

FIGURE 8.1-5
PERMANENT TRAFFIC MEASUREMENT SITES – FRASER VALLEY REGION

TRANS MOUNTAIN EXPANSION PROJECT

- Town / Village / Hamlet
- Kilometre Post (KP)
- Reference Kilometre Post (RK)
- Trans Mountain Pipeline (TMPL)
- Trans Mountain Expansion Project Proposed Pipeline Corridor
- ▲ Terminal
- Pump Station (Pump Additions, Station Modifications and/or Scraper Facilities)
- Existing Pump Station
- ✳ Permanent Traffic Measurement Site
- ① Highway
- +— Railway
- ▭ Socio-economic RSA Boundary
- ▭ City / Town / District Municipality
- ▭ Indian Reserve / Métis Settlement
- ▭ National Park
- ▭ Provincial Park
- ▭ Protected Area / Natural Area / Provincial Recreation Area / Wilderness Provincial Park / Conservancy Area
- ▭ Municipal / District Boundary
- ▭ International Boundary

Projection: NAD 1983 UTM 10N. Baseline TMPL & Facilities: provided by KMC, 2012; Proposed Pipeline Corridor V6: provided by UPI, Aug. 23, 2013; Transportation: IHS Inc., 2013; BC Forests, Lands and Natural Resource Operations, 2012 & Natural Resources Canada, 2012; Geopolitical Boundaries: Natural Resources Canada, 2003, AltaLIS, 2013, IHS Inc., 2011, BC FLNRO, 2007 & ESRI, 2005; First Nation Lands: Government of Canada, 2013, AltaLIS, 2010 & IHS Inc., 2011; Hydrology: Natural Resources Canada, 2007 & BC Crown Registry and Geographic Base Branch, 2008; Parks and Protected Areas: Natural Resources Canada, 2012, AltaLIS, 2012 & BC FLNRO, 2008; ATS Grid: AltaLIS, 2009; Edmonton TUC: Alberta Infrastructure, 2011; Canadian Hillshade: TERA Environmental Consultants, 2008; US Hillshade: ESRI, 2009; World Shaded Relief: Copyright © 2013 Esri

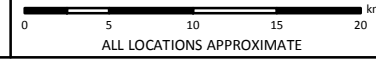
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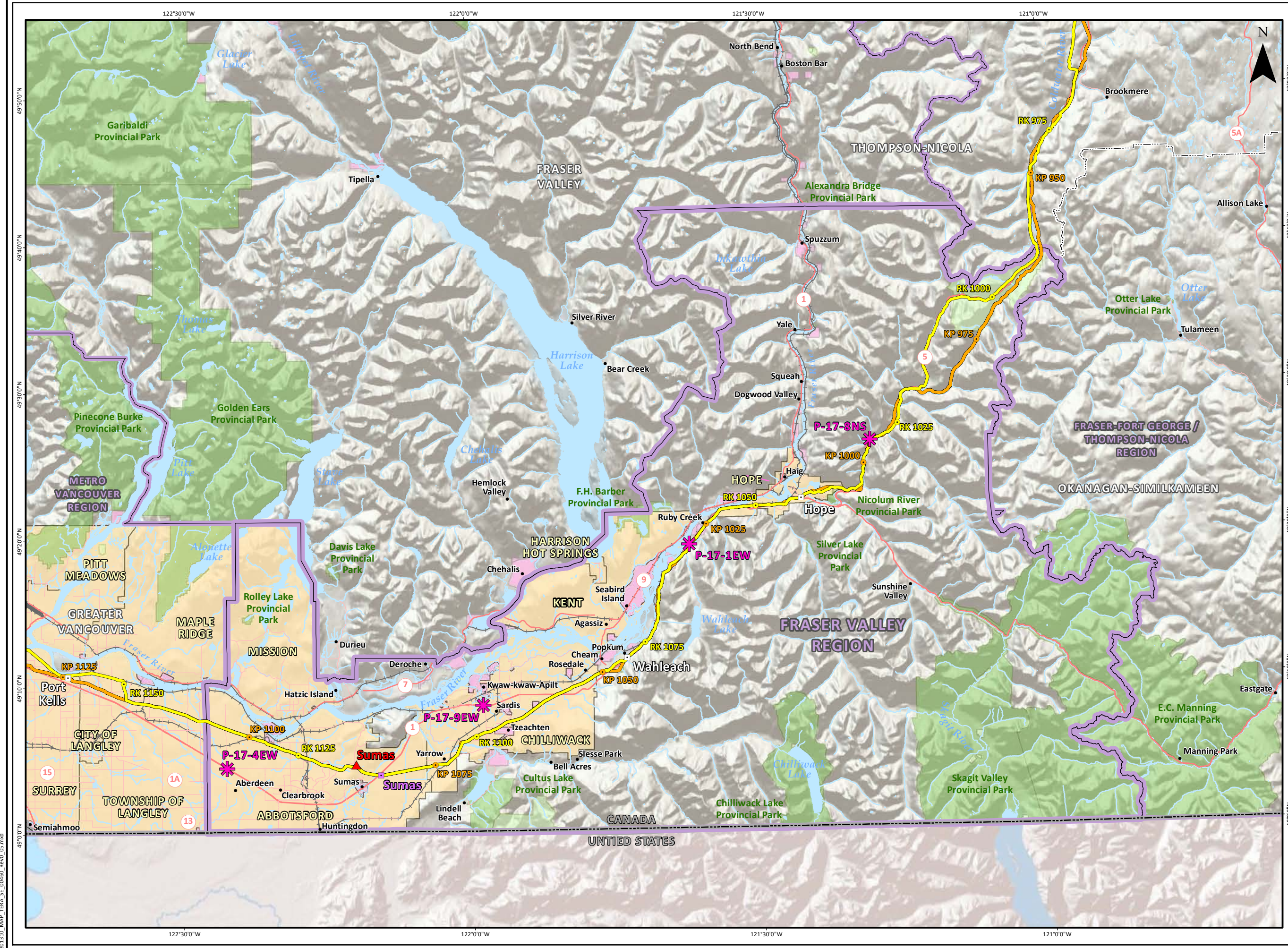
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MAP NUMBER	201310_MAP_TERA_SE_00460_REV0_05	PAGE	SHEET 5 OF 6
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ALL LOCATIONS APPROXIMATE



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8.1.5.2 Airports

There are two airports, a number of private airfields and a number of heliports in the vicinity of the Fraser Valley Region (Table C-5 in Appendix C).

The Abbotsford International Airport is the largest airport in the Fraser Valley Region. The airport is owned and operated by the Abbotsford Airport Authority on behalf of the City of Abbotsford. The airport has two runways and offers regularly scheduled flights to Victoria and Nanaimo, BC and Calgary and Edmonton, Alberta (Abbotsford International Airport 2012). The Abbotsford International Airport is located approximately 7.6 km from the proposed pipeline corridor at RK 1127.1.

Other communities in the Fraser Valley Region with paved airports or airstrips are Chilliwack and Hope.

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, no issues were identified with respect to airports in the Fraser Valley Region.

8.1.5.3 Rail

The CN Railway loosely parallels the proposed pipeline corridor from Hope to Chilliwack. There are 14 CN stations, 7 CPR stations, 8 Southern Railway of BC (SRY) stations and 1 Burlington Northern Santa Fe Corp. (BNSF) station in the vicinity of the proposed pipeline corridor in the Fraser Valley Region (Table C-6 in Appendix C) (CN 2012, CPR 2012, Southern Railway of BC 2012). There are six rail crossings along the proposed pipeline corridor within this region. Crossings are located at RK 1062.9, RK 1064.4, RK 1104.8, RK 1123.8, RK 1126.6 and RK 1131.4. The Kettle Valley Railway, a former railway which was converted into a trail, is crossed at RK 1027.4, RK 1027.7 and RK 1042.3.

The District of Hope, City of Chilliwack and City of Abbotsford have railway stations. CN rail systems includes a mainline and VIA Rail Canada operates a passenger route in the vicinity of the Project (Natural Resources Canada 2008). Hope, Abbotsford and Chilliwack are serviced by VIA Rail Canada for passenger service (VIA Rail Canada 2012). According to the Abbotsford Transportation Master Plan, Abbotsford is served by three rail services: CN; CPR; and SRY. The proposed pipeline corridor crosses two of these railways: CPR (approximately RK 1123.6) and the SRY (approximately RK 1126.6 and RK 1131.6) (City of Abbotsford 2007).

Depending on where the pipeline materials are sourced, it is expected that some of the construction equipment and materials may be transported by rail to the closest station, and transported to sites along the proposed pipeline corridor by truck.

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to railways in the Fraser Valley Region.

- During routing discussions, CPR noted they would require a detailed plan by a BC Land Surveyor, including a CPR risk assessment for crossings. CPR also noted that pipelines exceeding 750 mm will require geotechnical review at crossing locations (Courville pers. comm.).

8.1.5.4 Ports

There are no known ports located in the Fraser Valley Region.

8.1.6 Transportation Infrastructure – Metro Vancouver Region

The following subheadings will describe existing transportation infrastructure related to roads and traffic, airports, railways and navigable waters and ports in the Socio-Economic RSA of the Metro Vancouver Region.

8.1.6.1 Roads

In the Metro Vancouver Region, Highway 1 (Trans-Canada Highway) is the main vehicle route located in the Socio-Economic RSA. In the Project area, Highway 1 services the Township of Langley, and the cities of Surrey, Coquitlam and Burnaby. Highway 1 is crossed by the proposed pipeline corridor at two locations (approximately RK 1166.9 and RK 1173.1). Highway 1 is anticipated to be the main highway utilized for the movement of equipment and materials to various pipeline spread locations in this region. Highway 7 (Lougheed Highway) is another key road near the proposed pipeline corridor, likely to be used during the construction phase and which is crossed by the Project. Other key roads in the region crossed by the proposed pipeline corridor include: Golden Ears Way in the Township of Langley; the South Fraser Perimeter Road (SFPR) in the City of Surrey; Brunette Avenue in the City of Coquitlam; and Burnaby Mountain Parkway and Barnet Road in the City of Burnaby.

There are four permanent traffic measurement sites located on Highway 1 in the proposed pipeline corridor within the Metro Vancouver Region. Traffic count data is available for 2010 and in some cases 2011 and 2012 as well for these sites. Table C-4 in Appendix C presents the MADT (AADT and AADTM) volumes available for these sites and Figure 8.1-6 shows the location of these sites. Overall MADT volumes have remained consistent from 2010 to 2012 with larger volumes occurring at the Port Mann Bridge crossing, likely due to commuters driving between communities in Metro Vancouver. The permanent traffic measurement sites on Highway 1 are considered consistent. There is little difference in monthly average daily traffic between winter and summer months. This is likely due to the urban nature of the Metro Vancouver Region.

The proposed pipeline corridor follows the alignment of the recently constructed South Fraser Perimeter Road (SFPR) in Surrey. The City of Surrey currently has substantial infrastructure in the corridor, and various projects are planned for the corridor in advance of the Project, for example a twinning of the Metro Vancouver sanitation line. The city noted a lack of opportunities for land compensation in the area due to commitments from previous projects (Luymes, Baron pers. comm.). The proposed pipeline corridor follows Daly Road which is currently under construction to be the Golden Ears Bridge connector for the SFPR (Baron pers. comm.).

In Burnaby, the proposed pipeline corridor crosses several transit routes such as the West Coast Express (approximately RK 1182), a Rapid Bus Service route (approximately RK 1182), the Express Bus Service to Simon Fraser University (approximately RK 1180) and the Light Rail Transit Route and Stations (approximately RK 1175.6 and RK 1176.6) (City of Burnaby 1998). The proposed pipeline corridor also crosses Lougheed Town Centre area, which is one of Metro Vancouver's priority areas for rapid transit expansion (both railway and buses) (Metro Vancouver 2010a).

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to road infrastructure in the Metro Vancouver Region.

- Concerns about access limitations to residential areas area and the need for traffic and closure agreements (Baron pers. comm.).
- Concerns regarding potential effects to traffic patterns, in addition to road upgrades and other construction projects, were identified at the Coquitlam Community Workshop. United Boulevard in the City of Coquitlam was identified as a particular road of concern. The proposed pipeline corridor parallels United Boulevard from approximately RK 1170.3 to RK 1172.2. The proposed pipeline corridor crosses United Boulevard at approximately RK 1170.3, RK 1171.9 and RK 1172.2.
- Maintenance and ongoing work adjacent to roads was identified as an issue at the Coquitlam Community Workshop.
- In the Township of Langley, 88th Avenue is a major street and it would be a major concern if it was disrupted (Seifi pers. comm.). 88th Avenue is crossed by the proposed pipeline corridor y at approximately RK 1149.0.

- Potential for issues with increased traffic and traffic disruption on South Fraser Perimeter Road was raised at the Surrey Community Workshop.
- Realignment of vehicle traffic on 104th Avenue to Barnston Island was raised as an issue at the Surrey Community Workshop. The proposed pipeline corridor crosses 104th Avenue at approximately RK 1160.5.
- Increased construction traffic was raised as a concern at the Burnaby Community Workshop.
- Disruption to access the ferry to Barnston Island was identified at the Surrey Community Workshop.

FIGURE 8.1-6

PERMANENT TRAFFIC MEASUREMENT SITES – METRO VANCOUVER REGION

TRANS MOUNTAIN EXPANSION PROJECT

- Kilometre Post (KP)
- Reference Kilometre Post (RK)
- Trans Mountain Pipeline (TMPL)
- Trans Mountain Expansion Project Proposed Pipeline Corridor
- Terminal
- Existing Pump Station
- Permanent Traffic Measurement Site
- Highway
- Railway
- Socio-economic RSA Boundary
- City / Town / District Municipality
- Indian Reserve / Métis Settlement
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8.1.6.2 Airports

There are four airports, a number of private airfields and a number of heliports in the vicinity of the Metro Vancouver Region (Table C-5 in Appendix C). The Vancouver International Airport (YVR) is the largest airport in the Metro Vancouver Region, the province and is the second busiest airport in Canada. Annually, the airport transports approximately 17 million passengers per year with regularly scheduled flights to provincial, national and international destinations (Vancouver International Airport [YVR] 2012). YVR is located in Richmond and is managed by the Vancouver Airport Authority. The airport is located 17.6 km west of RK 1178.5. Other communities in the Metro Vancouver Region with paved airports or airstrips are Langley, Pitt Meadows and Delta.

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), no issues were identified with respect to airports in the Metro Vancouver Region.

8.1.6.3 Rail

The CN Railway parallels the proposed pipeline corridor in parts of Langley and in Surrey. There are 25 CN stations, 10 CPR stations, 7 BNSF stations, 6 SRY stations, 1 Union Pacific station and 1 Amtrak station in the vicinity of the Project in the Metro Vancouver Region (Table C-6 in Appendix C) (CN 2012, CPR 2012, Southern Railway of BC 2012). There are 25 rail track crossings along the proposed pipeline corridor within this region. Crossings are located at RK 1145.7, RK 1151.2, RK 1154.2, RK 1156.8, RK 1158.6, RK 1160.5, RK 1163.8, RK 1166.7, RK 1166.7, RK 1168.4, RK 1168.4, RK 1168.5, RK 1168.5, RK 1168.5, RK 1168.5, RK 1168.5, RK 1168.5, RK 1168.6, RK 1168.6, RK 1171.8, RK 1172.2, RK 1172.2, RK 1176.6 and RK 1178.5. The rail track crossings located in the vicinity of RK 1168 are associated with Thornton Yard, an intermodal terminal for CN located in the City of Surrey (CN 2012).

The Township of Langley, City of Surrey, City of Coquitlam and City of Burnaby all have railway stations. CN, CPR and West Coast Express operate mainlines in the Socio-Economic RSA, while BNSF, CN and Amtrak operate collectors and primary feeders in the Socio-Economic RSA. VIA Rail Canada, Amtrak and West Coast Express operate passenger routes in the Socio-Economic RSA (Natural Resources Canada 2008). The Vancouver International Terminal is located in the City of Surrey.

Depending on where the pipeline materials are sourced, it is expected that some of the construction equipment and materials may be transported by rail to the closest station, and transported to sites along the proposed pipeline corridor by truck.

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to railways in the Metro Vancouver Region.

- CN noted its intent to expand the rail yard near Surrey Bend Park southwards at various locations, and raised the issue of CN's ability to expand with the presence of a pipeline (Allen pers. comm.).
- CP Rail noted they would require a detailed plan by a BC Land Surveyor, including a CP risk assessment for crossings. CP Rail also noted that pipelines exceeding 750 mm will require geotechnical review at crossing locations (Courville pers. comm.).

8.1.6.4 Ports

Burrard Inlet is the location of Canada's busiest port, PMV (BIEAP 2011). Refer to Section 7.9 for a full discussion of marine use within the Burrard Inlet.

PMV has jurisdiction over commercial port operations and management in the Lower Mainland, including within Burrard Inlet. PMV is responsible for oversight of all marine traffic within Burrard Inlet, and operates harbour patrol vessels and services including emergency response, harbour monitoring and support services (PMV 2013). The port contains 28 major cargo terminals, 23 of which are in Burrard Inlet. Vancouver is the homeport for the Vancouver-Alaska cruise ship industry, with two cruise ship terminals

in the Inner Harbour which provide berthing facilities for cruise ship companies (PMV 2013). Commercial vessel traffic in Burrard Inlet is comprised of vessels accessing the various marine terminals within Burrard Inlet, including:

- cargo ships (forest products, steel products, machinery, grains, coal, chemicals, potash and sulphur);
- oil tankers (petroleum products);
- cruise ships; and
- container ships (household goods) (PMV 2013).

In 2012, the PMV handled approximately 123 million tonnes of cargo and over 3,000 calls by foreign vessels (PMV 2012).

