nisga'a Lands and is managed by NLG.

4.7.1 Regional Study Area

Terrace has the largest number of schools in the RSA, with six primary, one middle school, and two secondary schools (BCMOE 2017).

Table 4.7-1: Schools and 2015/2016 Enrolment in Terrace, BC

School Name	Grades	# of Students (2015/2016 School Year)	% Aboriginal Students
Cassie Hall Elementary School	K to Grade 6	187	77%
Ecole Mountainview	K to Grade 6	162	18%
Suwilaawks Community School	K to Grade 6	229	83%
Thornhill Primary	K to Grade 3	208	85%
Thornhill Elementary	Grade 4 to 6	159	66%
Uplands Elementary School	K to Grade 6	307	43%
Caledonia Secondary School	Grade 10 to 12	571	30%
Parkside Secondary	Alternate School	116	78%
Jack Cook (Francophone School)	Grade 10 to 12	-	-
Veritas Catholic School	K - 9	-	-
Mountain View Christian Academy	K - 12	-	-

Source: (BCMOE 2017)

School District 82 also includes North Coast Distance Education, which provides grade 10 to 12 education for youth and adults working towards a BC high school diploma. In the 2015/2016 school year, 93 students were enrolled; 37% of whom were Aboriginal.

The region has several post-secondary institutions that are predominantly concentrated in regional population hubs such as Prince George, Smithers, and Terrace. Northwest Community College (NWCC) has its main campus in Terrace with a number of satellite campuses. The northwest campus of the University of Northern British Columbia is also located in Terrace. Other employment readiness training programs available in the RSA are provided through TDCSS and Northwest Training Ltd.

4.7.2 Local Study Area Education Services

4.7.2.1 District of Stewart

Stewart falls under the Coast Mountain School District 82 and has one school. The Bear Valley School provides kindergarten to grade 12 programs and had a total student enrolment of 70 students for the 2011/2012 school year and 62 for the 2015/2016 (BCMOE 2017). All the secondary school courses are taught through a distance education program based at the school.

Like all schools in the Coast Mountains School District 82, Stewart's education system has suffered from the effects of a decreasing population. In 2009, the school (along with all

other schools in the district) returned to a five-day week after a period of several years with a four-day school week due to low enrolment rates (ERM Rescan 2013).

4.7.2.2 Nisga'a Villages

School District 92 (Nisga'a) is based in Gitlaxt'aamiks and provides elementary and secondary school services in the Nass Valley. The village schools strongly reflect Nisga'a culture, as almost all students and staff are Nisga'a citizens or of Aboriginal descent, and Nisga'a language is taught in the schools with an established curriculum (School District No.92 2017). School District 92 employed 32 teachers and had 392 students on their nominal roll for the 2011/2012 school year.

Table 4.7-2: Nisga'a Schools by Village and 2015/2016 Enrollment

School Name	Nisga'a Village	Grades	# of Students (2015/2016 School Year)
Nathan Barton Elementary School	Gingolx	K to Grade 7	31
Alvin A. Mckay Elementary School	Laxgalts'ap	K to Grade 7	116
Gitwinksihlkw Elementary School	Gitwinksihlkw	K to Grade 7	36
Nisga'a Elementary School	Gitlaxt'aamiks	K to Grade 7	100
Nisga'a Secondary School	Gitlaxt'aamiks	Grade 8 to 12	100

Source: (BCMOE 2017)

For adult education in the Nass Valley, there is the Gingolx Adult Learning Centre (adult education) in Gingolx and the Wilp Wilxo'oskwhl Nisga'a Institute (WWNI; Nisga'a House of Wisdom) in Gitwinksihlkw. WWNI is a community driven and post-secondary training institute that focuses on three areas: academic, vocational and technical, and continuing education (NLG 2017e). WWNI works in partnership with a number of post-secondary institutes and offers Bachelor and Master of Arts degrees in First Nations Studies, university/college preparation, and grade 12 diplomas.

4.8 Educational, Skills and Training Levels

4.8.1 Regional Study Area

The percentage of the population with no certificate, diploma, or degree is higher in the RDKS compared to both Terrace and the provincial average (Table 4.8-1). As a percentage of the population 15 years and over, the RSA has more people with apprenticeships, trades certificates, or diploma compared to the provincial average but fewer people with university degrees.

Table 4.8-1 Educational Attainment in the RSA, 2006 and 2011

Education	Terrace		RDKS		British Columbia	
	2006	2011	2006	2011	2006	2011
Total Population 15 Years and	8,735	9,005	29,740	29,795	3,394,910	3,646,840
No Certificate, Diploma, or Degree	2,190 (25%)	2,120 (23%)	9,365 (32%)	8,245 (28%)	675,345 (20%)	607,655 (17%)
High School Certificate or Equivalent	2,535 (29%)	2,360 (26%)	8,075 (27%)	8,025 (27%)	946,645 (28%)	1,009,400 (28%)
Apprenticeship, Trades Certificate, or Diploma	915 (11%)	1,140 (13%)	3,945 (13%)	4,130 (31%)	368,355 (11%)	387,455 (19%)
College, CEGEP, or Other Non-university Certificate or Diploma	1,580 (18%)	1,845 (21%)	4,725 (16%)	5,125 (38%)	565,900 (17%)	628,115 (31%)
University Certificate or Diploma Below the Bachelor Level	455 (5%)	385 (4%)	1,095 (4%)	1,015 (8%)	184,395 (5%)	208,245 (10%)
University Certificate, Diploma, or Degree	1,060 (12%)	1,160 (13%)	2,535 (9%)	3,255 (24%)	654,265 (19%)	805,965 (40%)

Source: (Statistics Canada 2011a, 2006b)

In addition to low high school graduation rates, many children in the North Coast Development Region (NCDR) lag behind the rest of the province in basic skills. The percentage of grade 7 students in the NCDR that are not meeting expectations in reading, writing, and math is significantly lower in all three categories compared to the BC average (NW BC Regional Workforce Table 2012; BC Stats 2012a).

Table 4.8-2: Grade 7 Students Not Meeting Educational Expectations

Discipline	NCDR	BC
Reading	35%	22%,
Writing	33%	14%
Math	46%	26%

4.8.2 Local Study Area

Table 4.8-2 presents the educational data available for the communities in the LSA.

Table 4.8-2: Educational Attainment in the LSA, 2006 and 2011

Community	Gingolx		Gitwinksihlkw	Laxgalts'ap	Gitlaxt'aamiks	Stewart
	2006	2011	2006	2011	2006	2006
Total Population 15 Years and over	245	285	160	305	610	385
No Certificate, Diploma, or Degree	100 (41%)	135 (47%)	50 (31%)	120 (39%)	215 (35%)	90 (23%)
High School Certificate or Equivalent	65 (27%)	65 (23%)	45 (28%)	85 (28%)	160 (26%)	125 (32%)
Apprenticeship, Trades Certificate, or Diploma	35 (14%)	35 (12%)	25 (16%)	35 (12%)	70 (12%)	45 (12%)
College, CEGEP, or Other Non-university Certificate or Diploma	30 (12%)	30 (11%)	15 (9%)	60 (20%)	80 (13%)	35 (9%)
University Certificate or Diploma Below the Bachelor Level	0 (0%)	15 (5%)	10 (6%)	0 (0%)	30 (5%)	45 (12%)
University Certificate, Diploma, or Degree	10 (4%)	0 (0%)	20 (13%)	0 (0%)	50 (8%)	40 (10%)

Source: (Statistics Canada 2011a, 2006b, 2011b, 2006a)

4.8.2.1 District of Stewart

There is a lower rate of high school completion in Stewart relative to the rest of the province with nearly a quarter of residents in 2006 having not completed high school (Table 4.8-2). The number of trades certificates held by the population in Stewart was similar to the provincial average, however only 31% of residents held any level of university or college education (of varying degrees), compared with 41% provincially in 2006 (Table 4.8-1 and Table 4.8-2).

4.8.2.2 Nisga'a Villages

The percentage of individuals in the Nisga'a Villages with no certificates, diplomas, or degrees in 2006 and 2011 was higher than the provincial average (Table 4.8-1 and Table 4.8-2). Gingolx had higher non-completion rates compared to other Nisga'a Villages, which may be related to the community not having a high school and the Nisga'a secondary school not being accessible by road until 2003 (ERM Rescan 2013). The proportion of individuals with an apprenticeship trades certificate or diploma was slightly higher in Gitlaxt'aamiks and was notably higher in Gitwinksihlkw and Gingolx compared to the provincial average. The percentage of individuals with a university certificate, diploma, or degree was comparable to the provincial rate in Gitwinksihlkw, but slightly lower in Gitlaxt'aamiks and much lower in Gingolx.

4.8.3 Summary of RSA and LSA Education, Skills and Training Levels

Almost half of 18 year olds in the NCDR are not completing high school compared to the BC average, where the rate is 25%. In the RDKS, a quarter of the population aged 15 years and over do not hold a high school certificate, diploma, or degree. While only 2006 census data was available on high school graduation rates for Stewart, the figures were similar to the RDKS. High school students in Stewart must complete their certificate through distance education or relocate to a larger city centre.

Lower than average reading, writing, and math skills among students in the NCDR compared to the rest of the province suggests students are not receiving an adequate education. Available statistics and information suggest that several factors and barriers are limiting students in the region in attaining educational and skills being reached in other areas of BC.

4.9 Housing

The availability of suitable housing is an important measure of a community's capacity to absorb additional people that might be expected to migrate to the region in response to the economic opportunities associated with resource development.

4.9.1 Regional Study Area

In 2011, the RDKS had an average of 2.5 persons per household. Table 4.9-1 (Statistics Canada 2011a) summarizes the distribution of owner-occupier versus rental housing and gives some indication of housing condition and age. A relatively high proportion of dwellings, more than double the provincial average, are in poor condition and require major repair.

In 2011, the median value of a dwelling in the RDKS was \$170,501 and 50% of owners had a mortgage (Statistics Canada 2012). An estimated 81% of all households (owner and tenants) had affordable housing costs (Statistics Canada 2011a).¹⁴ Of those who rented, 18% lived in subsidized housing, which was higher than the provincial average of 13.5%. The median monthly cost of renting was \$665 (Statistics Canada 2011a).

The average value for a single-family home in 2011 was \$214,103 and the average monthly payment in 2011 for owned units was \$872 (Statistics Canada 2011a). The percent of tenant households spending 30% or more of household total income on shelter costs was 44% in 2011, and on average the monthly shelter costs for rented dwellings were \$722 (Statistics Canada 2011a).

Increased demand for rental housing, low vacancy rates, and higher rents are concerns associated with increased regional economic activities and large resource projects. In the case of Terrace, this was especially the case during the recent \$4.8 billion (US) Kitimat Modernization Project (KMP) of the Rio Tinto aluminum smelter, which began operating in mid-2015. At its peak, the construction labour force was approximately 3,400, many of whom lived in Terrace. In response to increasing local concerns about the cost of housing, the NDIT developed the Terrace Housing Action Plan. The report found that, between 2006 and 2013, vacancy rates in Terrace declined from 12.7% to 0.4% and rents increased by 32% (NDIT 2015b). The report noted that workers employed by KMP and other projects taking place or being considered in the area who had high incomes and, often, a sizeable housing allowance were displacing existing renters. Some displacements were due to 'renovictions' a term coined to describe the eviction of existing tenants to facilitate a renovation and re-renting at a higher rate to project employees (NDIT 2015b).

In 2014, few vacancies were available in Terrace, however, availability of rental accommodations increased between April 2015 and April 2016: from 3.2 to 5.3% for private 2-bedroom apartments and from 2.3 to 3.4% for townhouses (NDIT 2015b; CMHC 2016). Average rent continues to increase: jumping by 4.9% for 2-bedroom apartments and from a median of \$746 per month in October 2015 to \$761 in October 2016 (CMHC 2016).

In 2014, the homeless count was 66 people in Terrace, which was double previous estimates, and shelter use was also reported to have increased (NDIT 2015b).