8.2 Linear Infrastructure and Power Supply

This subsection discusses power supply and existing linear infrastructure (e.g., subsurface lines, transmission lines etc.) in the vicinity of the Project. There are numerous pipeline and subsurface linear right-of-ways (i.e., communications infrastructure) in areas along the proposed pipeline corridor. Depending on right-of-way finalization, there may be multiple right-of-way or easement crossings for which use will need to be established by the Project. An inventory of potential sub-surface linear infrastructure crossings will be developed for land-access and acquisition purposes upon right-of-way finalization and/or Project approval. At that time, Trans Mountain will engage in a notification and consultation process with stakeholders to ensure appropriate and mutually-agreeable crossing and use agreements are in place.

In Alberta, the electricity generation system is private, allowing the market to respond to increasing demand and allowing for any participant to build new generation capacity. Over 6,800 MW of new electricity generating capacity has been added to the Alberta system since 1998. As of December 31, 2011, the overall generation capacity of the Alberta electricity market was 13,659 MW. Of this, 46% was generated from coal, 39% from natural gas (cogeneration, combined-cycle, and simple cycle), 6% from hydro-electric, 6% from wind generation, and 2% from other types of generation (AESO 2012). The AESO is responsible for the planning and operation of the Alberta Interconnected Electric System, or the transmission grid. AESO plans the transmission system to connect generation capacity required to serve the growing demand for electricity. AESO's long-term outlook anticipates that generation capacity will be over 20,663 MW by 2022 (AESO 2012). AESO considers a range of factors when forecasting Alberta's electricity and transmission requirements, including population growth and industrial production growth, and it is the AESO's role to ensure that transmission infrastructure is in place ahead of increased demand to ensure reliability to existing and new customers (AESO 2013). Electricity is distributed in the Alberta socio-economic regions via transmission or distribution companies (e.g., AltaLink, Fortis).

Trans Mountain has identified that the Project will require an additional 37.5 MW of power in Alberta related to the proposed changes at pump stations. This need was brought forward to the AESO, and Trans Mountain supported AESO studies to determine how best to meet this new industrial need at the required level of reliability. In Alberta, a third party distribution company will apply to the appropriate provincial regulator for electrical facilities necessary to connect with the provincial transmission lines.

In BC, BC Hydro and Power Authority (BC Hydro), a Crown corporation, is responsible for the generation, purchasing, distributing and selling electricity. BC Hydro's primary source of generating capacity is from hydroelectric facilities (90.7% of generation in 2012). Other sources are thermal (8.9% in 2012) and diesel generation (0.4% in 2012) (BC Hydro 2012). BC Hydro also acquires power from Independent Power Producers. Independent Power Producers generate power from sources such as water (run-of-river facilities), wind, biomass and waste heat (BC Hydro 2013a). BC Hydro's transmission system consists of 292 substations and over 18,000 km of power lines and underwater submarine cables. The Lower Mainland and Vancouver Island are the primary consumers of electricity in the province (70% to 80%)

(BC Hydro 2013b). In 2012, the peak demand load of the BC electricity system was approximately 12,000 MW. BC Hydro's load forecast indicates that peak demand will grow to almost 16,000 MW by 2022 (before conservation measures) (BC Hydro 2013c). Load forecasting considers the anticipated needs of residential, commercial, and industrial customers. BC Hydro distributes electricity to most communities in the BC socio-economic regions. FortisBC is another electricity provider in BC. FortisBC owns and operates four hydroelectric generating plants and approximately 7,000 km of transmission and distribution power lines. FortisBC provides electrical service to the south central area of the province (FortisBC 2013).

Trans Mountain has identified that the Project will require an additional 16.9 MW of power in the BC North Thompson Region, 10.8 MW of additional power in the BC Kamloops Nicola Valley Region, and a reduction of 26.3 MW of power in the BC Lower Mainland Region related (a total incremental demand of 1.4 MW in BC) to the power needs of the additional and upgraded pump stations. In addition, the Burnaby Terminal expansion will have an incremental power demand of approximately 3.2 MW over current demand, and the Westridge Marine Terminal expansion will have an incremental power demand of approximately 2.7 MW over current demand. In BC, Trans Mountain will apply to the appropriate provincial regulator for electrical facilities necessary to connect with the provincial transmission lines. Once developed, any new transmission or distribution infrastructure will be transferred to BC Hydro.

Oil and gas pipeline crossings are discussed in Section 7.6.3, Minerals, Aggregates and Oil and Gas Resources.

8.2.1 Linear Infrastructure and Power Supply – Edmonton Region

According to the AESO (2012), electrical load in the region surrounding Edmonton is forecast to grow at an annual average of approximately 2.5% between 2011 and 2022. Growth in the area is predicted to be driven by residential, commercial and industrial development, specifically pipelines and unconventional oil production.

In order to meet the power needs of the Project in Alberta, a couple of new transmission and/or distribution upgrades are being explored, including new 138 kV transmission lines related to the Edmonton Terminal in the Edmonton Region.

In the Edmonton Region, the proposed pipeline corridor crosses identified transmission lines on 13 occasions (Table C-7 of Appendix C). A cluster of transmission line crossings occurs between RK 89 and RK 100.

The Strathcona County MDP promotes the use of pipeline/utility corridors for multi-use purposes (such as including municipal utilities, electrical transmission lines and communications infrastructure within these corridors) (Strathcona County 2007). The Edmonton MDP outlines municipal policies related to pipeline corridors, such as: develop a risk management approach; collaborate with the Edmonton Area Pipeline and Utility Operators' Committee ERCB; ensure development setbacks from pipelines; if possible, plan pipelines within other utility corridors. Within Edmonton, the proposed pipeline corridor mainly crosses through the TUC (City of Edmonton 2010). The Spruce Grove MDP plans for pipeline corridors within the context of the Capital Regional Growth Plan, and supports the protection of these corridors from incompatible development (City of Spruce Grove 2010). The Parkland County MDP states that (now) AER subdivision and setback regulations respecting pipelines will be adhered to when considering further development (Parkland County 2007). The Stony Plain MDP recognizes the requirement of setbacks from pipeline and utility rights-of-way, in accordance with the (now) AER regulations. The Stony Plain MDP also states that Area Structure Plans are required for new development and must address the environmental impacts and mitigation measures for incompatible land uses such as pipelines. The Stony Plain MDP encourages the joint use utility and transportation corridors in order to minimize impacts and fragmentation of other land uses.

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to linear infrastructure or power supply in the Edmonton Region.

- Strathcona County has utilities in the transportation utility corridor (TUC), which begins at RK 2 and will require crossing agreements; there are utility lines (approximately RK 6), including a deep sewer, (Mills pers. comm.).

8.2.2 Linear Infrastructure and Power Supply – Rural Alberta Region

According to the AESO (2012), electrical load in the region surrounding the Town of Edson and the Town of Hinton is forecast to grow at an annual average of approximately 2.5% between 2011 and 2022. Growth in the area is predicted to be driven by residential, commercial and industrial development, specifically pipelines and unconventional oil production.

In order to meet the power needs of the Project in Alberta, several new transmission and/or distribution upgrades are being explored, including new 138 kV transmission lines related to the Edson Pump Station in the Rural Alberta Region.

In the Rural Alberta Region, the proposed pipeline corridor crosses identified transmission lines on 21 occasions (Table C-7 of Appendix C). Clusters of transmission line crossings occur near RK 167 and RK 296.

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, no issues were identified with respect to linear infrastructure or power supply in the Rural Alberta Region.

8.2.3 Linear Infrastructure and Power Supply - Jasper National Park Region

The Municipality of Jasper is not connected to the Alberta power grid. Power is supplied by ATCO Electric using the Palisades natural-gas-fired power plant, in conjunction with a small hydroelectric generating station on the Astoria River (Municipality of Jasper 2013).

No new power lines will be required by the Project in the Jasper National Park Region. Activities at the Jasper Pump Station will result in a 1.7 MW increase in power usage.

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, no issues and concerns were identified with respect to linear infrastructure or power supply in the Jasper National Park Region.

8.2.4 Linear Infrastructure and Power Supply – Fraser-Fort George/Thompson-Nicola Region

BC Hydro distributes electricity to communities in the Fraser-Fort George/Thompson-Nicola Region. The Town of Princeton receives electricity from FortisBC (FortisBC 2013). North from Kamloops, BC Hydro operates a 138 KV circuit to Rearguard, north of Valemount. Between Kamloops and Rearguard, there are 16 substations (BC Hydro 2013b). BC Hydro operates a 138KV circuit power line, followed by a 69 KV circuit power line south of Kamloops to Merritt. BC Hydro is planning the Merritt Area Transmission Project to meet increased demand for power in the Merritt Area. The project includes a transmission line and substation in Merritt (BC Hydro 2013c).

In the Fraser-Fort George/Thompson-Nicola Region, the proposed pipeline corridor crosses identified transmission lines of 9 BC Hydro circuits on 17 occasions (Table C-8 of Appendix C). Clusters of transmission line crossings occur near RK 630 and RK 850. The Avola to Valemount circuit is crossed six times and the Brockhurst to Avola circuit is crossed four times.

Various municipalities crossed by the proposed pipeline corridor in Fraser-Fort George/Thompson-Nicola Region plan for linear infrastructure in their planning documents. The Blue River Plan Area is primarily used as a transportation Corridor, which includes linear infrastructure such as Trans Mountain's existing pipeline, BC Hydro electrical power transmission lines and Telus fiber optics cable. However, the Blue

River OCP states that land uses will be designated adjacent to these corridors in order to avoid conflict (TNRD 2011).

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to linear infrastructure and power supply in the Fraser-Fort George/Thompson-Nicola Region.

- BC Hydro noted they would review and approve placement of the pipeline in their property and would require assurance that the installation would not restrict future use or development in their property (Leonard, Lee pers. comm.).
- BC MFLNRO identified that the North Thompson has a need for power and that BC Hydro is looking to bring in an extra line to the area, with a connection at Blue River (McQueen, Lishman pers. comm.).
- There is concern regarding the capacity of the distribution line to serve the North Thompson region.
- At the Blue River Community Workshop, it was noted that a fibre-optic line exists near the railway.
- The City of Merritt identified that BC Hydro plans to double power supply to Merritt due to anticipated growth from industry (Noble pers. comm.).

8.2.5 Linear Infrastructure and Power Supply – Fraser Valley Region

BC Hydro distributes electricity to communities in the Fraser Valley Region. Between Hope and Abbotsford, there are various substations and 69 KV, 230 KV, 360 KV and 500 KV power line circuits (BC Hydro 2013b).

In the Fraser Valley Region, the proposed pipeline corridor crosses transmission lines of 11 BC Hydro circuits on 39 occasions (Table C-8 of Appendix C). The majority of the transmission line crossings occur between RK 1044 and RK 1080, where the proposed pipeline corridor parallels Highway 1 between the District of Hope and the City of Chilliwack. The Wahleach to Hope circuit is crossed 12 times and the Wahleach to Boston Bar circuit is 8 four times.

Various land use plans exist in the Fraser Valley Region, some of which provide direction for linear infrastructure. The FVRD Regional Growth Strategy supports minimizing the need to expand energy infrastructure (such as dams, power lines, pipelines). The RGS states that "the FVRD and local governments will strongly oppose the construction of additional energy infrastructure that is not in the best interest of the region" (FVRD 2004 page 37).

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, no issues and concerns were identified with respect to linear infrastructure or power supply in the Fraser Valley Region.

8.2.6 Linear Infrastructure and Power Supply – Metro Vancouver Region

BC Hydro distributes electricity to communities in the Metro Vancouver Region. Between Langley and Burnaby there are various substations and 69 KV, 230 KV and 500 KV power line circuits (BC Hydro 2013b). BC Hydro is planning the Interior to Lower Mainland Project to meet domestic load growth in the Lower Mainland. The project includes a transmission line between the Nicola Substation near Merritt and Coquitlam (BC Hydro 2013c).

In the Metro Vancouver Region, the proposed pipeline corridor crosses identified transmission lines of 14 BC Hydro circuits on 17 occasions (Table C-8 of Appendix C). The majority of the transmission line crossings occur near RK 1173, in the City of Coquitlam.

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to linear infrastructure and power supply in the Metro Vancouver Region.

- In the City of Surrey, the Project will require utility relocation agreements (Baron pers. comm.).
- The Township of Langley suggested it would be open to the Project paralleling municipal linear infrastructure (Seifi pers. comm.).
- The City of Surrey noted potential issues related to limitations to access municipal infrastructure in the vicinity of the pipeline (Daviduk pers. comm.).

8.3 Waste and Water Infrastructure

This subsection identifies existing waste and water infrastructure in the Socio-Economic RSA. The Project’s plans for water supply and waste management to meet its construction and operations needs are discussed in Project Design and Execution of Volume 4.

Trans Mountain has established relationships with landfills in Alberta and BC, some of which are within the Socio-Economic RSA, as noted in Table 8.3-1.

TABLE 8.3-1

LANDFILLS IN ALBERTA AND BRITISH COLUMBIA APPROVED FOR TRANS MOUNTAIN USE

Full Facility Name	Location	Facility Type
Edmonton Waste Management Centre (Cloverbar)	Edmonton, AB	Recycling, Landfill
Waste Management West Edmonton Landfill	Edmonton, AB	Landfill - Class II
Beaver Regional Waste Management Services Commission	Ryley, AB	Landfill - Class II, recyclables
West Dried Meat Lake Landfill	Ferintosh, AB	Landfill - Class II
Secure Energy Services South Grande Prairie Landfill	Grovedale, AB	Landfill - Class II
Tervita Tower Road Landfill (formerly CCS)	Carrot Creek, AB	Landfill - Class II
Ecowaste Richmond Landfill	Richmond, BC	Landfill; hazardous soil
Kamloops Municipal Landfill - Mission Flats	Kamloops, BC	Landfill; non-hazardous solid waste, recyclables
Kamloops Municipal Landfill - Barnhartvale	Kamloops, BC	Landfill; non-hazardous solid waste, recyclables
Tervita Silverberry	Fort St. John, BC	Landfill, landfarm
Newalta Fairview	Fairview, AB	Landfill

8.3.1 Waste and Water Infrastructure – Edmonton Region

A range of waste and water infrastructure exists in communities along the proposed pipeline corridor in the Edmonton Region.

The nearest solid waste facility to the Edmonton Region is the Edmonton Waste Management Centre (EWMC), owned and operated by the City of Edmonton. The EWMC is located in the northeast of Edmonton. Facilities located at the EWMC include the Integrated Processing and Transfer Facility, the Materials Recovery Facility, the Edmonton Composting Facility, the Global Electric and Electronic Processing Inc. Electrical and Electronic Waste Recycling Facility, a residential waste drop off station, the Construction and Demolition Recycling Operation, Clover Bar landfill and a leachate treatment plant. The Construction and Demolition Recycling Operation accepts mixed and segregated drywall, metals, wood, brush/trees, asphalt shingles and concrete (City of Edmonton 2013). The West Edmonton Landfill, located in the City of Edmonton, is operated by Waste Management Inc., and provides recycling services (Waste Management Inc. 2013).

Raw sewage from the City of Spruce Grove and the Town of Stony Plain is piped to Fort Saskatchewan where it is treated (Mustard, Frostad pers. comm.). Capacity is not high for waste management since

waste management systems were designed for residents. Construction and demolition waste goes to Edmonton, asphalt and concrete recycling goes to public works (Nicol pers. comm.). According to the Spruce Grove MDP, the proposed pipeline corridor crosses over one existing sanitary trunk main (approximately RK 60) and one future sanitary trunk main (approximately RK 61) (City of Spruce Grove 2010). According to the Stony Plain MDP, the proposed pipeline corridor crosses through existing trunk sanitary sewer (approximately RK 63), a proposed trunk sanitary sewer (approximately RK 64) (Armin A. Preiksaitis & Associates 2005).

The North Saskatchewan River watershed supplies all water to the City of Edmonton. Twelve sub-basins make up the river which is subject to the 1969 Prairie Provinces Water Board Master Agreement, stating that 50% of the natural flow of east-flowing rivers must flow into Saskatchewan. Municipal water use is expected to increase by 16% by 2025, with most growth occurring in the Edmonton Capital Region (EPCOR Water Services Inc. 2010).

According to the Spruce Grove MDP, the proposed pipeline corridor crosses over three water mains (approximately RK 58, RK 59 and RK 60) and one regional water line at approximately RK 61 (City of Spruce Grove 2010). Parkland County is a member of the Capital Region Parkland Water Services Commission, which recognizes that new storage reservoirs, pumping facilities and distribution mains may be needed. The Parkland County MDP also encourages new measures be explored to conserve water within the county (Parkland County 2007). According to the Stony Plain MDP, the proposed pipeline corridor crosses an area planned for a proposed water main route (approximately RK 64) (Armin A. Preiksaitis & Associates 2005).

The Village of Wabamun has switched to using groundwater from Wabamun Provincial Park. The water supply wells are located approximately 1 km south of the proposed pipeline corridor. A pipeline to supply water to the village was in construction as of October 2013 (During pers. comm.). In 2008, the Village of Wabamun (and 15 other municipalities) formed the West Inter Lake District Regional Service Commission, which provides and operates the regional water supply system (Village of Wabamun 2010).

Within the Edmonton Region, Swan Hills Treatment Centre accepts hazardous waste (Table 8.3-1).

A summary of solid waste, liquid waste and water infrastructure for communities within the proposed pipeline corridor of the Edmonton Region are presented in Table 8.3-2.

TABLE 8.3-2

**SOLID WASTE, LIQUID WASTE AND
 WATER INFRASTRUCTURE FOR CORRIDOR COMMUNITIES IN THE EDMONTON REGION**

Community	Solid Waste Infrastructure (Operator)	Information on Solid Waste Materials	Liquid Waste Sewage Treatment System	Water Source and Delivery System
City of Edmonton	West Edmonton Landfill (Waste Management Inc.)	<ul style="list-style-type: none"> Accepts range of waste streams including industrial, commercial, institutional, and construction/debris 	<ul style="list-style-type: none"> Gold Bar Wastewater Treatment Plant 	<ul style="list-style-type: none"> The North Saskatchewan River supplies all of the water to the City of Edmonton
	Edmonton Waste Management Centre	<ul style="list-style-type: none"> Construction and Demolition Recycling Operation accepts mixed and segregated drywall, metals, wood, brush/trees, asphalt shingles and concrete 		
	Swan Hills Treatment Centre	<ul style="list-style-type: none"> Accepts hazardous commercial waste 		
City of Spruce Grove	Spruce Grove Eco-Centre	<ul style="list-style-type: none"> Accepts recyclables, household hazardous waste, metals, and organic waste 	<ul style="list-style-type: none"> Raw sewage is piped to a facility in Fort Saskatchewan 	<ul style="list-style-type: none"> City water is piped from Edmonton and is stored in the reservoir

TABLE 8.3-2 Cont'd

Community	Solid Waste Infrastructure (Operator)	Information on Solid Waste Materials	Liquid Waste Sewage Treatment System	Water Source and Delivery System
Town of Stony Plain	Waste collection services provided by Ever Green Ecological Services, Inc.	<ul style="list-style-type: none"> Household waste, blue bag recycling and organics 	<ul style="list-style-type: none"> Raw sewage is piped to a facility in Fort Saskatchewan 	<ul style="list-style-type: none"> Town water is piped directly from Edmonton
Village of Wabamun	Waste collection services provided by Ever Green Ecological Services, Inc.	<ul style="list-style-type: none"> Household waste, blue bag recycling and organics 	<ul style="list-style-type: none"> Raw sewage is treated in a lagoon 	<ul style="list-style-type: none"> Currently water is from groundwater wells located approximately 1 km south of the proposed pipeline corridor. A water supply pipeline is under construction as of October 2013.

Sources: Alberta Community Profiles 2013, City of Edmonton 2013, City of Spruce Grove 2013, Town of Stony Plain 2013, During, Frostad, Mustard pers. comm., Waste Management Inc. 2013

8.3.2 Waste and Water Infrastructure – Rural Alberta Region

A range of waste and water infrastructure exists in communities along the proposed pipeline corridor of the Rural Alberta Region.

The Town of Edson has a sanitary lagoon in the east part of the town (approximately 500 m south of RK 228). Improvements to the Town of Edson sanitary lagoon are planned within the next five years. The Edson Landfill is a Class III, meaning it cannot accept wet waste. Residential waste is transported to the West Yellowhead Regional Landfill. The Town of Edson also has a large recycling depot. The Town of Edson identified the need for additional sewer capacity in the western part of the town if development is to continue (Lemieux pers. comm.).

There are 16 transfer stations located in Yellowhead County. Waste in Yellowhead County is hauled to the West Yellowhead Regional Landfill in the Town of Hinton (Ramme, Lyons pers. comm.). Water to hamlets is piped from the water treatment plant in the Hamlet of Peers. Each hamlet in Yellowhead County has its own water treatment facility, but not necessarily a distribution system (Ramme, Lyons pers. comm.).

Moose Creek Disposal Well, a saltwater disposal facility, is located east of the Town of Edson. The facility is operated by Tervita and accepts produced and waste water (Tervita 2012). According to the Yellowhead County MDP, poor quantity and/or quality of drinking water have been identified in some areas of Yellowhead County (Yellowhead County 2006). Potable water for the Town of Edson comes from aquifers. Water from the aquifers is pumped into storage tanks and natural elevation creates water pressure to provide service to most homes and businesses. Capacity is sufficient for approximately 10,500 people (Town of Edson 2006); in 2011 the population of the town was 8,475 (Statistics Canada 2012). The Edson MDP recommends that future development be in line with the extension of municipal utility services (Town of Edson 2006).

Within the Rural Alberta Region, the Tervita Tower Road Landfill accepts hazardous materials (Table 8.3-2).

Municipal water for the Town of Edson comes from approximately 10 wells which feed the distribution system. The wells are located within and outside of the municipal boundaries. There are ongoing studies to ensure the capacity. If a capacity increase is needed, new permits will be required in order to develop additional wells. Currently, the supply is good (aquifer is robust) (Lemieux pers. comm.).

See Section 7.7.2 Water Supply and Use for information on water use along the proposed pipeline corridor.

A summary of solid waste, liquid waste and water infrastructure for communities within the proposed pipeline corridor of the Rural Alberta Region are presented in Table 8.3-3.

TABLE 8.3-3
SOLID WASTE, LIQUID WASTE AND WATER
INFRASTRUCTURE FOR CORRIDOR COMMUNITIES IN THE RURAL ALBERTA REGION

Community	Solid Waste Infrastructure (Operator)	Information on Solid Waste Materials	Liquid Waste Sewage Treatment System	Water Source and Delivery System
Town of Edson	Edson Landfill	<ul style="list-style-type: none"> Capacity approximately 25 years Class III Landfill 	<ul style="list-style-type: none"> Most sewage runs south to a main trunk on the south side of the CN tracks or to the north side of the tracks and on to the sanitary lagoon site 	<ul style="list-style-type: none"> Groundwater in aquifers pumped into storage tanks adjacent to Grande Prairie Trail
	Tower Road Landfill (Tervita)	<ul style="list-style-type: none"> Class II Landfill 		
Town of Hinton	West Yellowhead Regional Landfill	<ul style="list-style-type: none"> Appliances, computers and electronics, grass clippings, leaves and garden refuse, used oil and paint aerosol and cans Toxic round-up storage containers are provided for residents Services the West Yellowhead Region, including the Municipality of Jasper Capacity is good, approximately 100 years 	<ul style="list-style-type: none"> Sewage treatment is provided by Hinton Pulp (a division of West Fraser Mills Ltd.). A sewer flushing program is provided. There are no provisions for the disposal of chemicals 	<ul style="list-style-type: none"> The Athabasca River provides water to the town. Reservoir design capacity is 13,636 m³

Sources: Ramme, Lyons, Lemieux pers. comm., Tervita 2012, Town of Edson 2006, Town of Hinton 2013

8.3.3 Waste and Water Infrastructure – Jasper National Park Region

Waste passes through the Jasper transfer station and is hauled to the West Yellowhead Regional Landfill located in the Town of Hinton (Section 8.3.2). In order to accommodate the summer tourist population, the Municipality of Jasper has waste capacity for over 25,000 people, thus there is substantial excess capacity for the population which is less than 5,000 (Read pers. comm.).

The municipal treatment plant treats wastewater from the Municipality of Jasper, the outlying park and commercial facilities. Effluent treated at the plant is discharged in the Athabasca River. The Municipality of Jasper identifies enhancing current storm water management practices through monitoring, public awareness programs and additional treatment as a key objective (Parks Canada 2010).

A summary of solid waste, liquid waste and water infrastructure for communities in the Jasper National Park Region are presented in Table 8.3-4.

TABLE 8.3-4

**SOLID WASTE, LIQUID WASTE AND WATER INFRASTRUCTURE
 FOR COMMUNITIES IN THE JASPER NATIONAL PARK REGION**

Community	Solid Waste Infrastructure (Operator)	Information on Solid Waste Materials	Liquid Waste Sewage Treatment System	Water Source and Delivery System
Municipality of Jasper	West Yellowhead Regional Landfill	<ul style="list-style-type: none"> • Passes through the Jasper transfer station and is hauled to the West Yellowhead Regional Landfill. 	<ul style="list-style-type: none"> • Waste Water Treatment Plant operated by Union Water. • Wastewater from the Municipality of Jasper and outlying park and commercial facilities is treated and effluent is discharged into the Athabasca River. 	<ul style="list-style-type: none"> • Water is pumped from three groundwater wells to a reservoir for storage and treatment. • Delivery system is a water pipe from the water reservoir.

Source: Parks Canada 2010, Pickle, Read pers. comm.

8.3.4 Waste and Water Infrastructure – Fraser-Fort George/Thompson-Nicola Region

A range of waste and water infrastructure exists in communities along the proposed pipeline corridor within the Fraser-Fort George/Thompson-Nicola Region.

TNRD provides solid waste services to all unincorporated and incorporated communities located within its boundaries, except the City of Kamloops. New landfills are being built by TNRD in the District of Clearwater and the District of Barriere. The existing Clearwater Landfill and Barriere Landfill began progressive closure in November 2012 (Gill pers. comm.). There is a contaminated soils facility in the City of Kamloops operated by HAZCO, and another near the City of Merritt that has some excess capacity (Gill pers. comm.).

The Village of Valemout has available sewer capacity. The Village of Valemout has a licence to discharge 1,500 m³ per day, but currently discharges up to 600 m³ per day. Power outages are an issue for lift stations (there are generators only on one lift station). The Village of Valemout has nine lift stations to move sewage. Grease also causes issues (LaBoucane pers. comm.). Valemout has a transfer station, and that waste is then hauled to Prince George (McCracken pers. comm.). RDFFG Landfill services the Village of Valemout. According to the Valemout OCP (2006), Valemout's main supply of water comes from Swift Creek, which the proposed pipeline corridor crosses at approximately RK 523. The water utility in Valemout is completely reliant on the supply from Swift Creek, they do not have an emergency supply (Village of Valemout 2006).

Streams and springs found within the Settlement/Agriculture RMZ of the Robson Valley LRMP (1999) are important sources for water for residents within the area. The Robson Valley LRMP mentions a 20 m reserve zone and 30 m machine-free management zone of domestic water intakes (within the Settlement/Agriculture RMZ) (BC ILMB 1999).

In the Community of Blue River, only a portion of the community is on the water system (Madden pers. comm.). Blue River has five principle water, which includes the Blue River and the North Thompson River (TNRD 2011). Residents in the Community of Blue River are on a septic system (Madden pers. comm.).

In the District of Clearwater, water supply is from several sources, including two groundwater well sources and a surface water source. Most of the community's drinking water is obtained from the surface water source, which consists of three sub-basins: Russell; Hascheak; and McDougall creeks. The two groundwater sources are the Clearwater River Water Supply Well No. 1 and the Dutch Lake Water Supply Well No. 2 (District of Clearwater 2012). The sewage infrastructure in the District of Clearwater is close to capacity, and it can only handle approximately 100-130 new houses (Groulx pers. comm.).

There are a range of waste infrastructure and services in the City of Kamloops, including: Kamloops Municipal Landfill (which includes the Mission Flats, Barnhartvale, or Heffley Creek landfills), an industrial

waste service facility and a bioremediation facility (Table 8.3-5). The proposed pipeline corridor crosses an area adjacent to the Mission Flats Landfill (at, approximately RK 848) (Fretz pers. comm.). No capacity issues regarding sewage treatment and solid waste were identified by the City of Kamloops (Fretz pers. comm.); the City of Kamloops has plans to upgrade its sewage treatment capacity. The city disposes wastewater primarily via a system of collection pipes that is treated at the Wastewater Treatment Plant located on Mission Flats Road. Mission Flats Road is the only access to the plant (Fretz pers. comm.). The proposed pipeline corridor crosses Mission Flats Road at RK 847.5. The Wastewater Treatment Plant system serves over 95% of the city's population (City of Kamloops 2011a). The remaining city population is served by unsewered, on-site systems referred to as septic tanks and disposal fields (City of Kamloops 2011b).

The City of Kamloops' water supply is from the South Thompson River (Fretz pers. comm.). The City of Kamloops' population relies on two public and two private water utilities. Most of the city's population (97%) is served by the public Main City system, the source of which is the South Thompson River. Water from the Main City system undergoes filtration and disinfection (City of Kamloops 2011c). The plant is currently close to maximum capacity, particularly in summer months (Fretz pers. comm.). The city is implementing a metering program to offset the need for major infrastructure enhancement, however, emergency intakes exist (Fretz pers. comm.). The second public water utility, serving less than 1% of the city's population is the Campbell Creek system, the source of which are wells. The two private water utilities are the Rayleigh and Heffley systems. The Rayleigh system serves 2% of the city's population and is sourced from the North Thompson River; the Heffley system serves less than 1% of the city's population and is sourced from wells (City of Kamloops 2011c).

In the City of Merritt, sewage treatment infrastructure has the capacity for 12,000 people (Merritt's population in 2011 was approximately 7,115). Sewer capacity is also good (O'Flaherty pers. comm.). According to the Merritt OCP, the proposed pipeline corridor crosses a potential sewage extension at approximately RK 930.6 (within the Joeyaska IR No. 2) (City of Merritt 2011a). The landfill for the community is located in the rural area of the TNRD and is operated by the TNRD. There is no transfer station in Merritt (O'Flaherty pers. comm.). The City of Merritt has one deep well and two shallow wells, that are the water source for the community. Two of the wells are running and one is for reserve.

A summary of solid waste, liquid waste and water infrastructure for communities along the proposed pipeline corridor of the Fraser-Fort George/Thompson-Nicola Region are presented in Table 8.3-5.

TABLE 8.3-5

SOLID WASTE, LIQUID WASTE AND WATER INFRASTRUCTURE FOR CORRIDOR COMMUNITIES IN THE FRASER-FORT GEORGE/THOMPSON-NICOLA REGION

Community	Solid Waste Infrastructure (Operator)	Information on Solid Waste Materials	Liquid Waste Sewage Treatment System	Water Source and Delivery System
RDFFG	Legrand Demolition and Construction Waste Landfill (RDFFG)	<ul style="list-style-type: none"> Land clearing debris as well as demolition and construction waste 	<ul style="list-style-type: none"> Three community sewer systems in operation; two in construction phase. Includes gravity feed or low-pressure collection mains, control valves and lagoons for storage and treatment 	<ul style="list-style-type: none"> Two groundwater source drinking water supply systems, established as local service areas
Village of Valemount	Valemount Regional Transfer Station	<ul style="list-style-type: none"> Tire recycling Yard and garden waste Small loads of demolition and construction waste; large loads can be arranged at the Legrand Landfill 	<ul style="list-style-type: none"> Sewers Nine lift stations to move sewage 	<ul style="list-style-type: none"> Supply of water comes from Swift Creek

TABLE 8.3-5 Cont'd

Community	Solid Waste Infrastructure (Operator)	Information on Solid Waste Materials	Liquid Waste Sewage Treatment System	Water Source and Delivery System
District of Clearwater	Clearwater Landfill	<ul style="list-style-type: none"> Residential collection Commercial collection Solid waste special services 	<ul style="list-style-type: none"> Sewers Sewage infrastructure is close to capacity 	<ul style="list-style-type: none"> Two groundwater well sources and a surface water source
City of Kamloops	Kamloops Municipal Landfill	<ul style="list-style-type: none"> All residential solid waste occurs at the Mission Flats, Barnhartvale, or Heffley Creek landfills. Mission Flats landfill has a wide range of diversion programs on-site Most Industrial, Commercial, and Institutional (ICI) waste disposal occurs at the Owl Road landfill 	<ul style="list-style-type: none"> Wastewater Treatment Plant (sewered) Septic tanks and disposal fields (unsewered, on-site) 	<ul style="list-style-type: none"> South Thompson River (97% of city population) Wells North Thompson River Two public and two private water utilities
	Kamloops Facility, Industrial Waste Services (Sumas Environmental Services, Inc.)	<ul style="list-style-type: none"> Oils and solvents Contaminated material Metal and non-metal bearing sludge 		
	Kamloops Bioremediation Facility (Tervita)	<ul style="list-style-type: none"> Accepts various types of contaminated soils including hydrocarbon, gasoline and diesel and heating oil 		
	Big Valley Waste Treatment Facility (Sumas Environmental Services Inc.)	<ul style="list-style-type: none"> Accepts heavily contaminated solids and sludges. Storage tanks are used for fuel recycling 		
City of Merritt	Lower Nicola Landfill (TNRD)	Unknown	<ul style="list-style-type: none"> Treatment infrastructure, sewers 	<ul style="list-style-type: none"> Groundwater via one deep and two shallow wells One well is for reserve

Sources: City of Kamloops 2011a,b,c, City of Kamloops 2013, District of Clearwater 2012, Groulx pers. comm., LaBoucane pers.comm., RDDFG 2012, Sumas Environmental Services Inc. n.d., Tervita 2012

8.3.5 Waste and Water Infrastructure – Fraser Valley Region

A range of waste and water infrastructure exists in communities along the proposed pipeline corridor in the Fraser Valley Region.

In the District of Hope, water supply is sourced from groundwater aquifer. The district uses septic tanks and septic fields in certain developments. Certain areas of Hope need general infrastructure upgrades, however, the district does not have any water or sewer capacity issues (Fortoloczky, Misumi pers. comm.). There are several municipal wells located in the vicinity of the existing TMPL right-of-way. Hope's wastewater treatment plant is designed for a population of 8,000 (Misumi pers. comm.) and thus has capacity as the population is approximately 6,000.

The Bailey Sanitary Landfill operated by the City of Chilliwack serves the City of Chilliwack, District of Kent, Village of Harrison Hot Springs and FVRD Electoral Areas D and E (City of Chilliwack 2013). In Chilliwack, the proposed pipeline corridor crosses the existing sanitary sewer system at approximately RK 1090.6 and RK 1097.6 and crosses a proposed sanitary system route at approximately RK 1098.6 (City of Chilliwack 1998). The City of Chilliwack may expand their sanitary sewer system to service residents in the communities of Rosedale and Yarrow (Sanderson pers. comm.). The City of Chilliwack does not accept commercial hazardous waste for disposal (City of Chilliwack 2013). In Chilliwack, the proposed pipeline corridor crosses several points of the existing community water system (City of Chilliwack 1998). It was noted that the proposed pipeline corridor crosses the Yarrow Waterworks District water system, which will be upgrading their infrastructure in the next ten years (Sanderson pers. comm.).