¹⁴ Based on spending less than 30% of household total income on shelter costs.

Table 4.9-1: Private Dwellings in the RSA, 2011

		City of Terrace	RDKS	BC
		2011	2011	2011
Total number of occupied private dwellings		4,535	14,755	1,764,630
Total Number of Persons in Private Households		11,305	37,025	4,324,455
Household Tenure	Owner	3,190 (70%)	10,705 (73%)	1,234,710 (70%)
	Renter	1,345 (30%)	3,590 (24%)	524,995 (30%)
	Band Housing	0	460 (3%)	4,920 (0.25%)
APH ^A		2.5	2.5	2.5
Dwellings build pre-1980 (% of total)		65%	61%	47%
% in need of major repair		10%	16%	7%
% spending 30% or more of household total income on shelter costs		10.8%	15%	29%

Source: (Statistics Canada 2011a)

^A APH = Average Persons per Household

4.9.2 Local Study Area

Table 4.9-2 shows the number of private dwellings in each of the LSA communities in 2006 and, where available, in 2011.

Table 4.9-2: Private Dwelling in LSA, 2006 and 2011

	Stewart		Gitlaxt'aamiks	Gingolx		Laxgalts'ap
	2006	2011	2006	2006	2011	2011
Total Private Dwellings	307	379	254	114	130	120
APH ^A	1.6	2.3	3.3	3.0	-	-
Dwellings build pre-1986 (% of total)	89%	-	37%	26%	0	21% ^B
% in need of major repair	0%	-	37%	26%	46%	42%

Source: (Statistics Canada 2006a, 2011b, 2006b)

^A APH = Average Persons per Household^B based on pre-1980 dwellings

4.9.2.1 District of Stewart

Stewart reported a total of 379 private dwellings in 2011, of which 215 were occupied (Table 4.9-2). Almost half of these were single detached houses; the remainder were classified as “movable dwellings” or “other dwellings” (the latter of which includes apartment-style housing). The number of private dwellings in Stewart has decreased by 19.8% between 2001 and 2011 (ERM Rescan 2013). The average of 2.3 persons per household is slightly less than the provincial average of 2.5 (Table 4.9-2 (Statistics Canada 2012)).

According to the 2006 census, the majority of dwellings in Stewart (89%) were constructed prior to 1986, mostly in the 1960s and 1970s, although none were reported as in need of major repairs (Table 4.9-2). The majority of these were owned by their occupants (80%) with median monthly payments of \$382 in 2006 (Statistics Canada 2006b). The remainder were rented at a median rate of \$466 per month in 2006 (Statistics Canada 2006b).

Table 4.9-3: Stewart Housing Characteristics, 2006

Dwelling Type	Number of Dwellings	% of Total Dwellings
Total number of occupied private dwellings	225	
Single detached houses	195	87%
Semi-detached houses	0	0%
Apartments, duplex	10	4.4%
Other dwellings	15	6.7%
Number of owned dwellings	180	80%
Number of rented dwellings	45	5%

Source: (District of Stewart 2014c)

Based on the 2006 Census, only 10 apartment dwellings were listed as being used by residents. From interviews conducted in Stewart in December 2016, more information on the number of apartment rental properties being occupied by non-residents for all or part of the year is provided in (Table 4.9-4).

Table 4.9-4: Available Rental Units, Houses, and Properties for Sale and Camp Areas in Stewart, BC, 2016

Type	Description
Pacific Place Apartments	18 units (4 are one bedroom for \$850 per month; remaining 2 bedroom for \$900 per month). Fully equipped rental units Ascott Resources rents 6 or 7 units and is renting the entire building for 2017 summer
NUB Enterprises	<ul style="list-style-type: none"> • 16 houses ranging from 3 to 6 bedrooms throughout town. Currently, 55 rooms are being rented to Pretium. • Town homes near Glacier Rd were built in 1970s for the Granduc Project. There are approximately 50 townhomes and an apartment building with 24 units. No assessment has been completed on either the apartment building or the townhouses (sometimes referred to as row houses or the Granduc subdivision). It is suspected that the apartment building would need to be torn down but potential that the structures of the townhomes could be used if the interiors were restored (M. Hyslop. Pers Comm. 2017). • NUB Enterprises manages three large lots with potential for camp development. <ul style="list-style-type: none"> (i) The first lot is located between Glacier Dr and Cooper Crescent – this area was used during the Long Lake Hydro Project for the WEN camp from 2012 to 2014. Approximately, 70+ serviced trailers were located on site. Upgrades were completed to the property to bring water, sewer and 3 phase hydro to each unit. (ii) 24 district lots at 5th and Conway, which has sewer, water and 3 phase power to the property. (iii) Large lot near Bear RV park at 2104 Bear River Highway. This area was permitted by the District for a camp but never used. Water and sewer are serviced to the property. Unclear if temporary use permit is still valid.
Stewart resident	Four rental units with two bedrooms each (M. Hyslop. Pers Comm. 2017)
Number of houses for sale	As of January 2017, 18 homes were listed for sale within Stewart.
Residential properties for sale	As of January 2017, 26 residential private lots were listed as for sale within Stewart. An additional four residential properties were listed by the District itself as for sale but requiring sewer installation.
Designated industrial work camp lots	In 2016, a bylaw amendment was passed to rezone certain areas and allow for industrial work camps. The rezoned lots are located on 4 th between Brightwell and Conway. These lots are owned by the Stewart World Port.

Stewart currently has 40 ha of vacant land zoned for residential development (District of Stewart 2014c). A Facebook group “Stewart BC Real Estate Sales and Rentals” was created to support new and old residents by consolidating housing and property sale and rental information (<https://www.facebook.com/groups/621308131297988/>).

The median value of houses in Stewart was \$99,000 in 2001 compared to the average value of \$60,000 in 2006 (Statistics Canada 2001, 2006b). The drop is likely related to the area's continuing economic struggles. Stewart's Official Community Plan showed that representative house values have increased from \$28,258 in 2005 to \$69,975 in 2013 (Table 4.9-5, District of Stewart 2014c). The median monthly payments for a rented dwelling was \$466 in 2006 (Statistics Canada 2006b). The NHA Healthy Northern Communities 2012 report for Stewart shows that more than 17% of households were renting in 2006 and 17% of households were paying 30% or more of income towards housing (Northern Health 2012a).

Table 4.9-5: District of Stewart House Values, 2005 to 2013

Year	Representative House Value
2005	\$28,258
2006	\$31,872
2007	\$31,987
2008	\$50,850
2009	\$51,444
2010	\$63,781
2011	\$59,568
2012	\$65,355
2013	\$69,975

Source: (District of Stewart 2014c)

Temporary accommodation in Stewart includes two hotels, two motels, and two RV parks with approximately 100 rooms and 150 campsites (Section 4.5.2). Approximately 40 rooms are also available in nearby Hyder, Alaska (PRGT Ltd. 2014). Temporary accommodation is heavily used by tourists and mineral exploration crews in the summer. Two former logging camps near Meziadin Junction are reportedly being restored to accommodate construction camps (PRGT Ltd. 2014).

4.9.2.2 Nisga'a Villages

The Project is not expected to bring about any sort of increase in demand for housing in the Nisga'a Villages and therefore no data or discussion of housing stock or condition in the Villages is presented here. See Part C of the Application/EIS for additional discussion and rationale.

4.9.3 Summary of RSA and LSA Housing

Boom and bust cycles of resource development projects have had significant effects on populations and housing throughout the study region. In Terrace, a number of recent large-scale projects have resulted in decreased availability of rental units and increased rental costs, which have impacted low- and fixed-income families in particular. Terrace's rental availability has increased in the last year, but rental costs continue to increase.

According to Stewart listings in December 2017, only one home was available for rent. There are a number available for purchase that range in price from \$25,000 to \$150,000. Apartment units are available to rent and are typically used by single, male workers employed by Arrow Transportation or Ascott Resources and are potentially not suitable for families. Stewart has a large stock of housing built during so called "boom times" when mines brought economic growth and demand to the community. The town has been in a relative down-cycle for several decades, and a large portion of the existing housing stock is widely regarded as uninhabitable.

Stewart has had a number of locations that have previously been used for temporary work camps that include at least basic utilities and services.

4.10 Infrastructure

Table 4.10-1 provides a summary of major infrastructure and utilities in the RSA and LSA communities. In practice, only Stewart is expected to experience any interaction between the Project and its local infrastructure and municipal services.

Table 4.10-1: Community Infrastructure and Utilities in the RSA and LSA, 2016

Community	Water	Wastewater and Sewage	Solid Waste	Energy	Communications	Air Transport
City of Terrace	Full municipal water system – current capacity 2 times demand	Sanitary sewage system - built in 1987, multiple upgrades.	Landfill and curbside pickup; 50 year capacity	BC Hydro; Pacific Northern Gas	Telephone (incl. fibre optics network); HSIS; Cellular; Local TV station (only one in RSA); Cablevision; AM/FM radio from Terrace; 2 local newspapers	Two paved runways: 2,286 m and 1,638 m. Scheduled service to multiple locations in BC

Community	Water	Wastewater and Sewage	Solid Waste	Energy	Communications	Air Transport
District of Stewart	Full municipal water	Sewage lagoon system - capacity for 6,000	Landfill at capacity. Arrangements in place to use landfill at Meziadin Jnc	BC Hydro; Pacific Northern Gas	Telephone; HSIS; Cellular; Cablevision; AM/FM radio from Terrace and Prince Rupert; local newspaper	1,189 m paved runway, not maintained during the winter
Gingolx	SST; Ground; 1984	Sanitary sewage system	Nisga'a landfill near Gitlaxt'aamiks	BC Hydro	Telephone; HSIS (enTel)	None
Laxgalts'ap	SST; Ground; 1984	Sanitary sewage system		BC Hydro	Telephone; HSIS (enTel)	None
Gitwinksihlkw	SST; Surface; 1981/2012	Sanitary sewage system		BC Hydro	Telephone; HSIS (enTel)	None
Gitlaxt'aamiks	SST; Surface; 1963/1994	Sanitary sewage system		BC Hydro	Telephone; HSIS (enTel)	None

Source: (ERM Rescan 2013)

4.10.1 Regional Study Area

In general terms, communities in the RSA have adequate water, sewage, and solid waste disposal for current population levels and could likely absorb some increase in demand as well. Power is generally stable and secure. Rail is mainly oriented to connecting major centres, such as Smithers and Terrace, to Prince Rupert and the south of BC. Highways 16 (east-west), 37 (north-south), and 37A (connecting Stewart to Highway 37) are all paved and in reasonably good condition. The Nisga'a Villages are connected via Highway 113 both north and south, which is also paved. The so-called Cranberry Connector, which leads east from the Nisga'a Villages and connects with Highway 37 at Cranberry Junction is partially paved and particularly hazardous in winter, but provides a much shorter route between Nisga'a Lands and the Project. All highways experience potentially dangerous winter driving conditions.

4.10.2 Local Study Area

4.10.2.1 District of Stewart

Stewart owns and operates water, sewage, drainage, road infrastructure, and the landfill. Much of the existing infrastructure was installed in the 1960s and is in need of repair or replacement (District of Stewart 2014c).

In 2012, the Stewart water system served 270 active connections (650 connections in total) from three independent well sources (Northern Health 2012c). Each well has its own submersible pump and distribution system, and there is no treatment or storage of water. Major water concerns include fire protection, replacement of pipes, system leaks, and high water demand (District of Stewart 2014c).

Stewart's sewage system received upgrades in 1996 and includes three lagoon systems, three pump stations, and force mains. All households south of the Bear River Bridge are serviced. Key concerns with the wastewater system include high inflow, infiltration, and pump failures (District of Stewart 2014c).

Stewart has a very high water table and experiences high precipitation, but there is limited drainage infrastructure. The town has constructed a dyke along the Bear River, but this is close to being breached. In 2011, the District invested \$450,000 in dyke maintenance and repairs (District of Stewart 2014c).