In the City of Abbotsford, the JAMES (Joint Abbotsford Mission Environmental Systems) Wastewater Treatment Plant services the City of Abbotsford, the District of Mission, East Langley (Aldergrove and Gloucester Industrial park) and the City of Sumas, Washington (City of Abbotsford 2013). The Abbotsford

Mission Water and Sewer Commission is responsible for the water supply to the City of Abbotsford and the District of Mission (Abbotsford Mission Water and Sewer Services 2011). According to the Abbotsford OCP, the proposed pipeline corridor crosses over Major City Water Supply Lines (approximately RK 1118.6, RK 1129.6 and RK 1131.6), a Proposed City Water Supply Line (approximately RK 1118.6), Joint Utilities Lines (approximately RK 1121.6 and RK 1126.6) and two Reservoirs (approximately RK 1117.6 and RK 1134.6) (City of Abbotsford 2005). Waste collected at the Matsqui Transfer Station is trucked to Cache Creek, as per agreements with Metro Vancouver (City of Abbotsford 2013). The proposed pipeline corridor also crosses waste infrastructure in Abbotsford, specifically over Sewer Trunk Mains (approximately RK 1119.6, RK 1122.6 and RK 1126.6) and a Trunk Sewer Upgrade (approximately RK 1122.6) (City of Abbotsford 2005).

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to waste and water infrastructure in the Fraser Valley Region.

- In the District of Hope, groundwater is the primary concern as it is the district’s water source (Susan Johnston pers. comm.).
- In the City of Chilliwack, the potential effects of an accident or malfunction on groundwater were raised as a concern (Blain pers. comm.).
- In the City of Chilliwack, possible impacts of the new pipeline on municipal infrastructure, specifically waterlines (Blain pers. comm.).

A summary of solid waste, liquid waste and water infrastructure for communities along the proposed pipeline corridor of the Fraser Valley Region are presented in Table 8.3-6.

**TABLE 8.3-6
SOLID WASTE, LIQUID WASTE AND WATER INFRASTRUCTURE
FOR CORRIDOR COMMUNITIES IN THE FRASER VALLEY REGION**

Community	Solid Waste Infrastructure (Operator)	Information on Materials	Liquid Waste Sewage Treatment System	Water Source and Delivery System
District of Hope	District of Hope Landfill (District of Hope)	Unknown	<ul style="list-style-type: none"> • Septic tanks and septic fields in certain areas • Wastewater treatment plant is designed for a population of 8,000 	<ul style="list-style-type: none"> • Groundwater aquifer
City of Chilliwack	Bailey Sanitary Landfill (City of Chilliwack)	<ul style="list-style-type: none"> • Hazardous waste, special waste, biomedical waste, waste oil and others are not accepted 	<ul style="list-style-type: none"> • Sanitary sewer 	<ul style="list-style-type: none"> • Sardis-Vedder Aquifer • Yarrow Waterworks District is a private water system that serves the Yarrow community
City of Abbotsford	Matsqui Transfer Station (Wastech Services Ltd., on behalf of Metro Vancouver)	<ul style="list-style-type: none"> • Solid waste disposal regulations prohibit materials such as tight-head barrels, dangerous goods/hazardous waste, liquids and sludges, radioactive materials, etc. • Some materials accepted with restrictions include: construction and demolition waste, fill materials, compressed gas cylinders, paint, resin and chemical containers, etc. 	<ul style="list-style-type: none"> • Sanitary sewer system • JAMES Wastewater Treatment Plant (owned and operated by City of Abbotsford and District of Mission) 	<ul style="list-style-type: none"> • Primary: Norrish Creek (north-east of Mission). Secondary: Cannell Lake (north of Mission) and 12 groundwater wells in Abbotsford-Sumas aquifer • Abbotsford/Mission water supply-transmission mains deliver water to Abbotsford which operates a water distribution system

Sources: City of Abbotsford 2013, City of Chilliwack 2013, Dayton and Knight Ltd. 2006, Sanderson pers. comm., Vaughan pers. comm., Wastech n.d.

8.3.6 Waste and Water Infrastructure – Metro Vancouver Region

A range of waste and water infrastructure exists in communities along the proposed pipeline corridor in the Metro Vancouver Region.

Metro Vancouver is responsible for operating the regional district's waste management system which includes transfer stations, an incinerator and landfills. Metro Vancouver is also responsible for coordinating recycling and solid waste planning for the regional district (Metro Vancouver 2011a). Solid waste disposal regulations prohibit materials such as inert fill material, solvents and flammable liquids, hazardous waste and sludges, among others (Metro Vancouver 2011a, City of Burnaby 2013). The Township of Langley is a part of the new Metro Vancouver material disposal ban and Zero Waste Challenge both intended to aid in the reduction of disposed waste (Township of Langley 2013). In Metro Vancouver, the transfer stations store solid waste and screens the waste for hazardous and recyclable materials (Metro Vancouver 2011a, City of Surrey 2013). The solid waste garbage is then loaded into large trucks and hauled to the Cache Creek Landfill, Vancouver Landfill or the Burnaby Waste-to-Energy Facility (Metro Vancouver 2011a, City of Surrey 2013). At the Coquitlam Transfer Station, the Coquitlam Resource Recovery Plant recycles wood waste and green waste and accepts reclaimable wood (Wastech n.d.).

The Integrated Solid Waste and Resource Management, a Solid Waste Management Plan outlines goals and strategies for the regional district to develop their waste management system following Metro Vancouver's Sustainability Framework (Metro Vancouver 2010b). The Waste-to-Energy Facility in Burnaby receives waste from Burnaby, New Westminster and the North Shore and disposes 25% of Metro Vancouver's waste (Metro Vancouver 2012b).

The Greater Vancouver Sewerage and Drainage District (GVSD) is a corporate entity that operates under the Metro Vancouver name (Metro Vancouver 2011a). GVSD operates and maintains the regional network of trunk sewers, pump stations, wastewater treatment plants and as part of regular annual operations, conducts routine scheduled maintenance of the collection system (City of Surrey 2011b, Metro Vancouver 2011a). Wastewater Treatment Plants operated by Metro Vancouver and used by communities within the proposed pipeline corridor include the following.

The Annacis Island Wastewater Treatment Plant located in Delta, BC. It is Metro Vancouver's largest plant and provides secondary wastewater treatment to 12 municipalities in the regional district. It discharges into the Fraser River (City of Coquitlam 2013, Metro Vancouver 2011a).

The Iona Island Wastewater Treatment Plant is located in Richmond, BC and provides primary wastewater treatment to three municipalities in the regional district (Metro Vancouver 2011a).

The Northwest Langley Wastewater Treatment Plant provides secondary wastewater treatment to the Walnut Grove area of the Township of Langley (Metro Vancouver 2011a).

Municipal members of the GVSD own and maintain collector sewers, implement municipal actions set out in the regional liquid waste management plan, manage stormwater systems, report on their progress of municipal actions from the regional liquid waste management plan and set local land use plans and community development standards (City of Surrey 2011b). The City of Burnaby is working towards eliminating the combined storm and sanitary sewer system since overflows during wet periods exceed the capacity of the current combined system and excess flows to the Burrard Inlet and Fraser River (City of Burnaby 2013). The Township of Langley's website indicates it is currently seeking to improve their sewer system infrastructure and maintenance (Township of Langley 2013). According to the Langley OCP, the proposed pipeline corridor crosses both the existing sewer system (approximately RK 1154.6) and areas zoned for expansion of the sewer system (approximately RK 1151.6) (Township of Langley 1979). The Integrated Liquid Waste and Resource Management, A Liquid Waste Management Plan outlines goals and strategies for Metro Vancouver regarding liquid waste management (Metro Vancouver 2010a).

The Greater Vancouver Water District (GVWD) is a corporate entity that operates under the Metro Vancouver name (Metro Vancouver 2011b). The GVWD is responsible for acquiring and maintaining water supply, water treatment and delivery to municipalities, while municipalities are responsible for distributing the water to residences and other buildings (Metro Vancouver 2011b). Water connections between the Township of Langley, Langley City, the City of Abbotsford, and the City of Surrey exist for emergency purposes. Groundwater is supplied by municipal water wells in the Township of Langley (Township of Langley 2011b). According to the Langley OCP, the proposed pipeline corridor crosses the

existing water system (approximately RK 1149.6) and areas zoned for the expansion of the water system (approximately RK 1151.6) (Township of Langley 1979). In order to provide consistent water supply to Surrey users, the City of Surrey operates pump stations to provide adequate pressure under peak demand conditions and for emergency purposes (City of Surrey 2011b).

The City of Surrey has no current issues regarding water or waste capacity. It was noted that past projects have used the Fraser River water for construction work and that waste discharge permits are required through Metro Vancouver (Baron pers. comm.). The City of Surrey has approximately 776 ha of developed land in the Fraser River floodplain, which includes a combination of high-density industrial and residential properties (City of Surrey 2013). In order to protect this area, the City has a system of dykes that includes concrete flood walls, earthdykes, raised ground and crossing structures (City of Surrey 2013). This area is also serviced by pump stations that drain rainwater or groundwater from behind the dykes when the river level is high (City of Surrey 2013).

Within the Metro Vancouver Region, the following hazardous materials facilities are located in communities crossed by the proposed pipeline corridor: Newalta Surrey facility; and Sumas Environmental Services Inc. Burnaby Waste Treatment Facility (Table 5.5-6).

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to waste and water infrastructure in the Metro Vancouver Region.

- Concern that municipal infrastructure, such as drinking water infrastructure and pipe crossing, would be impacted was raised at the Surrey ESA Workshop.
- Surrey is currently working with the province to expand the Fraser River dyke system (it was noted that the dyke system will cross the existing Trans Mountain right-of-way if it expands. The dyke system currently does not cross the existing Trans Mountain right-of-way). The dyke expansion project is to be completed by 2014 (Baron pers. comm.).
- Metro Vancouver is planning a large sanitary line twinning in Surrey with the aim to start construction in 2013, lasting several years (Baron pers. comm.).

A summary of solid waste, liquid waste and water infrastructure for communities in the proposed pipeline corridor of the Metro Vancouver Region are presented in Table 8.3-7.

TABLE 8.3-7

**SOLID WASTE, LIQUID WASTE AND WATER INFRASTRUCTURE
FOR CORRIDOR COMMUNITIES IN THE METRO VANCOUVER REGION**

Community	Solid Waste Infrastructure (Operator)	Information on Materials	Liquid Waste Sewage Treatment System	Water Source and Delivery System
Township of Langley	Langley Residential Transfer Station (SSG Holdings Ltd. on behalf of Metro Vancouver)	<ul style="list-style-type: none"> Solid waste disposal regulations prohibit materials such as inert fill material, solvents and flammable liquids, hazardous waste and sludges, among others 	<ul style="list-style-type: none"> GVSD, Fraser sewerage area Annacis Island Wastewater Treatment Plant and Northwest Langley Wastewater Treatment Plant 	<ul style="list-style-type: none"> Coquitlam Lake and municipal wells
City of Surrey	Surrey Transfer Station (Wastech Services Ltd., on behalf of Metro Vancouver)	<ul style="list-style-type: none"> Solid waste disposal regulations prohibit materials such as tight-head barrels, dangerous goods/hazardous waste, liquids and sludges, radioactive materials, etc. Some materials accepted with restrictions include: construction and demolition waste, fill materials, compressed gas cylinders, paint, resin and chemical containers, etc. 	<ul style="list-style-type: none"> GVSD, Fraser sewerage area Annacis Island Wastewater Treatment Plant 	<ul style="list-style-type: none"> Reservoirs operated by the GVWD A system of transmission mains and reservoir structures operated by the GVWD. Water delivery programs include supply works and feeder mains and distribution mains. Supply works and feeder mains are essential facilities to store, pump, and transfer water from the supply points to the local distribution and distribution mains are smaller lines along Surrey's grid roads
	Surrey facility (Newalta)	<ul style="list-style-type: none"> Services include wastewater treatment, waste fuel recovery and processing, sludge and slop oil processing, spill waste treatment and waste solids management 		
City of Coquitlam	Coquitlam Transfer Station (Wastech Services Ltd., on behalf of Metro Vancouver)	<ul style="list-style-type: none"> Solid waste disposal regulations prohibit materials such as tight-head barrels, dangerous goods/hazardous waste, liquids and sludges, radioactive materials, etc. Some materials accepted with restrictions include: construction and demolition waste, fill materials, compressed gas cylinders, paint, resin and chemical containers, etc. 	<ul style="list-style-type: none"> GVSD, Fraser sewerage area Annacis Island Wastewater Treatment Plant 	<ul style="list-style-type: none"> Capilano, Seymour and Coquitlam mountain reservoirs Pipes, pump stations and water tanks
City of Burnaby	Waste-to-Energy Facility (Covanta Burnaby Renewable Energy, ULC on behalf of Metro Vancouver)	<ul style="list-style-type: none"> Solid waste disposal regulations prohibit materials such as inert fill material, solvents and flammable liquids, hazardous waste and sludges, among others 	<ul style="list-style-type: none"> GVSD, Fraser and Vancouver sewerage areas Annacis Island Wastewater Treatment Plant and Iona Island Wastewater Treatment Plant 	<ul style="list-style-type: none"> Majority from Capilano and Seymour reservoirs Largely gravity fed, with 4 water reservoirs, 4 water pump stations, and 21 pressure-reducing valve stations to control and regulate water pressures for users and for emergency use
	Burnaby Waste Treatment Facility (Sumas Environmental Services Inc.)	<ul style="list-style-type: none"> Accepts special waste (Transportation of Dangerous Goods Classes 2 to 9), hydrocarbon contaminated soil, waste water and waste oil 		

Sources: City of Burnaby 2013, City of Coquitlam 2013, City of Surrey 2011b, 2013, Metro Vancouver 2011a, Newalta 2012, Sumas Environmental Services Inc. n.d., Township of Langley 2011b, Wastech n.d.

8.4 Housing

This subsection describes the housing capacity and characteristics, focusing on communities along the proposed pipeline corridor. Communities along the proposed pipeline corridor are more likely to be chosen as places for temporary accommodation by temporary workers where construction camps are not used. The discussion of housing includes the private housing market, rental accommodations and temporary accommodations (e.g., hotels, motels, inns, campgrounds etc.). Housing starts are the number

of residential units for which construction has begun and housing completion is the stage at which all proposed construction work on a residential unit has been completed. Traditional use activities associated with camping are addressed in the Traditional Land and Resource Use Technical Report (Volume 5D).

8.4.1 Housing – Edmonton Region

The Edmonton Region has experienced rapid population growth over the past 5 years (Section 6.1). As a result, residential development within the Edmonton Region has also increased. The private housing market in the Edmonton Region is large in certain areas (City of Edmonton) and small in others (City of Spruce Grove). Local municipal officials and real estate professionals indicate that there is a housing crunch in the region with limited rental accommodation available (Berry pers. comm.). Data indicate that, as of 2012, there was a rental vacancy rate of 1.7% in the City of Edmonton, 1.5% in the City of Spruce Grove and 3.9% in the Town of Stony Plain (CMHC 2012a). There is a large temporary housing market in the Edmonton Region; with approximately 15,000 hotel rooms and over 10 campgrounds with over 1,100 sites in the surrounding area.

Private housing, rental accommodation and commercial accommodation data for the Edmonton Region is presented in Tables C-9, C-11 and C-13, respectively, in Appendix C (including data for all Socio-Economic RSA communities, where available).

Strathcona County

In Strathcona County, there were 668 housing starts in 2012, a 16.2% increase from 2011 (CMHC 2013c). There were also 813 completions in 2012, which represented a 28.4% increase from 2011 (CMHC 2013c). In 2012, Strathcona County had the highest overall average rent in the Edmonton CMA, at \$1,103 per month (CMHC 2012a).

Strathcona County encourages the development of more affordable, higher density housing in the county, especially in urban neighbourhoods (Strathcona County 2007). Strathcona County also encourages a mixture of housing types in all residential neighbourhoods that will address the different economic and lifestyle needs of its residents (Strathcona County 2007).

City of Edmonton

The City of Edmonton has a large private housing market. In the City of Edmonton, there were 324,756 occupied private dwellings in 2011, 64.9% of which were owned (Statistics Canada 2013a). In 2012, there were 1,538 new residential listings in the City of Edmonton (Edmonton Real Estate Board 2013). In the City of Edmonton, there were 9,488 housing starts in 2012, which represented a 54.7% increase from 2011 and 6,723 completions, which represented a 23.8% increase from 2011 (CMHC 2013c). The city issued building permits for 9,533 residential units in 2012 and 7,460 residential units in 2011 (City of Edmonton 2013a). In 2012, the average price of a residential dwelling in the city was \$225,525 for a single family detached residence and \$213,037 for a condominium (Edmonton Real Estate Board 2013). Average rent for accommodations marginally increased (3.1%) from 2011 to 2012 (CMHC 2012a).

There is a wide range of commercial accommodation available in the City of Edmonton. There are over 13,000 units in more than 50 hotels, motels and inns (City of Edmonton 2013, Edmonton Tourism 2013). There are 5 known campgrounds/RV parks with approximately 700 sites in the Edmonton area (Reid pers. comm.).

City of Spruce Grove

In City of Spruce Grove, there were 553 housing starts in 2012, a 27.7% increase from 2011 (CMHC 2013c). In 2012, the City of Spruce Grove saw 369 completions, the same number as 2011 (CMHC 2013c). There were 40 residential (includes single family detached, condominiums, duplexes, row houses, vacant lots, parking spaces, mobile homes, etc.) sales in 2012. In 2012, the average price of residential dwellings was \$330,213 (Edmonton Real Estate Board 2013). Average rent for accommodations marginally increased (1.7%) from 2011 to 2012 (CMHC 2012a).

The City of Spruce Grove has approximately two hotels, motels or inns and an additional hotel is being constructed (Berry pers. comm.). The new Diamond Grove RV Campground is scheduled to open in mid-2013 offers 247 fully serviced stalls, a sani-dump facility, washrooms, showers and a common amenity area (City of Spruce Grove 2013). The city identified that temporary accommodation has limited availability and that the rental vacancy rate is approximately 3%. Once the Diamond Grove RV Campground is built, it was noted that the City of Spruce Grove will have some long-term sites available (Irving, Butterfield pers. comm.). Another RV park is located just north of Stony Plain IR 135 and may be an option for construction crews; however, it is typically at full occupancy (Berry pers. comm.).