Stewart provides weekly curbside garbage collection to residents and businesses and collects from the District dumpsters regularly in the summer. The District's Solid Waste Site has reached capacity and will be closed in 2017. District staff hope to develop a transfer station where waste will be separated into streams and trucked to the RDKS-managed landfill at Meziadin Junction (G. Drury, T. Baker, and J. Larson. Pers Comm. 2016). A community group also established Border Town Recycling in 2010, which operates out of the old pool building five days a week. Border Town Recycling accepts beverage, plastic, and milk containers, household metals, and dry cardboard. All collected recyclables are sorted and shipped to Terrace (P. Grue, Pers. Comm 2016).

Stewart is only responsible for roads within the townsite and the Ministry of Transportation and Infrastructure is responsible for maintenance of Highway 37A from the US-Canada border to Meziadin Junction (District of Stewart 2014c).

4.10.2.2 Nisga'a Villages

Due to the distance between the Project and the Nisga'a Villages, the Project is not anticipated to interact with infrastructure in the Nisga'a Villages, there no data or discussion of infrastructure in the Villages is presented here. See Part C of the Application/EIS for additional discussion and rationale.

4.10.3 Summary of RSA and LSA Infrastructure

Stewart continues to struggle with obtaining adequate funding to properly maintain, upgrade, and replace community infrastructure. Stewart's roads, water, and wastewater systems are old and require rehabilitation, especially if they are to support an influx of workers and personnel from large resource development projects. In 2016, the local landfill reached capacity and the transition to the new landfill facility operated by RDKS is underway.

4.11 Community Health and Well-Being

BC Stats compiles socio-economic profiles for RDs, HSDAs, and LHAs, which present data on a range of social and health indicators. The RDKS, including Terrace, fall within the Northwest HSDA as well as the North Coast Development Region, which, although considerably larger than the RSA, provide context for different measures of health and well-being. Due to very low population levels, much of the population and health related data for the Snow Country LHA is suppressed. NHA's 'Healthy Northern Communities' Profile for Stewart is used to present additional data and context on community health and wellbeing for Stewart. For the Nisga'a Villages, data for LHA 92 (Nisga'a) is more readily available.

4.11.1 Health Status and Chronic Diseases

Life expectancy is an indicator of the population's general health and the quality of healthcare, although it does not account for quality of life. Life expectancy at birth in the Nisga'a and Terrace LHAs is considerably lower than the provincial average (Table 4.11-1).

Table 4.11-1: Health Indicators in the RSA

Indicators of Health	Nisga'a LHA	Terrace LHA	RDKS	Northwest HSDA	BC
Life Expectancy at Birth – Average 2008-2012	75.4	77.8	78.9	79	82.3
Infant Mortality Rate (per 1,000 Live Births) - 2008-2012	-	5.8	5.3	5.1	3.7
Potential Years of Life Lost (per 1,000 Population) – Average 2007-2011					
Natural Causes	34.5	56	50.6	44.9	29.7
Accidental Causes	20.6	15.5	14.2	11.4	7.0
Suicide/Homicide	41.5	8.5	11.2	9.4	4.0
Suicides and self-inflicted injuries (per 100,000 population)	-	-	-	16.7	8.8
Premature mortality (per 100,000 population)	-	-	-	357.8	236.8

Source: (BC Stats 2012b)

The five leading causes of disease burden in the northern BC are similar to elsewhere in BC: cancer (18%), cardiovascular disease (17%), unintentional injuries (9%), mental disorders (7%), and chronic respiratory disease (7%) (Northern Health 2012b). Northern BC experiences higher rates of death related to motor vehicle crashes, alcohol-related diseases, respiratory diseases, and cardiovascular diseases compared to other areas of BC (Northern Health 2012b).

Potential Years of Life Lost (PYLL) refers to the number of years of life lost to early death (i.e., death before an individual reaches the age of 75) and is used as an explicit measure of premature death. PYLL due to natural causes was highest in Terrace LHA and the RDKS, followed by the Northwest HSDA and Nisga'a LHA, and all were much higher than the provincial average (Table 4.11-1). In contrast, PYLL due to accidental causes and suicide/homicide were highest in the Nisga'a LHA (almost three times the provincial rate) and all areas were higher than the provincial average. PYLL from suicide/homicide in the Nisga'a LHA was also considerably higher than the provincial average.

Suicide and self-inflicted injuries were almost twice as prevalent and rates of premature mortality in the Northwest HSDA were notably higher compared to the province (Table 4.11-1). However, BCs provincial premature mortality rate is low in comparison to other provinces in Canada. In comparison to other northern jurisdictions, premature mortality rates in the Northwest HSDA are similar and/or lower (Statistics Canada 2013b).

Infant mortality rate is often used as an indicator of overall population health as causes of infant mortality, such as economic development, general living conditions, social well-being, rates of illness and quality of the environment, are likely to impact the health status of the whole population (Reidpath 2003). Infant mortality rates were similar between the Terrace LHA, RDKS, and the Northwest HSDA and all were higher than the provincial rates.

Injury and motor vehicle accident hospitalization rates are much higher in the Northwest HSADA compared to the BC average (Table 4.11-2). Between 1997 and 2009, there were nine fatalities resulting from motor vehicle accidents in Stewart, 33 in Terrace, two in Gitlaxt'aamiks, two in Meziadin Junction/Bell 2, and one in Laxgalts'ap (BC Coroners Services 2011). Of all the fatalities associated with motor vehicle accidents in the Northern HSDA between 2004 and 2009, more than a quarter were found to be associated with substance use, either alcohol, drugs, or alcohol and drugs (BC Coroners Services 2011).

Table 4.11-2 provides a snapshot of chronic conditions for the Northwest HSDA and BC. Data for smaller geographic areas were unavailable. Generally, the Northwest HSDA has similar chronic condition rates as the province, however the number of deaths in 2005/2007 for each chronic condition was higher than the provincial average, potentially indicating lack of accessibility or availability of health services to manage these conditions. Statistics on the number of chronic conditions diagnosed in the north between 2010 and 2011 indicate that depression and hypertension are the two most commonly diagnosed chronic conditions (Northern Health 2012b).

Table 4.11-2: Chronic Condition Health Profile for Northwest HSDA and BC

Chronic Conditions	Northwest HSDA	BC
Injury hospitalization ^A (age standardized rate per 100,000 population)	1,067	545
Hospitalization rates from motor vehicle accidents (2011-2012; per 1,000 population aged 15-24)	2.6	1.1
Hospitalization Acute Myocardial Infarction Event (per 100,000 population age 20 and older) ^B	208	165
Hospitalization Stroke Event (per 100,000 population age 20 and older) ^B	167	119
Cancer incidence (per 100,000 population) ^B	417.9	367.9
Arthritis (%) ^{B, C}	16.5	15.7
Diabetes (%) ^{B, C, D}	5.2	5.4
Asthma (%) ^{B, C, D}	5.7	7.9
High blood pressure (%) ^{B, C}	16	16.4
Mood disorder (%) ^{B, C, E}	6.1	8.0
Mental illness hospitalization rate (per 100,000 population)	1,272	646
Repeat hospitalization for mental illness	13.7%	13.2%
Deaths (per 100,000 population)		
Cancer ^F	171.4	152.5
Circulatory diseases ^F	196.5	153.9
Respiratory diseases ^F	62.5	45.3
Unintentional injuries ^F	39.5	25.6

Source: (Statistics Canada 2013a; CIHI 2014; BC CDC 2016; Northern Health 2016b, 2016c)

^A Injury resulting from the transfer of energy (excludes poisoning and other non-traumatic injuries), per 100,000 population. This indicator contributes to an understanding of the adequacy and effectiveness of injury prevention efforts, including public education, product development and use, community and road design, and prevention and treatment resources.

^B Canadian Community Health Survey, Statistics Canada, 2011/2012

^C Population aged 15 and over who reported that they have been diagnosed by a health professional as having arthritis.

^D Use data with caution

^E Population aged 12 and over who reported that they have been diagnosed by a health professional as having a mood disorder, such as depression, bipolar disorder, mania or dysthymia.

^F Canadian vital statistics, death database and demography division, 2005/2007

^G Based on health profiles from Northern Health. Community level estimates are based on depression and upon each community's relative share of the total Local Health Area (LHA) population and reflect what 'might be expected' at the community level.

Rates of reportable infectious diseases for BC and the Northwest HSDA are presented in Table 4.11-3.

Table 4.11-3: Rates of Reportable Infectious Disease in Northwest HSDA and BC, 2011

Chronic Conditions	Northwest HSDA	BC
	Rate per 100,000 Population	
Sexually Transmitted and Blood Borne Pathogens		
HIV	1.4	5.1
AIDS	0.0	1.5
Chlamydia (genital)	491.5	267.5
Gonorrhea (genital)	30.5	28
Hepatitis B (Chronic and Unknown)	10.6	23.2
Hepatitis B (Acute)	0.0	0.3
Hepatitis C	39.7	40.8
Infectious Syphilis	1.3	8.0
Disease Transmitted by Respiratory Routes		
Streptococcal Disease (invasive)	9.3	3.1
Tuberculosis	1.3	6.3
Enteric, Food and Waterborne Diseases		
Amebiasis	1.3	7.4
Campylobacteriosis	14.6	40.1
Cryptosporidiosis	1.3	1.6
Cyclosporiasis	-	0.5
Shigatoxigenic E. Coli	1.3	2.9
Giardiasis	9.3	13.3
Hepatitis A	1.3	0.8
Listeriosis	0.0	0.3
Salmonellosis	11.9	20.1
Typhoid Fever	-	0.6
Paratyphoid Fever	-	0.5
Shigellosis	0.0	3.8
Vibrio Infection	1.3	1.2
Yersiniosis	2.6	8.5
Vectorborne and Zoonotic Diseases		
Lyme Disease	0.0	0.4
Malaria	0.0	0.8

Chronic Conditions	Northwest HSDA	BC
	Rate per 100,000 Population	
Rabies Exposures	3	-
West Nile Virus	-	0.0
Environmental Pathogens		
Cryptococcus gattii	0.0	0.7
Legionellosis	0.0	0.2

Source: (BC CDC 2016)

4.11.2 Health Behaviour

Health is also influenced by individual behavior, such as substance abuse, physical exercise, nutrition, and health seeking behavior. Substance abuse can contribute to and be an indication of poor individual and community health and well-being with potentially harmful consequences (Angell, Parkins, and MacKendrick 2006). On average, there were more daily smokers and a higher proportion of the population that reported heavy drinking in the Northwest HSDA compared to the BC average.

Table 4.11-4: Health Behaviors 2011/2012

Indicator	Northwest HSDA	British Columbia
Current Smoker, daily (%)	17.2%	11.1%
Heavy drinking (%)	23%	16.3%
Overweight or Obese (%)	64.7%	46.6%
Leisure-time physical activity, moderately active or active (%)	60.3%	53.8%
Fruit and vegetable consumption, 5 times or more per day (%)	36.4%	40.5%
Regular medical doctor (%)	89.3%	86.0%

Source: (Statistics Canada 2013b)

Leisure time physical activity was slightly higher and consumption of fruit and vegetables slightly lower in the Northwest HSDA compared to the province. Slightly more people sought regular medical attention in the Northwest HSDA compared to the province (Table 4.11-4).

For dental and non-emergency medical appointments residents must travel to Terrace or Prince George. If residents have access to a transportation or a vehicle, the round trip to

Terrace costs approximately \$200 in gas, which may be out of reach for some residents (Durant et al. 2015). Stewart and NHA have had discussions regarding subsidized medical transportation (Union of BC Municipalities 2014).

4.11.3 Workplace Hazards

Between 2005 and 2010, there were 83 workplace fatalities in northern BC. All cases were classified as accidental and 19% of the deaths reported occurred in the mining industry (Northern Health 2011). In comparison to other regions in BC, the Northern HSDA accounted for 21.3% of all workplace fatalities with only 6.6% of the total BC population. In comparison, the Fraser region had 23.3% (with 35% of the total BC population), the Interior region had 26.2% (with 16.4% of the total BC population), the Island region had 16.9% (with 16.9% of the total BC Population) and Metro Region had 12.3% (with 25% of the total BC population) (BC Coroners Services 2010).

4.11.4 Well-being and Personal Resources

Table 4.11-5 provides indicators of perceived physical health, mental health, and life stress in the Northwest HSDA compared to provincial averages. These indicators of perceived health and mental health are a proxy for overall health status and reflect aspects of health and mental health not captured in clinical measures (e.g., disease and mental function).¹⁵ In general, the statistics for the Northwest HSDA were comparable to the provincial averages with slightly higher perceived rates of good or excellent mental health. By comparison, the hospitalization rate for mental illness per 100,000 people was higher in the Northwest HSDA compared to the province (Table 4.11-2). The rate of repeat hospitalization for mental illness was similar to the provincial average. In Stewart, Northern Health reported that sessions with the visiting psychiatrist in Stewart offering outreach services in the community are consistently fully booked (Office of Health and Resource Development, Northern Health 2017).

¹⁵ Perceived life stress is a self-reported measure that qualifies whether an individual finds their life 'quite a bit' or 'extremely stressful'. Perceived life stress refers to the amount of stress in a persons' life, on most days, as perceived by the person. Statistics Canada notes first that "stress carries several negative health consequences, including heart disease, stroke, high blood pressure, and immunity and circulatory complications." Secondly, and more relevant to the objectives of this report, "exposure to stress can also contribute to behaviors such as smoking, over-consumption of alcohol, and less-healthy eating habits," (Statistics Canada 2013b). The former may be especially relevant for communities that have concerns related to the indirect consequences of short-term, high-income employment that often accompanies resource development projects. The indirect effects associated with resource development in small, remote communities in Canada are becoming increasingly documented (CBC 2014; Gibson and Klinck 2005; NAHO 2008).

Table 4.11-5 Well-being and Perceptions of Health, 2011/2012

Indicator		Northwest HSDA	British Columbia
Perceived Physical Health (Very Good or Excellent [%])	Total	57.6%	59.9%
	Male	63%	62%
	Female	52.1%	57.9%
Perceived Mental Health (Very Good or Excellent [%])	Total	71.4%	68.7%
	Male	70%	70%
	Female	72.7%	67.5%
Perceived Life Stress (%)	Total	21.4%	21%
	Male	17.1%	18.9%
	Female	25.8%	22.9%
Sense of community belonging (%)	Total	76.7%	65.4%
	Male	78.5%	64.4%
	Female	74.8%	66.4%
Life satisfaction, satisfied or very satisfied (%)	Total	91.9%	92.3%
	Male	91.3%	92.4%
	Female	92.4%	92.3%

Source: (Statistics Canada 2013b)

Perceived life stress was comparable between the Northwest HSDA and the province on average, however women in the Northwest HSDA experienced a higher perceived life stress compared to the provincial average for women (Table 4.11-3). Low income, poor quality housing, food insecurity, and insecure employment can all lead to stress (Mikkonen and Raphael 2010)

A sense of community belonging is another dimension of well-being. Helliwell and Putnam (2004) note that more frequent interaction within community settings tends to increase or enhance subjective well-being. Table 4.11-6 indicates that a sense of community belonging was notably higher in the Northwest HSDA in comparison to provincial averages, while life satisfaction was similar.

Community well-being is used in public health discourse to characterize a holistic definition of health that considers various social indicators relevant to individuals, families, and communities. The Community Well-being Index (CWBI) developed by INAC provides a means of analyzing differences in well-being across Aboriginal and non-Aboriginal communities. Data from the Census of Canada is utilized to inform the CWBI score, which is a single number that ranges from a low of 0 to a high of 100. CWBI is composed of indicators based on income, education, housing conditions, and labour force activity (INAC 2017).

Table 4.11-6 shows the results of the CWBI based on the 2006 Census data. 2011 Census data was suppressed for most of the LSA communities. Overall, the CWBI shows that well-being in Nisga'a Nation communities were below that of the other communities in the LSA.

Table 4.11-6: Community Well-being Index, 2006

Community	Income Score	Education Score	Housing Score	Labour Force Activity Score	CWBI Score
City of Terrace (2011)	86	59	94	85	81
City of Terrace (2006)	83	58	92	86	80
District of Stewart	87	57	98	90	83
Gingolx	49	45	76	63	58
Gitlaxt'aamiks	65	51	73	77	67

Source: (INAC 2017)

4.11.5 Social and Economic Determinants of Health

Social and economic conditions are important determinants of health, including: income and income distribution, unemployment and job security, quality of education, food insecurity, Aboriginal status, disability, early life, housing, employment and working conditions, health services, gender, housing, race, social exclusion, and social safety net. For many of these factors, the baseline conditions have been presented earlier in the report. Where relevant and where data is available, more specific indicators and discussions are presented in the following sections.

4.11.5.1 Income and Social Status

Health and illness are known to follow a social gradient (Mikkonen and Raphael 2010). Income distribution in the LSA and RSA is outlined in Section 4.4. The percentage of children and youth receiving income assistance can also provide an indication of community health. The percentage of children (<15 years) and youth (age 15 to 24 years) receiving income assistance in the Terrace LHA, RDKS, and the Northwest HSDA was much higher than the provincial average (Table 4.11-7).

Table 4.11-7: Indicators of Social and Economic Determinants of Health, 2011/2012

Indicators of Health	Nisga'a LHA	Terrace LHA	RDKS	Northwest HSDA	BC
Dependency ratio (%)	-	-	-	62.9%	56.8%
% of Children (< 15 yrs) receiving income assistance (September 2012)	-	9.5	8.6	8.5	3.1
% of Children (<15 yrs) receiving income assistance and living with a single parent	-	6.8	6.6	6.5	2.7
% of youth (age 15 – 24) receiving income assistance (September 2012)	-	5.6	5.3	4.9	1.8

Source: (Statistics Canada 2013a; BC Stats 2012a, 2012d)

Dependency ratio provides an understanding of the proportion of people not in the workforce (i.e., those 0-19 years and 65 years and over) compared to the number of working people. High dependency ratios can indicate a burden on the working population, who are assumed to be required to provide for the health, education, pension, and social security of the non-working population, either directly through family support mechanisms or indirectly through taxation (Ingham, Chirijevskis, and Carmichael 2009; Statistics Canada 2013b). The dependency ratio in the Northwest HSDA is higher than the provincial average (Table 4.11-7).

Little information is available on the prevalence of low income or levels of poverty experienced by residents in Stewart. Stewart was the smallest community selected as one of the seven communities across BC to participate in the Community Poverty Reduction Project. During the development of the poverty reduction action plans, committee members identified the following barriers to poverty reduction: childcare, collaboration of services, education, food security, health, and transportation. In the 2014/2015 progress report, Stewart committee members noted the difficulties in identifying and working directly with families in need because of the perceived social stigma of receiving help (Union of BC Municipalities 2014, 2015).

4.11.5.2 Access to Food

According to the Stewart Poverty Reduction Working Group, food prices in Stewart are nearly 30% higher than in Terrace (Union of BC Municipalities 2014, 2015), which is largely attributable to the additional transportation costs of bringing supplies to Stewart from Terrace and other distribution centres to the south.

Table 4.11-8: Comparison of Cost of Food in Stewart and Terrace

Item	Cost in Stewart (CAD)	Cost in Terrace (CAD)
Loaf of bread	3.80	2.79
Milk (4 L)	6.79	4.46
Eggs (12)	4.10	2.78
Butter (lb)	7.00	4.50
Cheese Cheddar (lb)	7.99	4.27
Lean ground beef (lb)	6.24	5.00
Red pepper (lb)	4.49	3.49
Bathroom tissue (12 rolls)	19.99	4.99

Source: (Durant et al. 2015)

4.11.5.3 Crime and related social issues

The measurement of crime used by BC Stats includes total serious crime, serious crimes per police officer, property crime, and violent crime (BC Stats 2012d).

Table 4.11-9: Indicators of Crime, Average from 2009-2010

Study Area	Violent Crime (rate/1,000)	Property Crime (rate/1,000)	Total Serious Crime (rate/1,000)	Serious Crime (rate/Police Officer)
Nisga'a LHA	7.8	11.2	19.1	9.3
Terrace LHA	3.6	7.8	11.4	6.9
RDKS	3.9	7.8	11.7	6.3
North Coast Development Region	4.2	8.0	12.2	5.7
BC	3.1	7.0	10.1	7.0

Source: (BC Stats 2012d, 2012c, 2012b, 2012a)

In the Nisga'a LHA, crime rates are substantially higher than the averages for the Terrace LHA, RDKS, and the North Coast Development Region and nearly double the BC average (Table 4.11-9). All regions had rates higher than the BC average.

While statistics on crime in Stewart are suppressed due to the small population, anecdotally the RCMP office in Stewart commented that there is very little crime of any sort in the community (K. Wright. Pers Comm. 2016).

4.11.6 Summary of RSA Community Health and Well-being

While little data is available to characterize community health and well-being in the LSA, in general, traditional health statistics show that the population in the northwest has poorer health compared to the provincial average. According to the latest statistics, residents of northwest BC have much higher rates of potential years lost from natural, accidental, and suicide/homicide causes. Chronic disease rates are slightly higher than the BC average, but hospitalization due to injury is nearly double. Suicide and self-inflicted injuries as well as mental health hospitalization are also double the provincial average. In contrast, rates of communicable diseases are generally lower or comparable to the provincial rates, except for certain STDs, which are almost double the average rate recorded for the province. In terms of health behaviours, smoking and heavy drinking are higher than the BC average while the consumption of fruit and vegetables, amounts of leisure time physical activity, and regular medical visits are generally comparable.

Perceptions of health within the northwest are similar to the provincial average and higher for feelings of community belonging. Using the CWBI, Stewart and Terrace scored relatively high in 2006 while the Nisga'a Villages of Gingolx and Gitlaxt'aamiks were placed in mid-range for community well-being and much lower than the other LSA and RSA communities.

Stewart's isolation and small population creates some difficulties, such as access to services usually based on resident populations, securing funds for infrastructure repairs based on the tax base, transportation to and from services in larger city centres, and high food costs. The small population can also deter families or individuals from seeking help because of perceived social stigmas and concerns that their social issues would be exposed to the rest of the community. On the other hand, volunteerism is strong, which enables critical social programs to thrive. For example, to assist low-income families, volunteers maintain initiatives such as the food bank, Christmas hamper program, and the community emergency fund. Stewart, one of seven communities participating in the Community Poverty Reduction pilot through the MCFD and Union of BC Municipalities, faces challenges with respect to combatting poverty in the community due to the small population and remoteness.

4.12 Contemporary Land and Resource Use

The LSA and RSA for the Contemporary Land and Resource Use and Commercial, Recreational, and Aboriginal (CRA) Fisheries VCs differ from the socio-economic study areas for other VCs in this report. Instead, the LSA and RSA for Contemporary Land and Resource Use and CRA Fisheries follow the spatial boundaries defined for the Wildlife, Wildlife Habitat, and Vegetation and Ecosystems VCs, which are:

- LSA: the Bitter Creek watershed; and
- RSA: the Bear River watershed, with inclusion of adjacent sub-watersheds that were interpreted as regionally important habitat for wide-ranging species. The objective was to identify a contiguous area that included habitat used by all focal group species that may interact with the Project.

4.12.1 Regional and Landscape Level Plans

Only one provincial land and resource management plan overlaps with the Project's RSA: the Nass South Sustainable Resource Management Plan (Nass South SRMP) (FLNRO 2012a; Figure 4.12-1). The Nass South SRMP was written in partnership with NLG, Gitanyow First Nation, and stakeholders to address sustainable management of land, water, and resources in the southern portion of the Nass Timber Supply Area (TSA) (FLNRO 2012a). The Nass South SRMP provides guidance on permitted land and resource use in the area and provides guidelines for timber operations. Guidelines for timber operations take into account cultural, environmental, and economic values to facilitate development potential of the land base by proactively reducing and/or preventing conflict on the ground, and to provide opportunities for sustainable economic development (FLNRO 2012b). The primary objectives of the Nass South SMRP are to foster and improve consultation and collaboration processes between the province, Nisga'a Nation, and Gitanyow First Nation, to enhance cooperation, and promote strategic and sustainable land use planning and resource development.