Most of the growth within the City of Spruce Grove is occurring in the northwest and northeast sections (Irving pers. comm.). Growth in Spruce Grove is a result of inexpensive land as well as an updated transportation system, resulting in decreased driving times to Edmonton (Irving pers. comm.). Due to the fact that the Project will be removed from the existing residential centre of the city, concerns related to existing housing infrastructure are not anticipated (Irving, Mustard, Butterfield pers. comm.). However, the city identified that there are residential and industrial plans to develop the southern portion of the city and, therefore, the current location of the proposed pipeline corridor is viewed as an encumbrance (Irving pers. comm.).

During consultation, it was noted that the City of Spruce Grove is experiencing a housing shortage, and there is limited rental accommodation (Berry pers. comm.). Previous work camps established in Parkland County for other projects have not been well received by some residents of the city. When work camps are used, there can be issues related to Yellowhead County receiving the economic benefit of such a camp while the community experiencing social consequences due to workers coming into town (Berry pers. comm.). However, an increased population due to construction workers in the city could result in increased rents, thereby reducing the availability of low income housing (Berry pers. comm.).

There are currently two hotels in the City of Spruce Grove. One new hotel in the City of Spruce Grove is coming, but it wouldn't house 200 workers and that's not its intended purpose. There is an RV Park just north of Stony Plain IR 135 with workers who live there. Trailer courts and camp sites are generally full.

Town of Stony Plain

The Town of Stony Plain identified that there was a population growth trend in 2006/2007, but it has slowed since 2008. Population growth within the Town of Stony Plain is occurring mainly in the east and south toward the City of Spruce Grove (Frostad pers. comm.). A modular home development is located approximately 1 km south of existing RK 66.2, a sewer trunk was put through existing RK 67 to RK 68 so there is potential in that area for increased development (Frostad pers. comm.).

In the Town of Stony Plain, there were approximately 5,820 occupied private dwellings in 2011, 77.0% of which were owned (Statistics Canada 2013b). In 2012, the average price of residential dwellings in the Town of Stony Plain was \$256,423 (Edmonton Real Estate Board 2013). There were 20 residential sales in 2012 (which includes single family detached, condominiums, duplexes, row houses, vacant lots, parking spaces, mobile homes etc.). There were 177 housing starts in 2012, a 71.8% increase from 2011 (CMHC 2013c). In 2012, the town saw 127 completions, a 54.5% decrease from 2011 (CMHC 2013c). The town issued building permits for the construction of 177 residential units in 2012 and 124 residential units in 2011 (Town of Stony Plain 2013). Average rent for accommodations increased (4.9%) from 2011 to 2012 (CMHC 2012a).

Through technical discussions with the Town of Stony Plain, it was identified that most of the residents commute to Edmonton, with only approximately 40% staying in the town to work. Many residents travel west to work at coal and power plants. The Town of Stony Plain is aiming to build a light industrial area in the north of town in order to keep residents working in the Town of Stony Plain. A large number of individuals also work in Fort McMurray and bus back and forth (Frostad pers. comm.).

The town has two campgrounds/RV parks: the Camp'N'Class RV Park has 77 sites available and the Lions' RV Park and Campground has 53 sites. These campgrounds/RV parks are well used and both provide some sites that are used in all four seasons (Clause pers. comm.). There is a demand for RV

campground developments in the region because of the number of people working in and around the Town of Stony Plain (Frostad pers. comm.). The town has approximately six hotels, motels or inns (Town of Stony Plain 2013). There have been four hotels/motels built within the last 8 years and there are currently approximately 800 rooms available at hotels/motels. Most hotels/motels are typically at capacity because of transient workers. Since hotels/motels are far enough from residential areas, no issues related to transient workers staying in the Town of Stony Plain were identified (Frostad pers. comm.).

Additionally, it was noted that the Town of Stony Plain does not have any experience with construction camps. The Town of Stony Plain would prefer worker integration rather than a construction camp if the workers were to be housed within the boundaries of the town (Clause pers. comm.).

Village of Wabamun

According to the Wabamun MDP, there were 245 housing units within Wabamun, 69.4% of which were owner occupied in 2010 (Village of Wabamun 2010).

The Village of Wabamun has three hotels, motels or inns, one bed and breakfast and camping amenities at the Wabamun Lake Provincial Park (Village of Wabamun 2011). Wabamun Lake Provincial Park camping facilities are open yearly from May 1 to October 31 and offer 166 unserviced and 109 power campsites (ATPR 2012).

The Village of Wabamun identified that there are currently 4.5 ha of TransAlta's housing land that is vacant (Hannah pers. comm.). No additional issues related to the private housing market were identified by the Village of Wabamun.

Hamlet of Entwistle

The Hamlet of Entwistle has three hotels, motels or inns. Camping facilities at Pembina River Provincial Park, located 1.5 km from RK 134.0, cater to both Entwistle and Evansburg. Pembina River Provincial Park offers 132 individual campsites, 32 power sites, a modern shower house and a large group-use area (Evansburg and Entwistle 2012).

8.4.2 Housing – Rural Alberta Region

The Rural Alberta Region experienced rapid growth in 2007/2008, related to the oil and gas boom. Since that time, growth has declined, and, as a result, residential development within the Rural Alberta Region has also declined. Local municipal officials and real estate professionals indicate that there are rooms to accommodate workers within the Rural Alberta Region, and temporary workers are common in the region related to resource extraction activity. The rental housing market in Rural Alberta Region generally has capacity. Data indicates that, as of 2012, there was a rental vacancy rate of 9.4% in the Town of Edson and 7.7% in the Town of Hinton (Alberta Municipal Affairs 2011). There is a large temporary housing market in the Rural Alberta Region; with approximately 2,000 hotel rooms and over 20 campgrounds in the surrounding area.

Private housing, rental accommodation and commercial accommodation data for the Rural Alberta Region is presented in Tables C-9, C-11 and C-13, respectively, in Appendix C.

Yellowhead County

In Yellowhead County, there were 57 housing starts in 2012, a 39% increase from 2011 (CMHC 2013d). In 2012, Yellowhead County saw 54 completions, a 25.6% increase from 2011 (CMHC 2013d).

According to the Yellowhead County MDP, the county supports the development of manufactured homes within the Foothills Policy Area, the Mountain View Policy Area, and the Rural Policy Area (Yellowhead County 2006).

Hamlet of Evansburg

The Hamlet of Evansburg has two hotels/motels. The Pembina River Provincial Park with 132 sites caters to both Entwistle and Evansburg (Evansburg and Entwistle 2012).

Town of Edson

In the Town of Edson, there were 3,390 occupied private dwellings in 2011, 68.0% of which were owned (Statistics Canada 2013b), and 92 new residential listings in 2012. In 2012, the average price of a single family dwelling was \$310,731 (Atfield pers. comm.). Through technical discussions with the West Central Alberta Real Estate Board, it was noted that inventory for residential listings is low in the Town of Edson, which puts a strain on the market. The Town of Edson is an older community with older homes and a few new subdivisions. In 2012, the housing market experienced growth associated with an increased demand for private housing (Atfield pers. comm.). It was noted that the Town of Edson has a growing number of temporary foreign workers; there are anecdotes of crowding issues with regards to housing of temporary foreign workers, with sometimes 6 to 8 people residing a property (Lemieux pers. comm.).

During the last boom (2007/2008), there were a number of temporary camps in the area due to a lack of availability at hotels and motels. As of 2012, there was some hotel capacity available to house workers (Ramme pers. comm.). In order to ensure a benefit to local hotels/motels, temporary camps are discouraged in the town; the preference is to ensure that local hotels and other accommodation options are at capacity before a camp is considered (Lemieux, Butler pers. comm.). There is a wide range of commercial accommodation available. There are over 1,000 units in approximately 20 hotels, motels or inns. There are also over 20 campgrounds with more than 300 outdoor camping and full hook-up sites in or close to the Town of Edson (Town of Edson 2013). There are no plans for any further hotel development within the town. Hotels in the Town of Edson tend to be busy over the winter months (approximately 90% capacity), due to industrial activity (Lemieux pers. comm.). At the Edson Community Workshop, it was noted that the Hornbeck campground, located west of the Town of Edson near the Edson Pump Station, is often at capacity.

The Town of Edson identified that it has a sizeable rental housing market, and it is growing due to an increasing number of residents renting out rooms and basements. The renting of rooms has changed neighbourhoods in the town (e.g., parking issues, aesthetics and dynamics). (Lemieux pers. comm.). The average rent in Edson increased slightly (0.8%) from 2010 to 2011 (Alberta Municipal Affairs 2011). The Edson MDP acknowledges that there are many young single workers within Edson who work for the town's resource industries, and as such, recognizes the importance of providing affordable housing to meet future demands (Town of Edson 2006).

Within the Town of Edson, land use along the proposed pipeline corridor is predominately residential along the northern portion and predominately commercial/light industrial along the southern portion. There is a new residential development near the proposed pipeline corridor (Hillendale Phase II, 108 lots, 2 apartments and some multiplex lots). In November 2012, the Hillendale Phase II development was 60% complete. Land in the west of the town is not serviced by municipal sewer or water so there is limited development (Lemieux pers. comm.).

Town of Hinton

In the Town of Hinton, there were 3,780 occupied private dwellings in 2011, 75.9% of which were owned (Statistics Canada 2013b). There were 70 new residential listings in 2012 and the average price of a single family dwelling was \$388,731 (Atfield pers. comm.). In addition, there were 22 housing starts in 2012, the same as 2011 (Town of Hinton 2013). The town issued 156 development permits in 2012 and 205 in 2011 (Town of Hinton 2013). As of 2013, the town presently had approximately 160 subdivision applications under review. These applications include a mix of residential, single and multiple family uses (Lukasiewicz pers. comm.). Apartment vacancy is at approximately 2% and there have been no new apartments built in the last 15 years (Kreiner pers. comm.). The average rent for accommodations in the town increased by 3.7% from 2010 to 2011 (Alberta Municipal Affairs 2011). There is limited affordable housing in the community, and demand for housing continues to grow (Atfield pers. comm.).

Within the Town of Hinton, high-rises are located directly south of the existing TMPL right-of-way, approximately 1 km from the eastern limit of the town (Kreiner pers. comm.).

The Town of Hinton has a wide range of commercial accommodation. During and after the boom in 2007/2008, many hotels/motels were built and are now operating at a high vacancy rate (60-70%); therefore, there is capacity available for workers (Atfield pers. comm.). There are approximately 800 rooms and 1,200 beds available in hotels/motels in the Town of Hinton (Kreiner pers. comm.). If Project construction occurs at the same time as the construction of the Coalspur mine, there could be capacity issues (Kreiner pers. comm.). During the 2007/2008 boom, it was noted that a number of temporary camps were built, due to the lack of hotels/motels at the time. In order to benefit local hotels/motels, temporary camps are currently discouraged in the Town of Hinton (Kreiner pers. comm.).

During consultation, it was noted that Hinton is not planning for additional residential development. It was noted that the Vista Coal Mine Project could bring in about 400 new families, but anticipate having its own areas for housing development (Engerdahl pers. comm.). During past oil booms, some companies have purchased apartment buildings and evicted their residents in order to provide housing for workers. Locals were displaced which created resentment in the community (Engerdahl pers. comm.).

8.4.3 Housing – Jasper National Park Region

The Jasper National Park Region has experienced a decline in population over the period from 2006 to 2011. Development within the Jasper National Park Region is limited and therefore has remained relatively constant. In Municipality of Jasper, the average rent for accommodations marginally increased (1.5%) from 2010 to 2011 (Alberta Municipal Affairs 2011). According to the Jasper National Park Management Plan, a key action is to work with outlying commercial accommodations and hostels on opportunities for learning that are consistent with the area's key themes (Parks Canada 2010).

Private housing, rental accommodation and commercial accommodation data for the Jasper National Park Region is presented in Tables C-9, C-11 and C-13, respectively, in Appendix C.

Local officials indicate that construction for the TMX Anchor Loop Project had a notable impact on the housing market in the Municipality of Jasper. There was a substantial increase in housing prices and rental rates, which have not notably declined. It was noted that the TMX Anchor Loop Project changed people's expectations about housing values. Some residents were displaced and had to leave town. Many services could not retain staff due to a lack of housing availability (Waterworth pers. comm.).

The Municipality of Jasper has approximately 20 hotels/motels and 1,500 rooms. Hotels in Jasper are often at full capacity during the summer months (Waterworth pers. comm.). During the winter months hotels in Jasper typically have availabilities (Jenkins pers. comm.). There are a limited number of rental units available in the Municipality of Jasper (Mitchell pers. comm.).

People are not allowed to occupy a house in the Municipality of Jasper unless they are working in the municipality, according to a Parks Canada regulation. Therefore, the Municipality of Jasper cannot be used as a staging area for workers if activities are not occurring in Jasper. Workers can reside in Jasper hotels and work elsewhere (Jenkins pers. comm.). Parks Canada does not allow work camps and the longest allowable stay in a campground in the Jasper area is two weeks (Jenkins, Mitchell pers. comm.).

8.4.4 Housing – Fraser-Fort George/Thompson-Nicola Region

The Fraser-Fort George/Thompson-Nicola Region has experienced average population growth over the period from 2006 to 2011. As a result, residential development within the Fraser-Fort George/Thompson-Nicola Region has also remained consistent. The rental housing market in the Fraser-Fort George/Thompson-Nicola Region is generally limited, with little to no vacancy in most communities. The TNRD RGS aims to provide an adequate range of housing options to people within the region (TNRD 2000). There is a large temporary housing market in the Fraser-Fort George/Thompson-Nicola Region; with approximately 4,000 hotel rooms and over 20 campgrounds with over 900 sites in the surrounding area.

Private housing, rental accommodation and commercial accommodation data for the Fraser-Fort George/Thompson-Nicola Region is presented in Tables C-10, C-12 and C-14, respectively, in Appendix C.

Village of Valemount

In the Village of Valemount, there were 475 occupied private dwellings in 2011, 73.7% of which were owned (Statistics Canada 2013a). There are many absentee owners in the Village of Valemount who return in the summer or winter (Latimer pers. comm.).

There is little to no rental units available in the Village of Valemount. In some instances, residents congregate into one house and rent theirs out (Latimer pers. comm.). In 2007, during the TMX Anchor Loop Project, housing was an issue in the Village of Valemount; there was an increase in hotel/motel revenue, but there was a shortage of low income housing caused by an increase in rents (McCracken pers. comm.).

The Village of Valemount caters to a large tourism base and has a wide range of commercial accommodation. There are over 25 hotels, motels, inns and bed and breakfasts as well as a range of cabins, vacation homes and vacation rentals available in the village. There are over 10 campgrounds with outdoor and full hook-up sites available, in or close to the Village of Valemount (Village of Valemount 2013). Summer (late June to mid-September) is peak season for tourism; during this period commercial accommodation is at approximately 75-100% capacity (Latimer pers. comm.). Through technical discussions, it was noted that the Village of Valemount does not have a position on temporary camps (Yanciw pers. comm.). At the Valemount Community Workshop, it was noted that increased occupancy of campgrounds during summer would be beneficial; however, the temporary workforce could be disruptive. A concern was also noted regarding campground and accommodation availability for tourists who come to the Valemount area during construction. It was noted that unlicensed and uncontrolled camping and RV spaces have been an issue in the past (Valemount Community Workshop).

BC MFLNRO identified the Carrier Lumber/Valemount Forest Products abandoned mill site, located approximately 5 km south of the Village of Valemount, as a potential construction camp site (Williams pers. comm.).

Community of Blue River

There are five hotels and motels and one campground with 42 sites located in the Community of Blue River (Blue River Campground 2011, Blue River 2013). Through technical discussions, the Community of Blue River noted that approximately 150 seasonal workers reside in the community during the winter months when tourism peaks and that during winter hotels tend to be at or near capacity with recreationalists (Macdonald pers. comm.). According to the TNRD, the Community of Blue River has the capacity to house additional workers at certain times of year, which would likely be seen as an economic opportunity for the community (Gill pers. comm.). There is land available in the Community of Blue River to establish a camp, if one were required (Groulx pers. comm.). At the Blue River Community Workshop, it was noted that accommodation for workers during the winter tourism season would be limited.

Through technical discussions, it was identified that the average value of a dwelling in the Blue River area is approximately \$235,000 (Macdonald pers. comm.). Rental units in the community range from approximately \$700 to \$1,200/month (Macdonald pers. comm.).

Community of Vavenby

In the Community of Vavenby (Thompson Nicola A Regional District Electoral Area), there were 680 occupied private dwellings in 2011, 94.1% of which were owned (Statistics Canada 2013a). Through consultation, it was identified that there is housing availability in the Community of Vavenby (Groulx pers. comm.). There is no known commercial accommodation (*i.e.*, hotels, motels or campgrounds) in the community.

During technical discussions, the BC MFLNRO identified the Old Weyerhaeuser/Yellowhead Mining Inc. site, located approximately 10 km west of the Community of Vavenby, as a potential construction camp site.

District of Clearwater

In the District of Clearwater, there were 1,015 occupied private dwellings in 2011, 85.2% of which were owned (Statistics Canada 2013a). There is little to no rental housing available in the District of Clearwater (Groulx pers. comm.). New residential developments are being planned; approximately 300 ha of land in the district are designated residential. As of March 2013, there were 80 new subdivision lots proposed (Groulx pers. comm.). At the Clearwater Community Workshop, it was noted that the existing TMPL right-of-way is used for access to residences in the community.

The District of Clearwater indicated that worker integration would be preferred. There is sufficient land designated to handle projected growth as well as room for subdivision within larger existing lands. There are also vacant residential lands that can be built on in the short-term, should the demand increase (Groulx pers. comm.).

Some hotels and motels in the District of Clearwater function on a seasonal basis. In the summer months (May to October), there are approximately 231 units available in 10 hotels and motels. In the winter months (November to April), there are approximately 175 units available, as some hotels and motels close during the winter (Groulx pers. comm.). There are four known campgrounds with a total of 330 sites operating in the summer months (Destination BC 2013). At the Clearwater Community Workshop, concern regarding displacement of tourists from construction crews was identified.