The Nass South SRMP provides management direction in seven areas: water, biodiversity, botanical forest products, wildlife, fisheries, cultural heritage resources, and timber. The SRMP summarizes the objectives for each of the seven areas; however, it does not prescribe how these objectives are to be achieved.

4.12.2 Parks and Protected Areas

No provincial parks or protected areas are located within the LSA or near proposed Project infrastructure. There are two provincial parks (Bear Glacier Park and Meziadin Lake) located within the northern and most western portion of the RSA, respectively. Bear Glacier Park accounts for 0.28 % of the RSA and Meziadin Lake accounts for 0.11 % (Table 4.12-2).

Figure 4.12-1: Land and Resource Management Plans

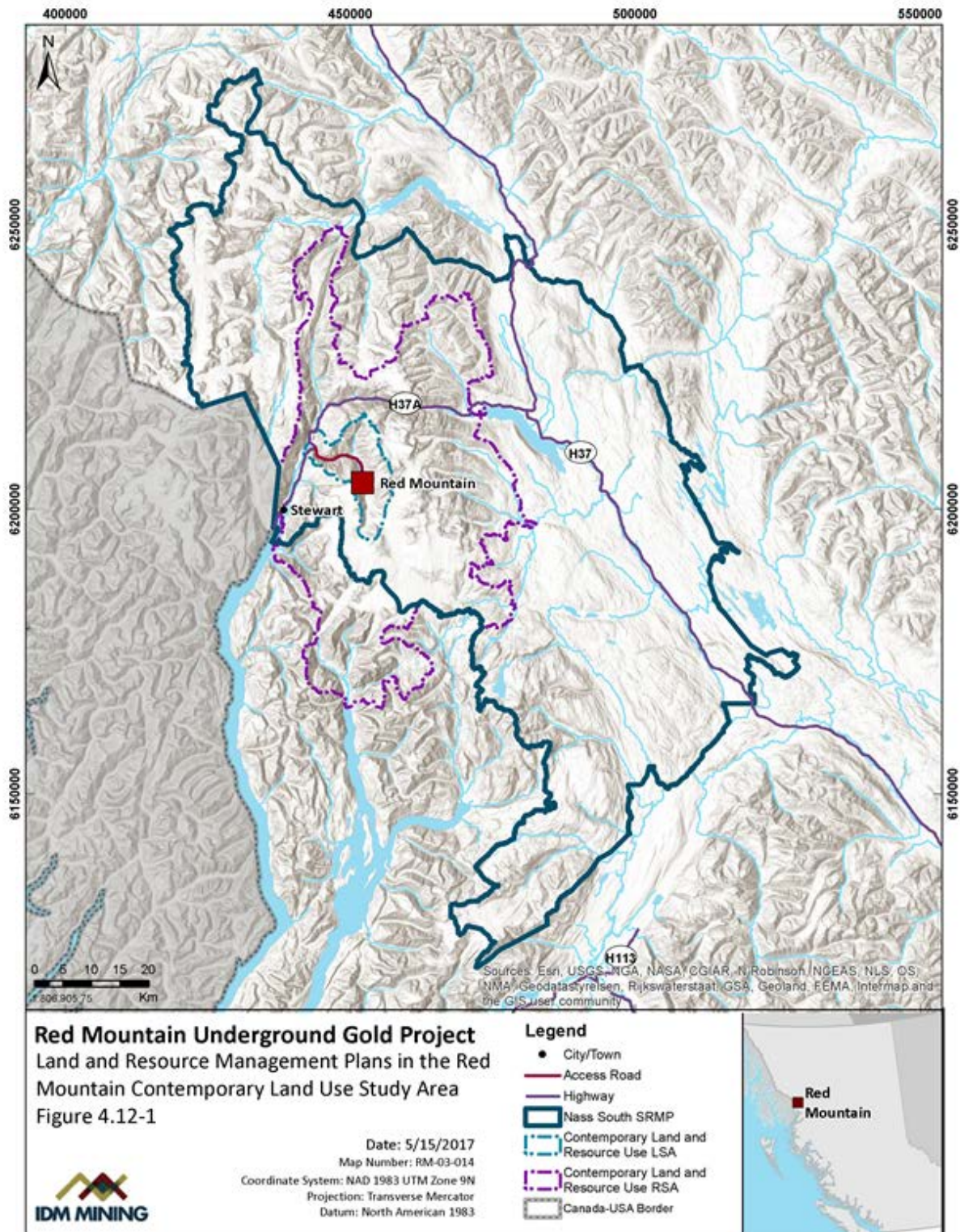
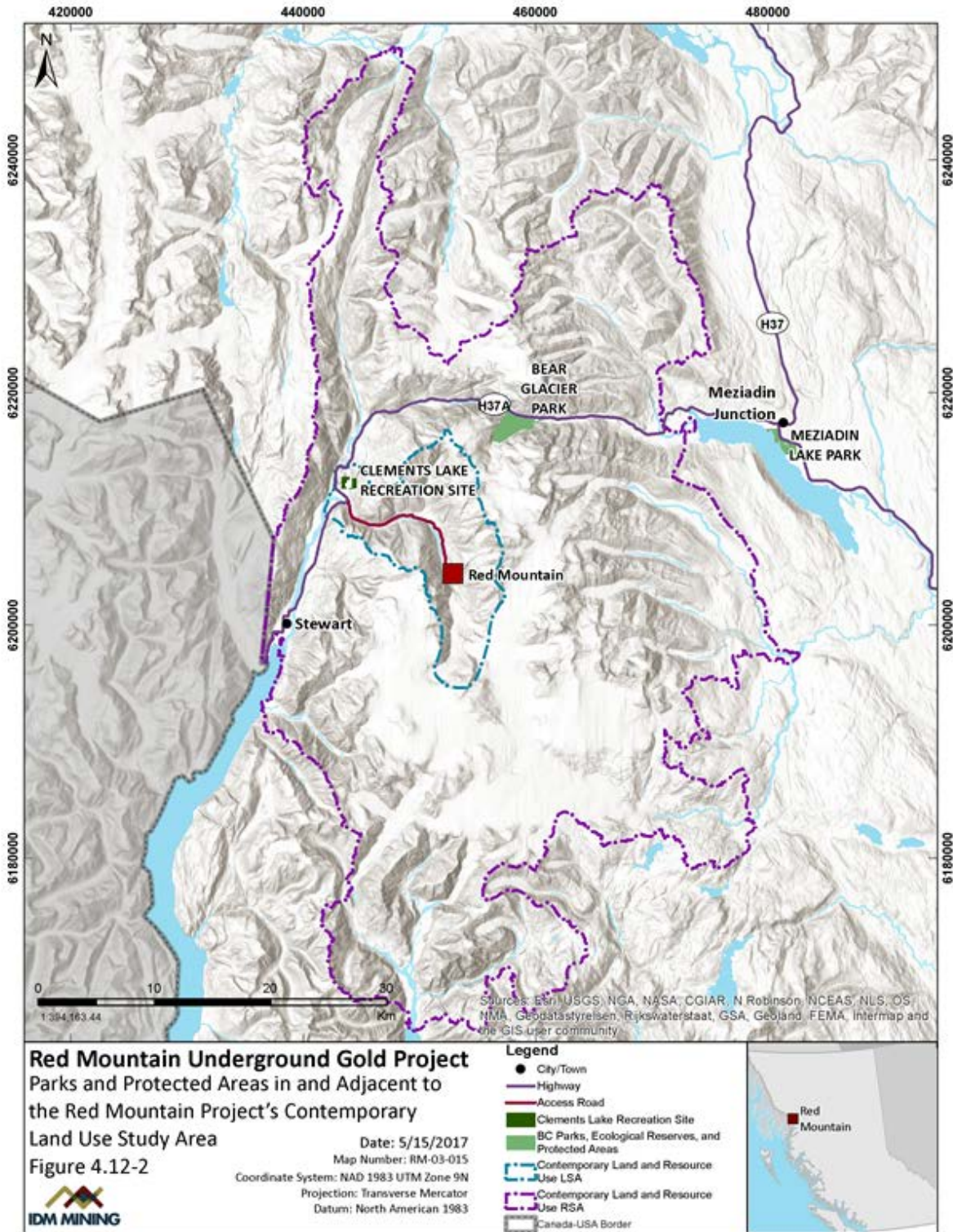


Figure 4.12-2: Parks and Protected Areas



4.12.2.1 Bear Glacier Park Provincial Park

Bear Glacier Park is approximately 37 km northeast of Stewart, BC along Highway 37A and is 542 ha in size. The park was established in 2000 as a Provincial Park and is a significant piece of BC's history as a result of its enactment through the NFA (WLAP 2003a). Bear Glacier Park is known for having the only glacier viewing opportunity beside a highway in BC. It was only in the last half of the twentieth century that the glacier retreated enough to open up the pass (WLAP 2003a). The surrounding area consists of glacier fed Strohn Lake and mountains.

4.12.2.2 Meziadin Lake Provincial Park

Meziadin Lake Provincial Park is located along the northwest shore of Meziadin Lake and is approximately 67 km northeast of Stewart, BC along Highway 37A. The park was established in 1987 and is 335 ha in size. The park contains high value grizzly bear habitat for much of the 335 ha (WLAP 2003b). Although the park is adjacent to Meziadin Lake, it does not include the shorelines of the lake, which provide important nursery habitat for spawning sockeye salmon (*Oncorhynchus nerka*; WLAP 2003b).

The park provides many services such as guided angling, lake tours, glacier tours, trailer rentals, camping, and a convenience store (BC Parks 2017).

4.12.3 Hunting

In BC, there are two defined hunter categories: resident and non-resident. Resident hunters are either citizens or permanent residents of Canada who meet the requirements to be considered a resident of BC. Resident hunters must obtain a Hunter Number Card before acquiring a hunting and species license.

For non-resident hunters, provincial laws require hunting activities to be accompanied by a licensed guide outfitter when wanting to pursue big game such as deer, mountain sheep, mountain goat, moose, caribou, elk, etc. Guide outfitters are registered within a specified tenure area (Ellis 2009). Guide outfitting licenses are based on the provincial system of Wildlife Management Units (WMUs).