During technical discussions with the BC MFLNRO, it was identified that Spahats Creek Correctional Facility, located approximately 15 km north of the District of Clearwater, and Clearwater Camp 2 abandoned mill site, directly west of the District of Clearwater, were potential construction camp sites (Williams pers. comm.).

City of Kamloops

The City of Kamloops has a fairly large private housing market. In 2011, there were 35,025 occupied private dwellings, 73.7% of which were owned (Statistics Canada 2013a). In 2012, there were over 5,000 new residential listings in the Kamloops and District area (Kamloops and District Real Estate Association 2013). In the Kamloops area (Census agglomeration), there were 481 housing starts in 2012, a 5.7% decrease from 2011 and 645 completions, an 11% increase from 2011 (CMHC 2013a). The City of Kamloops issued building permits for the construction of 354 residential units in 2012 and 400 residential units in 2011 (City of Kamloops 2012). In December 2012, the median residential price was \$348,000 in the Kamloops area (Census agglomeration) and \$359,000 in the City of Kamloops (Venture Kamloops 2012).

Through technical discussions with the city, it was noted that there is low vacancy in rental units (Fretz, Lambright pers. comm.). In Kamloops (Census agglomeration), the average rent for accommodations increased by 2.2% from 2011 to 2012 (CMHC 2012c). Temporary housing is occurring in hotels because there are not many rentals available (Lambright pers. comm.). The City of Kamloops expressed concern regarding low-income housing being used by temporary construction workers, potentially displacing residents (Fretz pers. comm.). It was noted that this contributes to increases in illegal suites (Kwiatkowski, Lambright pers. comm.).

The City of Kamloops is familiar with work crews (Morris pers. comm.). The city noted that local businesses including hotels and motels would prefer temporary workers to live in the city as it would provide economic opportunity (Lambright, Morris pers. comm.).

There is a wide range of commercial accommodation available in the City of Kamloops. There are over 3,000 rooms in more than 50 hotels, motels and inns, as well as 4 campground and RV parks with over 180 of units (City of Kamloops 2013, Destination BC 2013). There is a high occupancy rate in summer

months; the peak season is May to October (Morris pers. comm.). However there are times during the winter when there is also high occupancy, typically tied to tournaments and events (Morris pers. comm.). Tourism Kamloops stated there are bids out for major events for 2016-2018 (Morris pers. comm.). The Thompson Rivers University residence is another source of commercial accommodation, providing 300-500 rooms in the summer (Morris pers. comm.). Tourism Kamloops estimates approximately \$55 million to \$60 million annually in overnight hotel stays/revenue. Tourism Kamloops cannot quantify the number of campers, fishermen or private planes, but there are 95,000 passengers a year on Rocky Mountaineer and Sun Peaks Mountain Resort nearby also attracts many visitors (Morris pers. comm.).

City of Merritt

In the City of Merritt, there were 2,905 occupied private dwellings in 2011, 74.2% of which were owned (Statistics Canada 2013a). Housing prices range from approximately \$75,000 to \$350,000 (McDonagh pers. comm.).

There is a wide range of commercial accommodation available in the City of Merritt. There are over 300 rooms in approximately 16 hotels, motels and inns (Umpherson pers. comm.). Hotels are at capacity during special events (busier during summer due to highway tourists). There are also 3 RV parks in the city, with approximately 75 to 80 sites per RV park, which typically have some excess capacity for use by temporary workers (Umpherson pers. comm., Roline pers. comm.). For example, the Moon Shadow RV park recently doubled in size and is being used by BC Hydro workers. Through technical discussions with the City of Merritt, it was noted that there are many temporary workers who stay in hotels in the City. Some consideration is being given by developers to building housing for temporary workers; development of new hotels is also being considered (Umpherson pers. comm.).

The City of Merritt has had previous experience with construction crews with the development of the Coquihalla Highway, and is open to future work crews and temporary workers (Roline pers. comm.). Temporary workers are typically viewed by the community a benefit to local businesses (Umpherson pers. comm.).

8.4.5 Housing – Fraser Valley Region

In the Fraser Valley Region, the demand for housing has expanded with population and economic growth. Close proximity to Metro Vancouver is a factor in the region's increased demand for (FVRD 2011). In 2012, real estate sales in the Fraser Valley were at their lowest levels since 2003 (Fraser Valley Real Estate Board [FVREB] 2012). Housing affordability and accessibility are goals of the FVRD's RGS (FVRD 2011).

Private housing, rental accommodation and commercial accommodation data for the Fraser Valley Region is presented in Tables C-10, C-12 and C-14, respectively, in Appendix C.

District of Hope

In Hope, there were 2,630 occupied private dwellings in 2011, most of which were single or double occupancy dwellings (Statistics Canada 2013a). Owned dwellings represent 76.6% of the total occupied dwellings (Statistics Canada 2013a). In 2012, the average residential price was \$228,719 for a detached house (Lerigny pers. comm.). From January to March 2013, there were 17 residential sales in the Hope area (Tepasse pers. comm.).

In 2011, Hope had 95 units available for construction or under construction (Advantage Hope 2011). In recent years, Hope has seen two residential developments with a total of 56 properties, and is anticipating the New Hope Developments residential project, which is in the early planning stages (Advantage Hope 2011, Mattheis pers. comm.). New single family buildings are more prevalent than new multi-family buildings. In 2011 and 2012, 36 single family building permits were issued, while no multi-family building permits were issued (Mattheis pers. comm.).

Anecdotal feedback indicates that rental rates for a 2 or 3-bedroom home in Hope ranges from \$900 to \$1,500 per month (Mattheis pers. comm.). In 2006, the average gross rent in Hope was \$656, compared to \$828 for BC (BC Stats 2006).

The District of Hope and area has over 400 hotel/motel rooms and over 450 camping and RV sites (Mattheis, Wilson pers. comm.). Summer is the busy tourist season when hotel occupancy is highest, during which time availability of hotels for additional temporary workers is limited (Misumi, Frotoloczky pers. comm.). Through technical discussions, it was ascertained that worker integration is preferred to worker camps in the District of Hope (Mattheis pers. comm.). In Hope, the proposed pipeline corridor crosses an area zoned as a campground and holiday park at approximately RK 1050.6. The Wild Rose Campground and the Hope Valley Campground are located in this area (District of Hope 2011). At the Hope Community Workshop, it was noted that formal and informal camping occurs along the Coquihalla River, at Peers Creek and the Coquihalla Campground.

City of Chilliwack

In the City of Chilliwack, there were 30,460 occupied private dwellings in 2011, 74.7% of which were owned (Statistics Canada 2013a). In Chilliwack, there were 4,423 residential listings and 2,007 total sales in 2012. The average prices of residential dwellings were \$357,240, \$237,087 and \$143,062, for detached houses, townhouses and apartments, respectively in 2012 (Lerigny pers. comm.).

In the Chilliwack area (Census agglomeration), there were 452 housing starts in 2012 (a 27.7% increase from 2011) and 360 housing completions (a 23.9% decrease from 2011) (CMHC 2013a). In terms of proposed developments, 442 building permits were issued for 436 residential units in 2012, an increase from 2011 when there were 354 building permits issued for 303 residential units (City of Chilliwack 2013).

The City of Chilliwack's development is restricted by the Agricultural Land Reserve and the urban containment boundary (Sanderson pers. comm.). Near RK 1096.6 the proposed pipeline corridor crosses a property currently in the ALR that is slated for mixed residential (Stanton pers. comm.).

The City of Chilliwack has expressed concern that if construction crews made use of rental accommodations, it could impact housing affordability for current residents (Stanton pers. comm.). In Chilliwack (Census agglomeration), the average rent for accommodations increased by 1.5% from 2011 to 2012 (CMHC 2012b).

In Chilliwack, there are 9 hotels and motels with over 400 units, and 15 campgrounds and RV parks with over 320 units (Destination BC 2013, Tourism Chilliwack 2013). In the summer, there is typically an influx of seasonal migrant workers for agricultural work. Many temporary agricultural workers stay in local hotels, and less-expensive hotels are often at full occupancy due to temporary agricultural workers during the summer months (Stanton, Wilson pers. comm.). The Agricultural Land Commission oversees housing provisions for temporary farm workers (Stanton pers. comm.).

City of Abbotsford

The City of Abbotsford has a fairly large private housing market. In the City of Abbotsford, there were 46,455 occupied private dwellings in 2011, 74.2% of which were owned (Statistics Canada 2013a). In Abbotsford, there were 3,744 new residential listings in 2012. The average prices of residential dwellings were \$444,252, \$262,568 and \$159,813, for detached residences, townhouses and apartments, respectively in 2012 (FVREB 2012).

There are new developments anticipated near the existing TMPL right-of-way (Teichroeb pers. comm.). The Augustan area is anticipating approximately 1,500 new homes, and there is also an application called Vicarro Ranch (residential development application) (Teichroeb pers. comm.). Further development is anticipated on Sumas Mountain, although there has been no indication of other major developments (Teichroeb, Koole pers. comm.). In the City of Abbotsford, there were 306 housing starts in 2012, a 30.8% decrease from 2011 and 520 completions, a 18.4% increase from 2011 (CMHC 2013a). The City of Abbotsford implemented a secondary suite policy that has since increased density within urban

residential neighbourhoods. Approximately 68% of Abbotsford's housing units are multi-family (townhouses, apartments, duplexes and suites) (City of Abbotsford 2005).

In the City of Abbotsford, the average rent for accommodations increased by 1.1% from 2011 to 2012 (CMHC 2012c) and the average rental vacancy decreased, contributed by population growth and low growth in rental stock (CMHC 2012d). CMHC forecasts that the vacancy rates will increase in 2013 (CMHC 2012d).

The city is familiar with temporary workers. As in Chilliwack, it is common in the agricultural sector for seasonal farm workers to live in the city temporarily, particularly during summer months (Koole, Teichroeb pers. comm.). It is estimated that there are approximately 3,500 to 4,000 seasonal workers annually in Abbotsford. Approximately 2,000 of those are from the federal Seasonal Agricultural Worker Program where temporary housing is provided by farm properties. The remaining workers are informal seasonal workers and would rely on housing in the community (Koole pers. comm.).

There are 9 hotels and motels in the City of Abbotsford with over 500 units (Tourism Abbotsford 2012, Destination BC 2013). The Abbotsford Airshow occurs annually in the second week of August. During this time, every hotel in Abbotsford, Surrey, Langley and Chilliwack is typically at full occupancy (Teichroeb pers. comm.). It was noted during technical discussions that the city would be amenable to some form of temporary camp if that were required (Teichroeb pers. comm.).

The Village of Harrison Hot Springs and the District of Mission are located in the HORU RSA. There are 12 hotels, resorts and motels and 10 bed and breakfasts in Harrison Hot Springs that combined offer over 500 rooms (Tourism Harrison 2013). There are also five campgrounds and eight RV parks, some of which offer full-service sites and other amenities (Tourism Harrison 2013). The District of Mission has 2 hotels/motels and 2 bed and breakfasts that offer approximately 120 rooms (District of Mission 2013). There are also 3 parks in the District of Mission that offer service sites for vehicles and non-service sites for those camping in a tent, as well as Zajac Ranch for Children that has 3 lodges that sleep 30 people each (District of Mission 2013).

8.4.6 Housing – Metro Vancouver Region

The Metro Vancouver Region has a large private housing market. In 2012, the private housing market in the Vancouver CMA saw below average sales, with average resale market prices down 3.8% in the fourth quarter of 2012 (CMHC 2013a, REBGV 2013). The average prices for single-detached home and condominium apartment prices decreased by 3.7% and 3.3%, respectively in this time period, while the average price for townhouses increased 1.6% (CMHC 2013a).

In the Vancouver CMA, there were 19,027 housing starts in 2012, a 6.5% increase from 2011, mostly due to multiple-family residential construction (CMHC 2013a). Most of the 2012 housing starts occurred in the cities of Surrey, Coquitlam and Vancouver (CMHC 2013a). Regarding the rental market, the Vancouver CMA has one of the lowest vacancy rates in BC, even with a 0.4% increase in average vacancy rates from 2011 to 2012, to 1.8% (CMHC 2012d). Contributing to the increased vacancy rates is an increase in rental supply, particularly from the secondary rental market (condominium apartments and accessory suites) (CMHC 2012d). Near urban centres, vacancy rates are generally lower due to homeownership costs and employment and education locations (CMHC 2012d). The average rent in the Vancouver CMA increased by 2.3% from 2011 to 2012, to \$1,128 (CMHC 2012d). CMHC has forecasted that the Vancouver CMA will have a stable rental market in 2013 (CMHC 2012d).

There is a large temporary housing market in the Metro Vancouver Region; with over 3,300 hotel rooms and approximately 15 campgrounds with over 650 sites in the surrounding area (City of Coquitlam 2013, Destination BC 2013, Tourism Langley 2013, Tourism Surrey 2013).

Private housing, rental accommodation and commercial accommodation data for the Metro Vancouver Region is presented in Tables C-10, C-12 and C-14, respectively, in Appendix C.

Township of Langley

The Township of Langley has a fairly large private housing market. In the Township of Langley, there were 37,235 occupied private dwellings in 2011, 84.7% of which were owned (Statistics Canada 2013a). In the City and Township of Langley combined, there were 4,276 new residential listings in 2012 (FVREB 2012). The number of new listings has been consistently decreasing since 2007 (Dawson pers. comm.). In 2012, the average prices of residential dwellings were \$565,045, \$325,249 and \$213,788, for detached residences, townhouses and apartments, respectively (FVREB 2012). In the Township of Langley, there were 1,050 housing starts in 2012, a 18.7% decrease from 2011 and 1,183 completions, a 19.7% increase from 2011 (CMHC 2013a). In the City and Township of Langley, the average rent for accommodations remained approximately the same from 2011 to 2012, at \$828 (CMHC 2012d).

There are 16 hotels and motels with over 800 units and 5 campgrounds with over 50 units in the City and Township of Langley combined (Destination BC 2013, Tourism Langley 2013).

City of Surrey

The City of Surrey has a large private housing market. In 2011, there were 152,845 occupied private dwellings, 73.1% of which were owned (Statistics Canada 2013a). In Central Surrey, Cloverdale and North Surrey, there were 5,144 new residential listings in 2012 (FVREB 2012). The number of new listings has been consistently decreasing since 2007 (Dawson pers. comm.). In 2012, the average prices of residential dwellings were \$567,970, \$322,822 and \$212,137, for detached residences, townhouses and apartments, respectively (FVREB 2012). In the City of Surrey, there were 3,275 housing starts in 2012, a 14% decrease from 2011 (CMHC 2013a). In 2012, Surrey saw 3,189 completions, a 17.3% decrease from 2011 (CMHC 2013a). Average rent for accommodations marginally increased (0.3%) from 2011 to 2012 (CMHC 2012d). The average rent in the City of Surrey in 2012 was \$813 (CMHC 2012d).

Feedback from technical discussions indicated that thousands of temporary construction workers have been brought in for past and current major highway/road construction projects and have been absorbed into the community without issue. Generally, rental vacancy rates are good (approximately 5%) and there are numerous secondary suites that are not captured in those numbers. The city would not encourage the use of temporary construction camps. It was noted that the city is still dealing with issues related to temporary camps from Expo '86 (Luymes, Baron pers. comm.).

In Surrey, there may be areas of new townhouses and homes (Joe Dhaliwal Development) planned in the vicinity of the existing TMPL right-of-way (Baron pers. comm.). The Fraser Heights area may also see some additional residential development (Baron pers. comm.).

There are 34 hotels and motels with over 1,000 units and 9 campgrounds and RV parks with over 380 units in the city (Destination BC 2013, Tourism Surrey 2013).

City of Coquitlam

The City of Coquitlam has a fairly large private housing market. In 2011, there were 45,555 occupied private dwellings, 74.4% of which were owned (Statistics Canada 2013a). In January 2013, the benchmark price for a residential property in the City of Coquitlam was approximately \$495,000, a 1.1% increase from January 2012 (REBGV 2013). Since 2008, the benchmark residential property price has increased 2.5% (REBGV 2013). In the City of Coquitlam, there were 1,802 housing starts in 2012, a 25% increase from 2011 (CMHC 2013a). In 2012, Coquitlam saw 1,656 completions, a 117.3% increase from 2011 (CMHC 2013a). In January 2013, there were 452 new residential listings, compared to 387 in January 2012 (REBGV 2013).

The CMHC presents rental data for the Tri-Cities which consist of the cities of Coquitlam, Port Coquitlam and Port Moody. In the Tri-Cities, the average rent for accommodations marginally increased (0.6%) from 2011 to 2012, to \$877 (CMHC 2012d).

The City of Coquitlam has 5 hotels/motels with a total of over 300 units (City of Coquitlam 2013, Destination BC 2013). No campgrounds or RV parks were identified in the City of Coquitlam.

City of Burnaby

The City of Burnaby has a large private housing market. In 2011, there were 86,840 occupied private dwellings, 63.5% of which were owned (Statistics Canada 2013a).

There were 1,528 housing starts in 2012, a 5.2% decrease from 2011 (CMHC 2013a). In 2012, Burnaby saw 1,640 completions, a 121.6% increase from 2011 (CMHC 2013a). In January 2013, there were 548 new residential listings, compared to 608 in January 2012 (REBGV 2013). Average rent for accommodations increased by 1.9% from 2011 to 2012 (CMHC 2012d). In January 2013, the benchmark price for a residential property in the City of Burnaby was approximately \$530,000, a 2.5% decrease from January 2012 (REBGV 2013). However, over the past 5 years, the benchmark residential property price has increased 5.5% (REBGV 2013).

The city has increased densities through zoning bylaws in its town centres. Since the implementation of the zoning bylaws, development applications and building permit revenues have increased substantially. The housing supply in the City of Burnaby is currently good and has been growing (Te pers. comm.). In January 2013, there were 86 residential developments proposed with over 6,300 residential units that had applied for rezoning and are in various forms of development (City of Burnaby 2013).