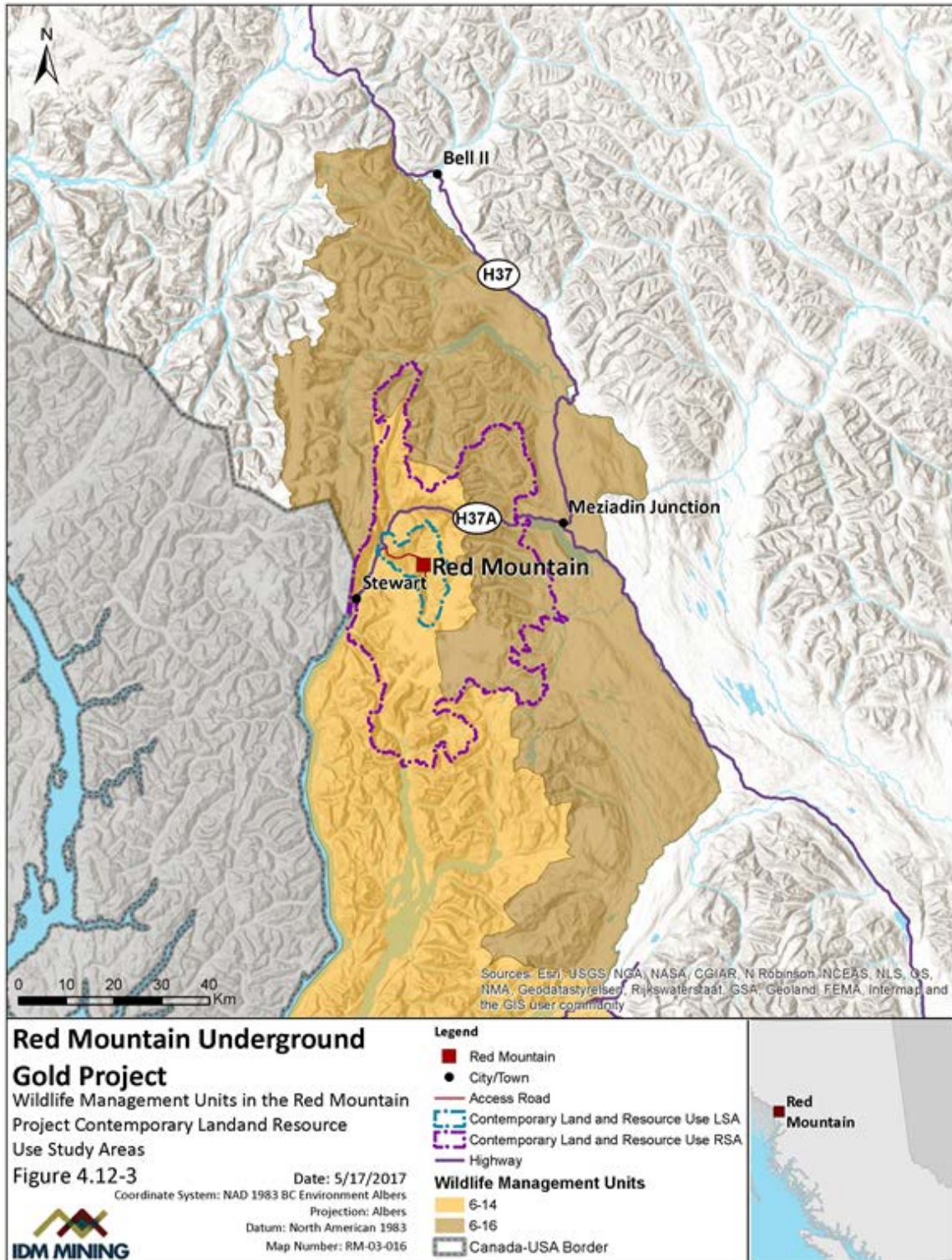
Figure 4.12-3 shows that the LSA in its entirety and the majority of the RSA are located within WMU 6-14 (West Central). Only the easterly portion of the RSA overlaps with WMU 6-16 (North Coast). Table 4.12-1 outlines the degree to which the RSA and LSA overlap with the WMUs.

Table 4.12-1: Wildlife Management Units and Study Area Calculations

WMU	Total WMU Area (ha)	Percentage of WMU within LSA Boundary (%)	Percentage of WMU within RSA Boundary (%)
6-14 (West Central)	1,325,935	1.1	8.9
6-16 (North Coast)	657,172	0.0	13.3

Source: Hatfield 2017

Figure 4.12-3: Wildlife Management Units



4.12.3.1 Hunter Harvest Data

To comply with the British Columbia *Wildlife Act* and hunting regulations, hunters are obliged to have specific species of game (e.g., grizzly bear, mountain goat, cougar, mountain sheep, caribou, and moose) inspected by the provincial inspector. This data is compiled and available from FLNRO. Harvest data for each of the WMUs overlapped by the Project's study areas is shown in Table 4.12-2.

Harvest data is collected and provided at a WMU level and there are potentially hunters active within each WMU who do not hold hunting licenses or report kills as per the *Wildlife Act*, thus the number of annual total kills is likely under represented.

Table 4.12-2: Hunter Harvest Data for Wildlife Management Units 6-14 and 6-16 (2000 to 2012)

Year	WMU 6-14				WMU 6-16			
	Moose	Mountain Goat	Grizzly Bear	Lynx	Moose	Mountain Goat	Grizzly Bear	Lynx
2000	-	3	1	-	-	3	4	-
2001	-	-	1	-	-	3	1	-
2002	-	1	2	-	-	1	3	-
2003	-	3	1	-	-	4	3	-
2004	-	10	1	-	-	4	5	1
2005	-	11	-	-	-	4	5	-
2006	-	4	2	-	-	4	1	-
2007	-	6	2	-	-	2	4	-
2008	-	5	3	-	-	1	4	-
2009	-	3	1	-	-	1	5	-
2010	1	5	1	-	-	-	1	-
2011	3	7	2	-	-	2	9	-
2012	-	8	2	-	-	6	5	-

Source: (FLNRO 2015a)

4.12.3.2 Guided Backcountry Expeditions (Guide Outfitting)

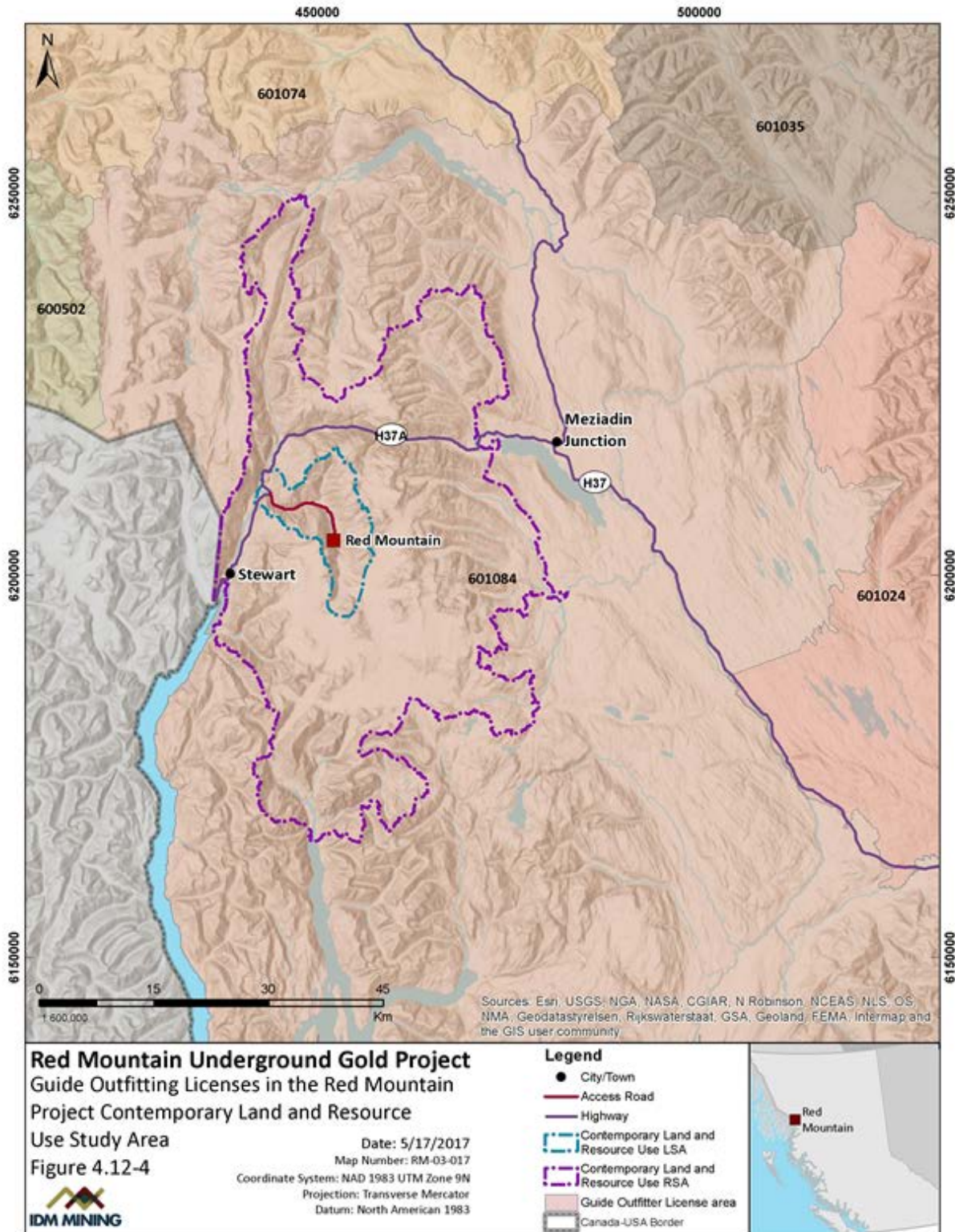
Guide outfitting is a commercial land use that allows non-residents to participate in recreational hunting. Guide outfitters are registered to guide within a specified territory that is based on the provincial system of WMUs. Guide outfitter licenses provide for a right of use and do not confer any property rights to the owner.

One guide outfitting license, no. 601084, overlaps the RSA and LSA (Figure 4.12-4). This license supports the harvesting of black bear (*Ursus americanus*), grizzly bear (*Ursus arctos*), and mountain goat (*Oreamnos americanus*) (GOABC 2017). Until quite recently, the guide outfitting license was held by Coast Mountain Outfitters, a family business that operated the license for two generations. In 2015, the owner Bob Milligan sold the license to Nisga'a Guide Outfitting LP, a provincially registered sport hunting company. Nisga'a Nation, through Nisga'a Pacific Ventures Limited Partnership owns and operates Nisga'a Guide Outfitting (NGO).

Mr. Milligan has been retained by Nisga'a Nation as an advisor to help NGO get up and running. The goal is to generate Nisga'a employment by training 6-12 Nisga'a citizens as guide outfitters. Eventually, NGO may make more intensive use of the license area than occurred under the previous, single proprietor ownership.

The Bitter Creek valley is known for its mountain goat population, which in the past has been underutilized for guide outfitting due to poor access. The herd may become a more important resource for NGO in the future.