No issues related to the capacity of housing were identified by the City of Burnaby. If any construction workers were to stay in Burnaby, it is expected that they would be absorbed into the community (Te pers. comm.).

In Burnaby, there are 10 hotels/motels with approximately 1,200 units (Te pers. comm.). Simon Fraser University's Burnaby Mountain campus also provides seasonal dormitory accommodations, with approximately 800 dormitory units (Destination BC 2013, Tourism Burnaby 2013). There is at least one hotel in each of Burnaby's town centres (Te pers. comm.). There are no events that occur annually in Burnaby that would take up hotel spaces (Te pers. comm.). There is 1 campground/RV park in Burnaby, with 217 full hook-up sites (Destination BC 2013).

At the Burnaby Community Workshop, concern regarding decreasing property values along the right-of-way was noted.

8.5 Educational Services

This subsection discusses key educational services in the Socio-Economic RSA, including public school services and post-secondary services, as well as key training organizations.

There are numerous elementary, middle and secondary schools, in both public and private school systems, in the communities and socio-economic regions across the Socio-Economic RSA. All schools across the Socio-Economic RSA are not inventoried as they are numerous, particularly in the densely populated Edmonton Region and Metro Vancouver Region.

There are a range of post-secondary and training institutions across the Socio-Economic RSA (Tables 8.5-1 and 8.5-2).

In Alberta, the Apprenticeship and Industry Training System partners with industry, such as employers and technical training providers, to provide a framework for apprenticeships and training programs (Alberta Apprenticeship and Industry Training 2013). The Industry Training Authority in BC is a provincial crown agency that partners with independent Industry Training Organizations (ITO), including: Automotive Training Standards Association; Transportation Career Development Association of BC; BC Construction Industry Training Organization; go2: The Resource for People in Tourism; HortEducationBC and Resource Training Organization. Each ITO focuses on a specific sector, supporting various industries with training programs and skills development services (Industry Training Authority 2012).

The Alberta Aboriginal Training to Employment Program (ATEP) and the BC Aboriginal Training for Employment Program (ATEP) are provincial government initiatives. The Alberta ATEP partners with Aboriginal communities and other governments and industry to create workplace training opportunities and facilitate the development of training projects, to assist Aboriginal people in finding employment (Alberta Human Services 2013). The BC ATEP funds Aboriginal organizations to assist in the development of training and employment programs for Aboriginal people (BC Ministry of Advanced Education 2013).

TABLE 8.5-1

POST-SECONDARY INSTITUTIONS IN THE SOCIO-ECONOMIC REGIONAL STUDY AREA IN ALBERTA

Post-Secondary Institution	Campus Locations	Key Areas of Study Offered
EDMONTON REGION		
Alberta College of Art and Design	City of Edmonton	<ul style="list-style-type: none"> • Degree programs • Diploma programs • Certificate
Alberta College Conservatory of Music	City of Edmonton	<ul style="list-style-type: none"> • Music program at Grant MacEwan University
Campbell College	City of Edmonton	<ul style="list-style-type: none"> • Administrative Professional Diploma Program
Concordia University College	City of Edmonton	<ul style="list-style-type: none"> • University studies • Options of degree completion • Diploma programs • Certificate
Grant MacEwan University	City of Edmonton	<ul style="list-style-type: none"> • University studies • Options of degree completion • Diploma programs • Certificate
Guru Digital Arts College	City of Edmonton	<ul style="list-style-type: none"> • Diploma programs
The King's University College	City of Edmonton	<ul style="list-style-type: none"> • University studies • Options of degree completion • Diploma programs • Certificate
Le Campus Saint-Jean (University of Alberta)	City of Edmonton	<ul style="list-style-type: none"> • University studies • Options of degree completion • Diploma programs • Certificate
Metro Continuing Education	City of Edmonton	<ul style="list-style-type: none"> • Continuing education programs
Newman Theological College	City of Edmonton	<ul style="list-style-type: none"> • Seminary: Diploma and certificate programs
Northern Alberta Institute of Technology (NAIT)	City of Edmonton St. Albert	<ul style="list-style-type: none"> • Diploma programs • Certificate • Trades
NorQuest College	City of Edmonton	<ul style="list-style-type: none"> • Diploma programs • Certificate • Continuing education programs
Taylor University College	City of Edmonton	<ul style="list-style-type: none"> • Seminary: Diploma and certificate programs
University of Alberta	City of Edmonton	<ul style="list-style-type: none"> • University studies
University of Lethbridge (Edmonton Campus)	City of Edmonton	<ul style="list-style-type: none"> • University studies: Faculty of Management
RURAL ALBERTA REGION		
Grande Prairie Regional College	Hinton	<ul style="list-style-type: none"> • University studies • Options of degree completion • Diploma programs • Certificate • Trades • Continuing education programs (Town of Hinton 2012)

TABLE 8.5-1 Cont'd

Post-Secondary Institution	Campus Locations	Key Areas of Study Offered
JASPER NATIONAL PARK REGION		
n/a	n/a	n/a

Source: Town of Hinton 2013, City of Edmonton 2013

TABLE 8.5-2

POST-SECONDARY INSTITUTIONS IN THE SOCIO-ECONOMIC REGIONAL STUDY AREA IN BRITISH COLUMBIA

Post-Secondary Institution	Campus Locations	Key Areas of Study Offered
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION		
Thompson Rivers University	Kamloops Clearwater Barriere	<ul style="list-style-type: none"> • University studies • Diploma programs • Certificate programs • Trade and training, apprenticeship, natural resource management
Nicola Valley Institute of Technology (NVIT)	Merritt	<ul style="list-style-type: none"> • University transfer • University preparation • Bridging to trades • Career training • Environmental Resources Technology Certificate and Diploma
FRASER VALLEY REGION		
University of the Fraser Valley	Abbotsford, Chilliwack, Hope, Mission	<ul style="list-style-type: none"> • University studies • Trades and technology programs • Diploma programs • Certificate programs
METRO VANCOUVER REGION		
Kwantlen Polytechnic University	Township of Langley Surrey Richmond	<ul style="list-style-type: none"> • University studies • Diploma programs • Certificate programs • Trades and technology programs
Trinity Western University	Langley	<ul style="list-style-type: none"> • University studies • Diploma programs • Certificate programs • Christian University
Simon Fraser University (SFU)	Burnaby Surrey Vancouver	<ul style="list-style-type: none"> • University studies • Faculties of Applied Sciences, Education, Arts and Social Sciences, Environment, Business Administration, Health Sciences, Communication, Art and Technology and Science
Douglas College	Coquitlam New Westminster	<ul style="list-style-type: none"> • University studies • Diploma programs • Certificate programs
BC Institute of Technology (BCIT)	Burnaby Vancouver	<ul style="list-style-type: none"> • University studies • Diploma programs • Certificate programs • Extensive trades and technology program options, marine, ecological restoration, sustainable resource management, Marine Emergency Duties, Tanker Safety, Pilot Training
Justice Institute of BC	New Westminster	<ul style="list-style-type: none"> • University studies • Diploma programs • Certificate programs
University of British Columbia (UBC)	Vancouver	<ul style="list-style-type: none"> • University studies • Professional programs

TABLE 8.5-2 Cont'd

Post-Secondary Institution	Campus Locations	Key Areas of Study Offered
Emily Carr University of Art and Design	Vancouver	<ul style="list-style-type: none"> • University studies • Visual arts, design and media arts
Capilano University	North Vancouver	<ul style="list-style-type: none"> • University studies • Diploma programs • Certificate programs
Fairleigh Dickinson University	Vancouver	<ul style="list-style-type: none"> • University studies
Langara College	Vancouver	<ul style="list-style-type: none"> • University transfer • Diploma programs • Certificate programs

Source: BC Ministry of Advanced Education 2013

Trans Mountain has engaged with numerous post-secondary institutions, as well as training, industry, and community organizations to-date in the context of developing its employment and training approach related to the Project, particularly to explore opportunities to provide training for Aboriginal peoples. These institutions and organizations include:

- Northern Alberta Institute of Technology (Edmonton, AB);
- Enform (The Safety Association for Canada's Upstream Oil and Gas Industry)(Calgary, AB);
- Aboriginal Skills and Employment Training Strategy (Enoch, AB);
- Samson Cree Nation (Hobbema, AB);
- Pipeline Contractors Association of Canada (Nisku, AB);
- British Columbia Institute of Technology (Vancouver, BC);
- College of the Rockies (locations in Cranbrook, Creston, Fernie, Golden, Invermere, and Kimberley, BC);
- College of New Caledonia (locations in Prince George, Burns Lake, Fort St. James, Mackenzie, Quesnel, and Vanderhoof, BC);
- Camosun College (Victoria, BC);
- Okanagan College (locations in Kelowna, Penticton, Vernon, Salmon Arm, BC);
- Nicola Valley Institute of Technology (Merritt, BC);
- Northern Lights College (Dawson Creek, BC);
- Thompson Rivers University (locations in Kamloops, Lillooet, Williams Lake, BC);
- Vancouver Community College (Vancouver, BC);
- University of the Fraser Valley (locations in Abbotsford, Mission and Chilliwack, BC);
- BC Construction Association Skilled Trades Employment Program (locations in Abbotsford, Kamloops, Nanaimo, Vancouver and Victoria);

- UA Piping Industry College of BC (Delta, BC);
- Construction and Specialized Workers' Training Society (Vancouver, BC);
- Kwantlen College (Cloverdale, BC);
- Interior Salish Employment and Training Society (Quilchena, BC);
- Shuswap Training and Employment Program (Kamloops, BC);
- First Nations Emergency Services Society (Kamloops, BC);
- Whispering Pines (Clinton Indian Band) (Kamloops, BC)
- Native Education College (Vancouver, BC);
- Aboriginal Training and Employment Cooperative (Surrey, BC);
- Squamish Nation Trades Centre (North Vancouver, BC); and
- Independent Contractors and Business Association of BC (Burnaby, BC).

8.5.1 Educational Services - Edmonton Region

8.5.1.1 Public School Divisions

Edmonton Public Schools is the largest school district in Alberta, with enrollment of approximately 79,000 students from Kindergarten to Grade 12, 197 schools, almost 10,000 staff, and an estimated 20,000 students enrolled in continuing education programs (Edmonton Public School Board 2013).

There are six school divisions (Elk Island Public Schools Regional Division No. 14, Edmonton School District No. 7, Parkland School Division No. 70, Greater North Central Francophone Education Region No. 2, Edmonton Catholic Separate School Division No. 7 and Evergreen Catholic Separate Regional Division No. 2) and approximately 300 schools along the proposed pipeline corridor in the Edmonton Region. The closest school to the proposed pipeline corridor in the Edmonton Region is Menisa Elementary School, located approximately 500 m from RK 20. Lymburn School is located approximately 850 m from RK 41. Colchester School, which is closing, is located approximately 200 m southeast of RK 11.5 in Strathcona County. Future plans for the site were unknown at the time of consultation (Mills pers. comm.). No schools are located within the proposed pipeline corridor in the Edmonton Region.

Parkland School Division 70 operates 21 schools between Spruce Grove and Entwistle, Alberta. Five elementary, two middle and one secondary school are located in Spruce Grove while six elementary and one secondary school are located in Stony Plain. Two elementary schools are located in Duffield, one elementary school is located in Seba Beach. One elementary school is located in Wabamun, one elementary school is located in Entwistle (Parkland School Division 2010).

In addition, Evergreen Catholic Separate Regional Division No.2 operates two elementary and three junior/high schools in Spruce Grove as well as one elementary, junior and high school in Stony Plain (Evergreen Catholic Separate Regional Division No.2 2011).

8.5.1.2 Post-Secondary Institutions

There are 15 post-secondary institutions within the Edmonton Region (Table 8.5-1), which offer various university studies, diploma and certificate programs, as well as trades programs. All main campuses for publicly funded post-secondary institutions are located in the City of Edmonton. In 2010, the Edmonton Region had more university students per 1,000 individuals than Calgary, Toronto or Vancouver. Post-secondary students are drawn from the region, Alberta, across Canada and around the world (City of Spruce Grove 2010).

8.5.2 Educational Services – Rural Alberta Region

8.5.2.1 Public School Divisions

There are two school divisions (Grande Yellowhead School Division No. 35 and Living Waters Catholic Regional Division No. 42) and 10 schools within communities along the proposed pipeline corridor in the Rural Alberta Region. The closest school to the proposed pipeline corridor in the Rural Alberta Region is Parkland Composite High School, located approximately 300 m from RK 231.8. Holy Redeemer Catholic Junior/High School is located approximately 500 m from RK 232.5. No schools are located within the proposed pipeline corridor in the Rural Alberta Region.

One elementary and one high school are located in Evansburg (Evansburg & Entwistle 2012). The Grande Yellowhead School Division No. 35 operates four elementary, one middle and one secondary school in Edson as well as two elementary (grades K-7) and one secondary school (grades 8-12) in Hinton (Grande Yellowhead Public School Division 2012). In addition, the Living Waters Catholic Regional Division No.42 operates one high school in Edson (Living Waters Catholic Schools 2012).

8.5.2.2 Post-Secondary Institutions

There is one post-secondary institutions within the Rural Alberta Region, the Grande Prairie Regional College in the Town of Hinton (Table 8.5-1). The college offers university studies, diploma and certificate programs, as well as trades courses. The Town of Hinton noted it is hoping to grow its identity as a college community, as part of its effort to bolster other industries that support the local economy during cyclical periods when the resource industry may be in decline (Kreiner pers. comm.).

8.5.3 Educational Services – Jasper National Park Region

8.5.3.1 Public School Divisions

There are two school divisions (Grande Yellowhead School Division No. 35 and Greater North Central Francophone Education Region No. 2) and three schools within the Jasper National Park Region.

The Grande Yellowhead School Division No. 35 operates an elementary (grades K-6) and a junior/senior high school (grades 7-12) in Jasper (Grande Yellowhead Public School Division 2012). Ecole Desrochers, a public francophone school offering services for preschool to grade 12, is also located in Jasper (Town of Hinton 2013). Construction is underway on the Jasper Joint School Facility in Jasper. The new combined facility of Jasper Junior/Senior High School and Ecole Desrochers is slated to be completed in the summer of 2014 (Grande Yellowhead Public School Division 2012).

8.5.3.2 Post-Secondary Institutions

There are no post-secondary institutions identified within the Jasper National Park Region.

8.5.4 Educational Services – Fraser-Fort George/Thompson-Nicola Region

8.5.4.1 Public School Divisions

There are three school divisions (Prince George No. 57, Kamloops/Thompson No. 73 and Nicola-Similkameen No. 58) and 43 schools/educational programs within communities along the proposed pipeline corridor in the Fraser-Fort George/Thompson-Nicola Region. In the Fraser-Fort George/Thompson-Nicola Region RSA, the school divisions operate an additional 16 schools (total of 59 schools in the region RSA).

A total of 30 elementary, 1 middle and 9 secondary schools as well as 1 distance and 2 alternative education programs operate in communities along the proposed pipeline corridor. In the Fraser-Fort George/Thompson-Nicola Region, the proposed pipeline corridor crosses the properties of two schools: Raft River Elementary School in Clearwater from approximately RK 720.2 to RK 720.5; and Clearwater Secondary School in Clearwater from approximately RK 722.0 to RK 722.4.

School District No. 57 (Prince George) operates one elementary and one secondary school in Valemount (School District No.57 2012). The Village of Valemount currently has a declining school population. A few additional children coming to the community could make a big difference in keeping the school viable (McCracken pers. comm.). The majority of School District No. 57's student population is located in the Prince George Area (93%). A challenge of the school district is an increasing number of students in government care or on income assistance (School District No.57 2012).

School District No. 73 (Kamloops/Thompson) operates one elementary school in Blue River, one elementary school in Vavenby, one elementary school and secondary school in Clearwater and 22 elementary schools, one middle school, six secondary schools, two alternative education programs and one distance school in Kamloops (School District No.73 2012). In 2011, there were approximately 14,877 students enrolled in the district, a decline from 2010.

School District No. 58 (Nicola-Similkameen) operates four elementary schools and one secondary school in Merritt. In 2011, there were approximately 2,400 students enrolled in the district.

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to educational services in the Fraser-Fort George/Thompson-Nicola Region:

- At the Clearwater Community Workshop, it was noted that the existing TMPL right-of-way is used for access to schools in the community. Concerns were raised that access would be disrupted during construction.

8.5.4.2 Post-Secondary Institutions

There are two post-secondary institutions within the Fraser-Fort George/Thompson-Nicola Region which offer university studies, diploma and certificate programs and trades and training programs. Thompson Rivers University has locations in Kamloops, Clearwater and Barriere and the NVIT is located in Merritt (Table 8.5-2). It is noted that NVIT draws students from BC and the country (Umperhson pers. comm.).

8.5.5 Educational Services – Fraser Valley Region

8.5.5.1 Public School Divisions

There are four school divisions (Fraser-Cascade No. 78, Chilliwack No. 33 and Abbotsford No. 34) and 86 schools within communities along the proposed pipeline corridor in the Fraser Valley Region. In the Fraser Valley Region, the proposed pipeline corridor crosses the properties of two schools: Vedder Middle School in Chilliwack from approximately RK 1097.5 to RK 1097.8; and Watson Elementary School in Chilliwack from approximately RK 1098.1 to RK 1098.3. The City of Chilliwack noted that this is a concern to the city (Stanton pers. comm.).

School District No. 78 (Fraser-Cascade) operates two elementary schools, one intermediate school, one secondary school and an alternative school in Hope (School District No. 78 2004). In 2011, there were approximately 1,850 students enrolled in the district.

School District No. 33 (Chilliwack) operates 20 elementary schools, five middle schools, one middle-secondary school, two secondary schools and four alternative education programs in Chilliwack (School District No. 33 2013). In 2011, there were approximately 13,000 studies enrolled in the district.