Figure 4.12-4: Guide Outfitting Licenses



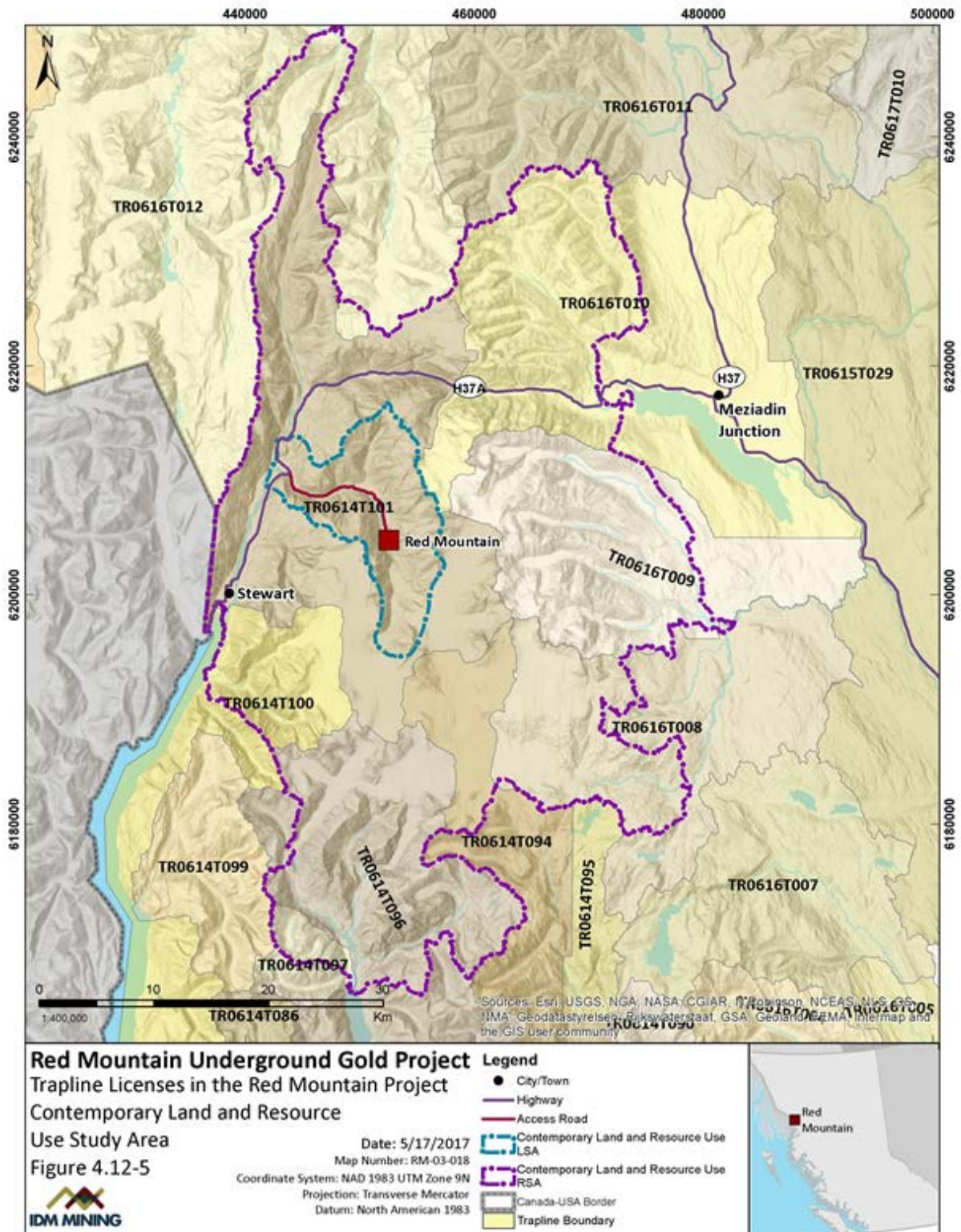
4.12.4 Trapping

The LSA is encompassed within one trapline license, while seven, additional trapline licenses are found within the RSA. Table 4.12-3 summarizes the trapline licenses and the proportion located within the RSA and LSA.

Table 4.12-3: Trapline Licenses within the LSA and RSA

Trapline License	Percentage of Trapline Area in LSA (%)	Percentage of Trapline Area in RSA (%)
TR0614T094	0	100
TR0614T096	0	100
TR0614T097	0	100
TR0614T100	0	100
TR0614T101	21.36	78.64
TR0616T008	0	100
TR0616T009	0	100
TR0616T010	0	100
TR0616T012	0	100

Figure 4.12-5: Trapline Licenses



4.12.4.1 Trapline Harvest Data

Trapline harvest data from 1985 to 2015 was obtained from Front Counter BC. Provision of harvest data to the FLNRO is voluntary and numbers reported may not be fully accurate. The exception is with fisher (*Martes pennanti*) and wolverine (*Gulo gulo*) where trappers are required to report harvesting of these two species (BC Government 2016). Within the RSA, three trapline licences do not have any registered harvests (K. Dixon, Pers Comm. 2017; Table 4.12-4).

Table 4.12-4: Summary of Trapline Activity and Use (1985 to 2015)

Trapline	Most Recent Year (2015)	Total individuals trapped for all years (1985 to 2015)
LSA		
TR0614T101	2000	630
RSA		
TR0614T094	No Data	No Data
TR0614T096	No Data	No Data
TR0614T097	No Data	No Data
TR0614T100	2015	260
TR0616T008	1985	9
TR0616T009	1989	14
TR0616T010	2008	1,064
TR0616T012	1989	169

Species most commonly harvested on these traplines include martin, beaver, squirrel, weasel, and mink. The average price per pelt fluctuates with the market demand and the annual average price typically affects the level of trapline use in a given year. Average pelt prices at North American Fur Auctions sales in 2016 were ranging between less than \$0.50 (squirrel) to over \$300.00 (lynx; Table 4.12-5).

Table 4.12-5: Average Price per Pelt

Species	Average Market Price (\$CDN)	Species	Average Market Price (\$CDN)
Marten	66.19	Mink	10.39
Beaver	46.32	Fisher	48.33
Squirrel	0.30	Lynx	341.04
Weasel	1.53	Wolverine	260.15

Source: (NAFA 2016)

4.12.5 Heli-skiing

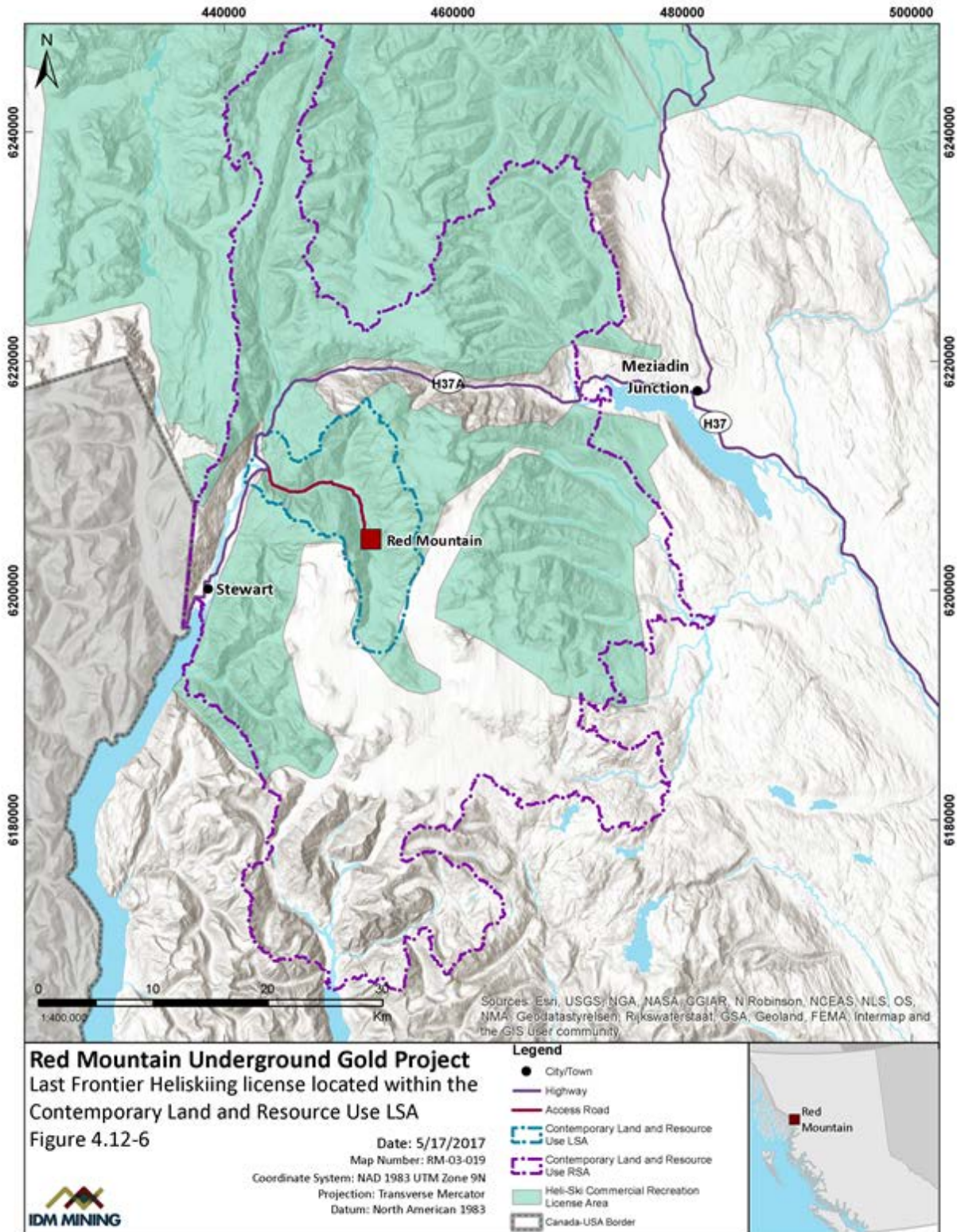
Only one commercial recreation license intersects the LSA and RSA, which is held by Last Frontier Heli-skiing (LFH; no. 6406136). The license encompasses the entire LSA and has an operating area of approximately 8,900 km² (LFH 2015). LFH was established in 1997 and operates from mid-December to the end of April. LFH was granted a 20 year license agreement in 1999 and was granted additional terrain near Stewart in 2007 (LFH 2015).

The company uses two lodges, Bell 2 Lodge located in Bell II and the Ripley Creek Inn in Stewart (C. Umpleby. Pers Comm. 2016). More than 600 runs have been established and the company can accommodate 35 guests with 3 A-Star helicopters (LFH 2015). LFH has an international clientele and an annual volume target of almost 4,000 skier days per season (LFH 2015). Most clients are European and approximately 25-30% of clients are repeat customers (C. Umpleby. Pers Comm. 2016).

The LFH operating area is divided into three distinct physical zones and eight distinct heli-skiing zones. The LSA is located in Zone 6 (Bowser Lake). Zone 6 is a critical bad weather area for the Stewart operation and secondary good weather areas if used from Bell 2 Lodge (LFH 2015). This area is a mix alpine/tree zone and treed areas, which provides protection from the wind, allowing the runs to be used in bad weather (C. Umpleby. Pers Comm. 2016). Several key runs are located within the LSA including *Vitamin Ski* which was referred to as an LFH 'bread and butter run' that is reliable in bad weather (C. Umpleby. Pers Comm. 2016; Figure 4.12-6). Several other runs have potential to be affected by the location of the Project's Access Road and Powerline. Additionally, the value of wilderness and absence of human activity creates an aesthetic that is important to the business as it creates a unique experience for the clientele (C. Umpleby. Pers Comm. 2016). Increased development within the area has been noted to be of concern with runs being infringed by the Project and potentially lost.

LFH explained that helicopter routes to access runs within their lease area are additionally constrained by sensitive mountain goat habitat in the Bitter Creek valley (C. Umpleby. Pers Comm. 2016). The helicopters are required to fly outside a 1,500 m horizontal and 500 m vertical buffer zone (Wilderness Tourism Association of BC 2017).

Figure 4.12-6: Last Frontier Heli-skiing License Area



4.12.6 Forestry

In the Skeena Region, the RSA overlaps with the Kalum Forest District and the Nass TSA (Figure 4.12-7). The Nass TSA is administered by the Kalum Forest District and covers 1.67 million ha. Crown-owned, productive forest land equates to 39% of the total TSA area, and the remaining 59% is considered non-productive or non-forested. The current annual allowable cut is 865,00m³, with current harvesting levels around 25% (BC MFLNRO 2011).

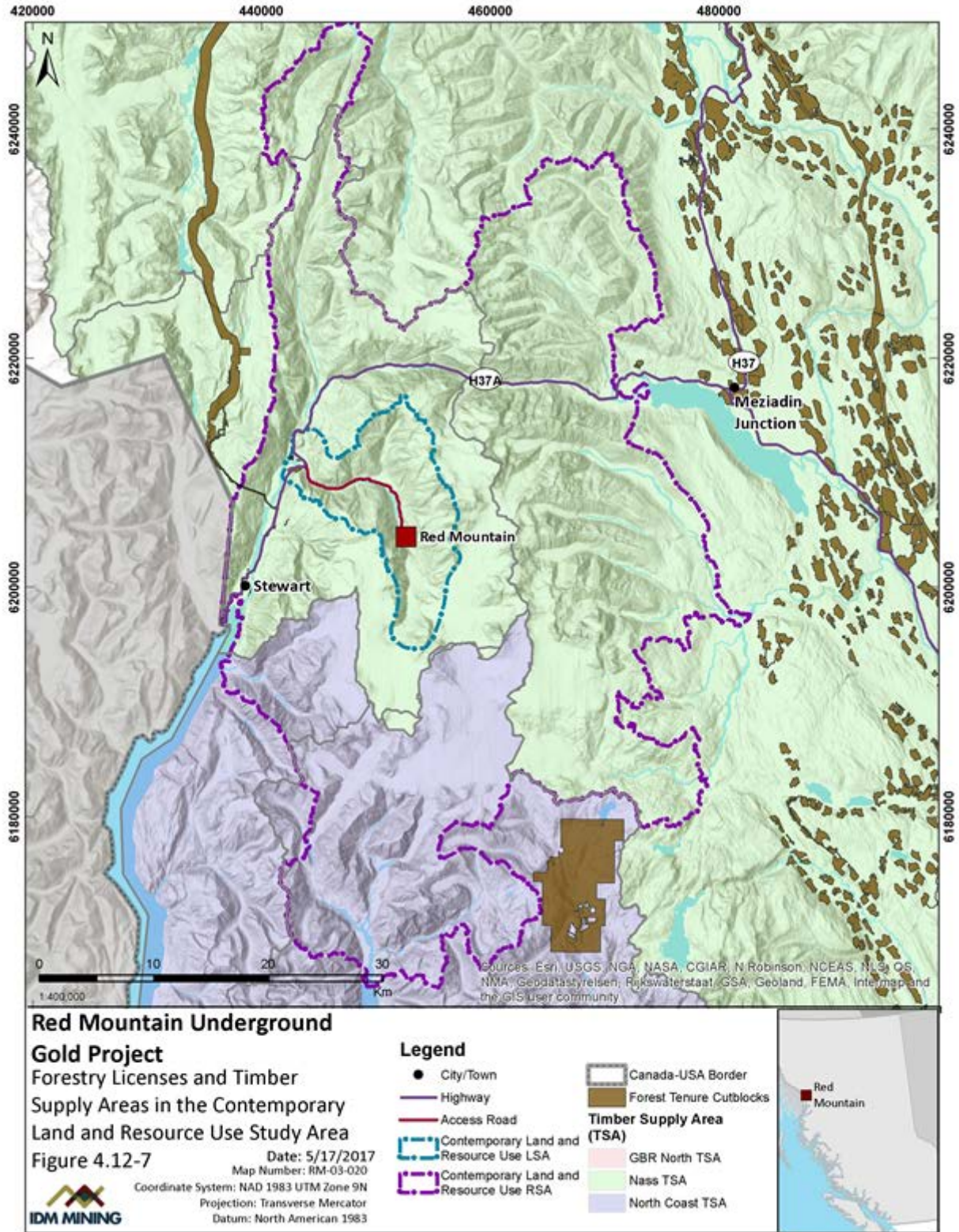
Table 4.12-6 provides a summary of the forest license holders in the LSA and RSA. Two forest licenses exist within the LSA and five in the RSA (Figure 4.12-7). License number L540477 has two active cutting locations, which occupy area in both the LSA and RSA.

Table 4.12-6: Summary of Forest License Holders in the LSA and RSA

Licensee	License Number	TSA	License Location
LSA			
Long Lake Hydro Inc.	L50477	Nass	Two locations: (1) northwest portion of the LSA at the confluence of Bitter and Bear Creek; and (2) most westerly portion of RSA towards the USA border.
Yellowhead Helicopters Ltd.	L50537	Nass	Most northwest portion of the LSA at the confluence of Bitter and Bear Creek.
RSA			
District of Stewart	L49460	Nass	In the municipality of Stewart in the southwest portion of the RSA.
Shane Partridge	L49545	Nass	5 km north of Stewart along highway 37 along the west portion of the RSA.
Stewart World Post Services	L50406	Nass	4.5 km north of Stewart along highway 37 along the west portion of the RSA.
DJ & J Enterprises Ltd.	L50278	Nass	North of Stewart along highway 37 running east along Glacier Creek within the west edge of the RSA.

Source: (FLNRO 2011)

Figure 4.12-7: Forestry Licenses and Timber Supply Areas



4.12.7 Fisheries

There are no commercial fishing operators based in Stewart, but the Portland Canal is still considered part of a Pacific Fishery Management Area (O'Donnell et al. 2013). All five species of Pacific salmon, halibut, some lingcod, prawns, and crabs are present along the fjord (Stoffels 2001). Both freshwater and tidal water recreational fishing occurs throughout the North Coast (Stoffels 2001; North Coast LRMP 2005). From Stewart, anglers requiring guides can seek information from the Stewart Visitor Centre and be connected with fishing charter companies, such as Portland Fishing Charters and Happy Hooker Fishing (District of Stewart 2016).

The RSA for Contemporary Land and Resources Use and CRA Fisheries is fully encompassed in BC's Fish and Wildlife Region 6 (Skeena) and water body management units 6-14 and 6-16 (FLNRO 2015b). For the Bear River and its tributaries, including Bitter Creek, no freshwater fishing, excluding salmon, is permitted (FLNRO 2015b). Enthusiasts can fish at Meziadin Lake and the Nass River.

Management of salmon fisheries in BC is the responsibility of DFO, and under the Skeena Freshwater Fishing Region, fishing for chinook or coho is prohibited on the Bear River (and tributaries) from April 1 to March 31 (DFO 2017). Freshwater (non-tidal) fish licenses must be obtained from FLNRO.

The Bear River has valuable fish habitat and salmonid spawning and rearing areas, according to the Red Mountain Project Baseline Fisheries and Aquatic Resources Study (Rithaler and Goodwin 2016, Appendix 19 – A Fish and Aquatic Habitat Baseline). Fish species in the Bear River include Dolly Varden, coho, chum, pink and chinook salmon, steelhead, eulachon, and coastrange sculpin. The Bitter Creek main stem channel has minimal fish habitat due to elevated turbidity, high current velocities, and negligible refugia; however, two fish species were documented: Dolly Varden and coastrange sculpin (Rithaler and Goodwin 2016). Dolly Varden is considered a sport fish that is widespread in river, lake, and stream habitat throughout much of northern BC.

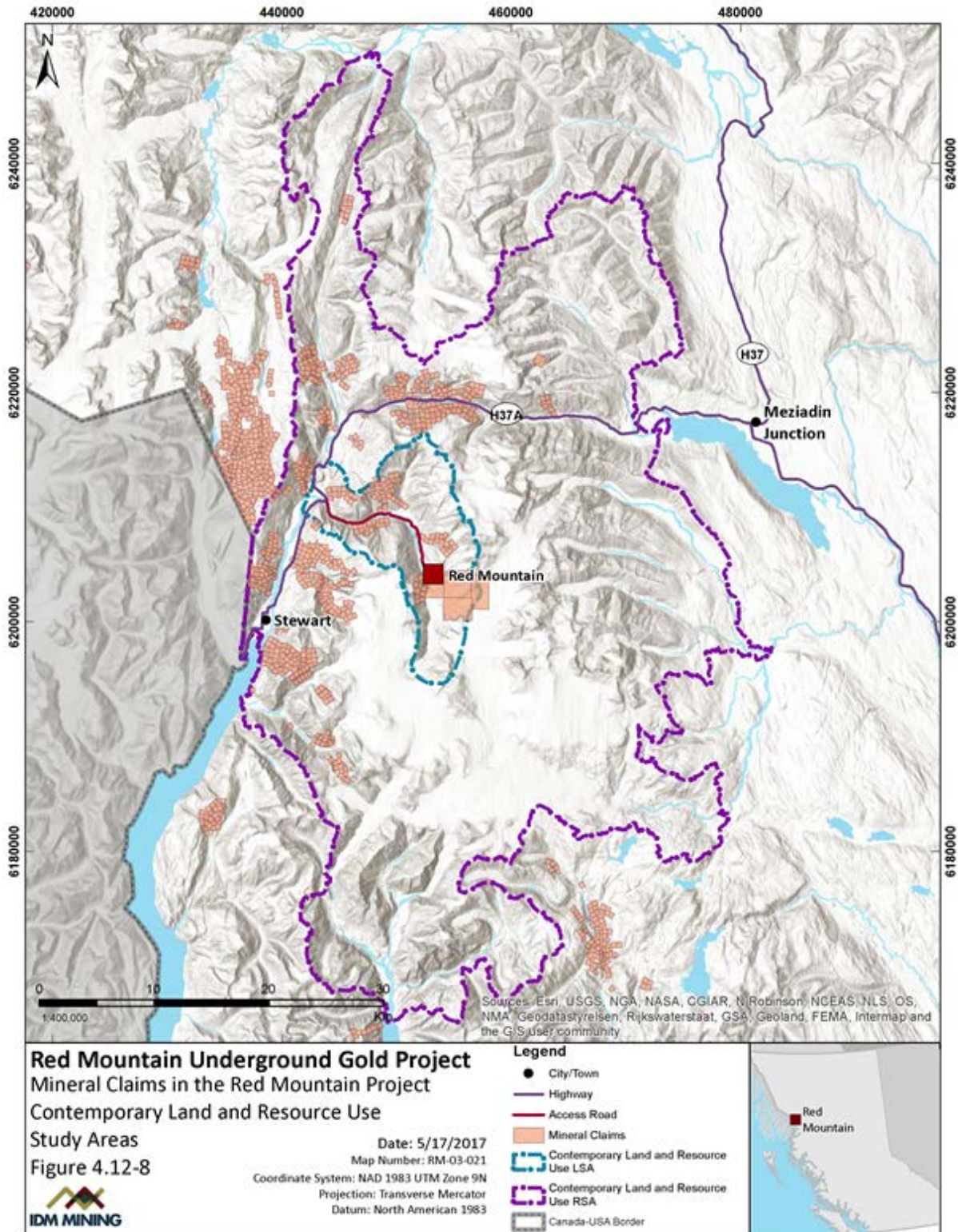
4.12.8 Mining and Mineral Exploration

The Nass South SRMP acknowledges the area provides opportunity for mining resources (FLNRO 2012b). The below sections detail the number of mineral and placer claims in the RSA and LSA.

4.12.8.1 Mineral Claims

There are a total of 673 mineral claims in the Project areas: 567 within the RSA and 106 within the LSA (Province of British Columbia 2017; Figure 4.12-8). Mineral claims within the RSA and LSA are less than 5 km² in size. Three of the largest mineral claims are located within the LSA (Claim IDs 820643, 820644, and 820645) and one in the RSA (Claim ID 820642).

Figure 4.12-8: Mineral Claims



4.12.8.2 Placer Claims

Placer claims apply to metal or natural substances that can be mined but are found in loose earth, rock, gravel, and sand (MEM 2016). As of April 2016, there were no placer claims overlapping with the RSA and LSA.

4.12.9 Outdoor Recreation

Tourism is an important part of the local economy in Stewart, and outdoor recreation and opportunities to experience the area's scenery and wilderness environment are important draws for visitors.

Stewart and the surrounding area have many recreation opportunities and unique attractions. Highway 37A between Meziadin and Stewart offers scenic sites of nearby mountains and glaciers; both Bear and Salmon Glaciers can be viewed from roadside locations. From Stewart, bear and wildlife viewing is easily accessible and tourists can travel across to Hyder, Alaska to access the Fish Creek bear-viewing platform (Destination BC Corp. 2014). Most recreation activities are pursued independently with the exception of one guide-outfitter, some guided fishing along the Portland Canal, and heli-ski trips (Tourism BC 2010).

There are several hiking trails in and around the community that are maintained by Stewart. These trails provide accessible outdoor recreation opportunities for residents and tourists alike.

There are several lakes and rivers in the area for fishing, boating, and water skiing. Snowmobiling starts in November and can continue through to July. Snowmobiling events are held by the Stewart Bordertown Snowmobile Club. The area around Long Lake, 25 km north of Stewart, and Summit Lake, close to the old Granduc site, are two especially popular snowmobiling areas.

Clements Lake Recreation Area provides swimming, camping, canoeing, and hiking opportunities. It is located approximately 13 km from Stewart along Highway 37A, not far from the proposed turn off for the Project at the mouth of Bitter Creek. Clements Lake is the trailhead for a hiking trail that leads to Ore Mountain on the northern flank of the Bitter Creek Valley. The trail is a difficult 4 km hike to a small alpine lake. According to local sources, the Project is unlikely to be visible other than from the summit of Ore Mountain (D. Green. Pers Comm. 2016) although this contradicts most maps and online sources that suggest the trail ends before Bitter Creek would come into view.

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