School District No. 34 (Abbotsford) operates 30 elementary schools, eight middle schools, eight secondary schools and two community schools in Abbotsford (Abbotsford School District 2013). In 2011, there were approximately 18,900 students enrolled in the district.

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to educational services in the Fraser Valley Region:

- The crossing and proximity of the proposed pipeline corridor to schools was raised as a concern from discussions with the City of Chilliwack as well as at the Abbotsford and Chilliwack Community Workshops (Stanton pers. comm.).

8.5.5.2 Post-Secondary Institutions

There is one post-secondary institutions within the Fraser Valley Region which offers university studies, trades and technology programs and diploma and certificate programs. The University of the Fraser Valley has locations in Abbotsford, Chilliwack, Hope and Mission (Table 8.5-2).

8.5.6 Educational Services – Metro Vancouver Region

8.5.6.1 Public School Divisions

There are four school divisions (Langley No. 35, Surrey No. 36, Coquitlam No. 43 and Burnaby No. 41) and 285 schools within communities along the proposed pipeline corridor in the Metro Vancouver Region. The closest school to the proposed pipeline corridor in the Metro Vancouver Region is Alderson Elementary School in Coquitlam, approximately 100 m from approximately RK 1173.7. Forest Grove Elementary School in Burnaby is located approximately 100 m from the Burnaby Terminal. Burnaby School District No. 41 raised concerns regarding pipeline adjacency to schools and the importance of ensuring that safety measures are in place (Gomez pers. comm.);

School District No. 35 (Langley) operates 26 elementary schools, two middle schools, 6 secondary schools and eight alternate educations facilities in Langley (School District No. 35 2011). In 2011, there were approximately 20,300 students enrolled in the district.

School District No. 36 (Surrey) operates 99 elementary schools and 19 secondary schools in Surrey (Surrey Schools 2013). In 2012, there were approximately 69,700 students enrolled in the district.

School District No. 43 (Coquitlam) operates 45 elementary schools, 13 middle schools and 11 high schools in Coquitlam (School District No. 43 2013). In 2011, there were approximately 34,200 students enrolled in the district.

School District no. 41 (Burnaby) operates 41 elementary schools and 8 secondary schools in Burnaby (Burnaby School District 2013). The school district enrolls approximately 24,000 students.

8.5.6.2 Post-Secondary Institutions

There are 11 post-secondary institutions within the Metro Vancouver Region which offer a range of programs and studies including university studies, diploma and certificate programs, trades and technology programs and visual arts and design programs (Table 8.5-2). Kwantlen Polytechnic University has locations in Langley, Surrey and Richmond, SFU has locations in Burnaby, Surrey and Vancouver, Douglas College has locations in Coquitlam and New Westminster, BCIT has locations in Burnaby and Vancouver and UBC operates out of Vancouver.

8.6 Emergency, Protective and Social Services

This subsection describes emergency, protective and social services. Healthcare and emergency medical services not discussed here are discussed in the Community Health Technical Report (Volume 5D).

There are numerous emergency, protective and social services located in community locations along the proposed pipeline corridor and across the Socio-Economic RSA. This includes policing, firefighting, community and family support services, employment services, and other social services.

The discussion of emergency services has implications for Trans Mountain's construction and operational needs, as local responders have played, and will continue to play, a role in Trans Mountain's emergency response regime. Emergency, protective and social services are also relevant in terms of their potential to be indirectly affected due to construction phase activity, such as traffic, the presence of workers placing

increased demands on such services, and social issues arising due to the presence of temporary workers in some regions that may increase the likelihood of a service response.

8.6.1 Emergency and Protective Services Overview

8.6.1.1 Existing Trans Mountain Emergency Response Framework

Given its operating history, Trans Mountain has established emergency response protocols, programs, and protocols at the community and regional level. Trans Mountain delivers its Community Awareness and Emergency Response (CAER) program to emergency services organizations and government authorities along the TMPL system. The objectives of the program are to familiarize first responders with the pipeline location, explain the properties of the pipeline's contents, and promote information exchange and coordination of response efforts in the event of an incident. As part of the response management system, Trans Mountain staff are trained in the emergency response procedures and conduct regular emergency exercises, some of which include local first responders. Trans Mountain also has standing agreements for contract resources to provide response equipment and labour, air and human health monitoring, environmental assessment and emergency management.

Trans Mountain has adopted the incident command system (ICS) as the basic response structure for its emergency response teams. The ICS, developed in the US almost 30 years ago, is now the system preferred by emergency response organizations around the world to handle a wide variety of emergency situations, including oil spills. ICS is the recommended best practice for industry by provincial and federal authorities. Regularly scheduled ICS training is used to ensure that Trans Mountain employees, government personnel and first responders (e.g., local fire departments and police detachments) are trained to fulfill the key ICS roles. A combination of tabletop and field deployment exercises are used to simulate an emergency and to ensure that employees are fully trained in activation of the emergency response plans and are familiar with the deployment and capability of the equipment used.

Trans Mountain has in place a comprehensive emergency preparedness and response program in accordance with its Environment, Health and Safety policy. The emergency preparedness and response program consists of:

- an Emergency Response Plan (ERP);
- a response management system;
- training and spill response exercises; and
- spill response resources for the pipeline and for the Westridge Marine Terminal.

Trans Mountain maintains a geographically based ERP that includes:

- information pertaining to notification requirements;
- emergency checklists and contacts;
- response team organization;
- facilities and pipeline information;
- material safety data sheets;
- health and safety plans; and
- route maps depicting control points and environmentally sensitive areas.

The ERP, including field guides containing route maps and critical initial response procedures, has been provided to key field operations and maintenance personnel. A Project-specific ERP will be prepared for

construction and commissioning activities; all Contractors involved in construction will also have site-specific ERPs related to their specified work. All facilities (e.g., terminals, pipeline, pump stations, Westridge Marine Terminal) have a specific ERP and Fire Plan. Existing operations ERPs will be revised to reflect the response requirements of the expanded system in advance of starting operations.

Trans Mountain owns, maintains and operates dedicated spill response equipment at strategic points along the TMPL system corridor. Oil spill containment and recovery (OSCAR) units are located at Trans Mountain's facilities in Alberta (Edmonton and Jasper) and BC (Blue River, Kamloops, Hope and Burnaby). Each OSCAR unit contains about 300 m of oil recovery boom and support equipment, including a river jet boat for deployment. All equipment is helicopter transportable for delivery to remote locations not accessible by road. A separate OSCAR unit containing 1,524 m of river boom is also located at the Kamloops Terminal. Specialized equipment has been developed in-house by Trans Mountain employees for intercepting and recovering oil, if required, from beneath the ice on frozen rivers and lakes. This equipment is stored in the Jasper and Edmonton OSCAR units.

Trans Mountain's current emergency response regime will not change or need to change in the context of the expanded operating system; Trans Mountain will continue to use the ICS which is designed to adapt to changing operational circumstances. While the emergency response regime will not change, Trans Mountain anticipates it will increase the amount of its own Project-specific emergency response equipment (e.g., skimmers, booms, absorbent, upgrades of fire water systems at expanded terminals, etc.) it has, to reflect the expanded operating system.

Trans Mountain will continue with its existing interfaces with community emergency response services as part of maintaining its normal operations ERP and in the development of its construction phase ERP. Community-based emergency response initiatives that Trans Mountain is involved in include CAER, whereby it collaborates with regional emergency services to review emergency response procedures and community monitoring. Trans Mountain will also be part of a forthcoming collaborative mutual aid protocol between members of the energy pipeline industry, spearheaded by the Canadian Energy Pipeline Association, to support each other's emergency response efforts as needed. Trans Mountain is also working with select Aboriginal communities within the Socio-Economic RSA on involving communities in emergency preparedness.

8.6.1.2 Marine Response Framework

Various levels of government are involved in marine or coastal emergency response services, including PMV, BC MOE, CCG and Western Canada Marine Response Corporation (WCMRC). Volume 8A provides detailed information regarding marine emergency preparedness, including response roles and responsibilities.

At the provincial level, the BC MOE is the lead agency for marine oil spills and prepared the BC Marine Oil Spill Prevention and Preparedness Strategy to coordinate with the federal government, industry and the public (BC MOE 2002). Part of the strategy included the development of the BC Marine Oil Spill Response Plan, which identifies the BC MOE as the lead for coordinating a response with all regulatory authorities during a spill event (BC MOE 2002, 2007). The BC Marine Oil Spill Response Plan outlines the duties of the provincial government in response to a marine oil spill, provides organization and duties based on the BC Emergency Response Management System and summarizes operational guidelines to implement response functions (BC MOE 2007). The BC Marine Oil Spill Response Plan states that it is the responsibility of the responsible party for the spill to initiate its response plan and that the BC Government's role is to monitor, establish protection priorities and augment response efforts (BC MOE 2007). The BC Marine Oil Spill Response Plan is consistent with the CCG's Response Management System (BC MOE 2007).

At the federal level, the CCG, an operating agency of DFO, is the lead agency for the response component of ship-source and mystery-source marine oil spills and pollution incidents (DFO 2009, 2011). The Marine Spills Contingency Plan – National Chapter provides a scope of response for the CCG. When a pollution incident occurs in waters under federal jurisdiction, the Environmental Response program of the CCG is responsible for preparedness and response. Canada's Marine Oil Spill Preparedness

Response Regime is industry funded pollution response capacity, established and maintained by certified response organizations (DFO 2011). The CCG also takes the role of Federal Monitoring Officer when the polluter is known, willing and able to respond.

WCMRC is a Transport Canada-certified response organization and responds to oil spills in BC's navigable waters (WCMRC 2012). In addition to its own equipment, and as required by the *Canada Shipping Act*, Trans Mountain is a member of WCMRC and is contracted with them to provide spill response services. To ensure it can meet the requirements set out by Transport Canada, the WCMRC maintains caches of spill response equipment. Their main operating base is located in Burnaby, near the Westridge Marine Terminal, and they maintain several response vessels on the water in Vancouver Harbour to ensure a prompt response, including a skimming vessel kept at the Westridge Marine Terminal.

8.6.1.3 *Municipal and Provincial Emergency Management Programs*

All municipalities in Alberta and BC are required to have an Emergency Management Program to coordinate emergency services in the event of an incident (e.g., natural disaster, industry-related incident, or other incident). At all times, local authorities are responsible for managing first response to an emergency event. Provincial emergency management frameworks are in place in Alberta and BC to support communities when an incident overwhelms local capacity. In Alberta, when an emergency event exceeds the capabilities of a municipal response or there is a considerable threat to life and property, the Alberta Emergency Management Agency coordinates the Government of Alberta's support to the municipality by linking municipalities with resources to help manage the event (Alberta Municipal Affairs 2013). In BC, Emergency Management British Columbia (EMBC) is the coordinating agency for the provincial government's emergency management activities. EMBC provides executive coordination, strategic planning, multi-agency facilitation and provides support to local authorities (BC Ministry of Justice 2013a). The provincial emergency management structure is activated when a BC community or any key infrastructure is threatened by an emergency or disaster which may overwhelm a local authority's ability to respond. In such situations, there will be an increase in the activation level of Provincial Regional Emergency Operation Centres and the Provincial Emergency Coordination Centre to support local governments' emergency operations as required (BC Ministry of Justice 2013b).

Additional assistance is provided by the Government of Canada if the emergency escalates beyond provincial resource capabilities. Requests from the provinces to the Government of Canada are managed through Public Safety Canada, which maintains close operational links with provincial and local emergency authorities and maintains inventories of resources and experts in various fields (BC Ministry of Justice 2013b).

In both Alberta and BC communities also have plans in place to provide social services in the context of emergencies. This involves providing food, lodging, clothing and emotional support, and family reunification services during emergencies that force residents to leave their homes. Plans for Disaster Social Services (in Alberta) or Emergency Social Services (in BC) are typically a specialized component of a community's Emergency Management Program.

8.6.2 *Emergency and Protective Services – Edmonton Region*

Emergency and protective services are located at numerous locations along the proposed pipeline corridor in the Edmonton Region. Within the Edmonton Region, RCMP detachments are located in Strathcona County, City of Edmonton, City of Spruce Grove and Town of Stony Plain (City of Edmonton 2013), as well as in other communities in the Socio-Economic RSA. Fire services are located in Strathcona County, City of Edmonton, City of Spruce Grove, Town of Stony Plain and Village of Wabamun. 9-1-1 services are available throughout the Edmonton Region.

Details on emergency and protective services for communities along the proposed pipeline corridor of the Edmonton Region are summarised in Table 8.6-1.

TABLE 8.6-1

**FIREFIGHTING AND PROTECTIVE SERVICES FOR COMMUNITIES ALONG
 THE PROPOSED PIPELINE CORRIDOR OF THE EDMONTON REGION**

Footprint Community/Region	Police Services	Fire Services	Comments
Strathcona County	RCMP detachment	Strathcona County Emergency Services	<ul style="list-style-type: none"> Police and fire services based in Sherwood Park Policing: 71 officers, 11 special constables Fire services: responsible for fire suppression rescue response, dangerous goods response, fire/arson investigation and inspection, emergency preparedness.
City of Edmonton	RCMP detachment Edmonton Police Service	Edmonton Fire Rescue Service	<ul style="list-style-type: none"> RCMP detachment: located at the Edmonton International Airport. Edmonton Police Service: five larger stations (headquarters downtown, plus one in each of four operational divisions), plus community stations within each division. Fire services: 26 stations throughout Edmonton; includes teams specializing in hazardous materials, river rescue and technical rescue.
City of Spruce Grove	RCMP detachment	Spruce Grove Fire Service	<ul style="list-style-type: none"> Policing: In addition to RCMP, Community Peace Officers also assist with emergency and protective services Fire services: integrated fire services including fire suppression and dangerous goods response.
Town of Stony Plain	RCMP detachment	Stony Plain Fire Services	<ul style="list-style-type: none"> Policing: 16 officers Fire Services: 40 part-time volunteer, 3 career firefighters
Village of Wabamun	Policing provided by Stony Plain RCMP detachment	Wabamun Fire Department	<ul style="list-style-type: none"> Fire services: volunteer-based organization.
Parkland County	Policing provided by RCMP detachments in Stony Plain, Spruce Grove, Evansburg and Drayton Valley	Parkland County Fire Services	<ul style="list-style-type: none"> Fire services: fire apparatuses placed throughout the county; agreements with numerous local municipalities for manpower.

Sources: City of Edmonton 2004, City of Edmonton 2013, City of Spruce Grove 2013, RCMP 2012a, Strathcona County 2007, Town of Stony Plain 2013, Village of Wabamun 2011, Parkland County 2013

The City of Spruce Grove identified some RCMP capacity issues and is in the process of looking at a new unit detachment. RCMP response time was noted as good and though the city's population is growing its compact geographical size allows for manageable response times. In addition, the RCMP supports a range of community services including an active auxiliary, a Citizens on Patrol program with organizers and residents as volunteers (Town of Stony Plain 2013). While there are full-time fire services located in Spruce Grove, at times the Stony Plain volunteer fire service assist in responding to calls (Irving pers. comm.).

The Town of Stony Plain indicated that there are some issues with having a volunteer fire department, including an increased risk of daytime fires going undetected (when most volunteers are engaged in paid employment). There is a proposal for budget to support two additional full-time employees in Stony Plain Fire Services. It was noted that the Town of Stony Plain, the City of Spruce Grove and Parkland County will be jointly purchasing additional fire trucks in the next few years (Frostad pers. comm.). The Town of Stony Plain indicated that there is need for increased RCMP presence (Frostad pers. comm.).

Four RCMP detachments service Parkland County: Stony Plain, Spruce Grove, Evansburg and Drayton Valley. Parkland County rural residents are served by the fire departments in both Spruce Grove and Stony Plain. In addition, the county has volunteer (paid on-call) fire services. Fire apparatus is placed throughout the county and there are agreements with municipalities for manpower. As noted above, there can be service issues with volunteer responders, particularly during week-days when volunteers are

engaged in wage employment. It was noted that temporary workers can assist in increasing the volunteer base for local fire services. The limited capacity for fire services in the County is a growing issue; it was noted that the county may soon have to employ full-time firefighters (Hanlan pers. comm.).

8.6.3 Emergency and Protective Services – Rural Alberta Region

Emergency and protective services are located at numerous locations along the proposed pipeline corridor in the Rural Alberta Region. Within the Rural Alberta Region, RCMP detachments and fire services are located in the Town of Edson and the Town of Hinton. Additional fire services are located in Yellowhead County; County-operated volunteer services are located in hamlets of Evansburg, Wildwood, Niton, Peers, Marlboro, Brule, Cadomin, and Robb. 9-1-1 services are available throughout the Rural Alberta Region.

Details on emergency and protective services for communities in along the proposed pipeline corridor of the Rural Alberta Region are summarised in Table 8.6-2.

TABLE 8.6-2

FIREFIGHTING AND PROTECTIVE SERVICES FOR COMMUNITIES ALONG THE PROPOSED PIPELINE CORRIDOR OF THE RURAL ALBERTA REGION

Footprint Community/Region	Police Services	Fire Services	Comments
Town of Edson	RCMP detachment	Edson Fire Department	<ul style="list-style-type: none"> • Policing: 17 officers • Fire services: 38 volunteer, 2 career firefighters
Town of Hinton	RCMP detachment	Hinton Fire/Rescue Department	<ul style="list-style-type: none"> • Policing: 17 officers • Fire services: 33 on call professional, 2 career firefighters
Yellowhead County	Policing provided by RCMP detachments in Edson and Hinton.	Yellowhead County Fire Department	<ul style="list-style-type: none"> • Policing: two additional RCMP officers work within the County; Community Peace Officers are also employed by the County. • Fire services: County-operated volunteer services located in hamlets of Evansburg, Wildwood, Niton, Peers, Marlboro, Brule, Cadomin, and Robb (approximately 120 volunteers)

Sources: Chomeakwich pers. comm., Knight pers. comm., RCMP 2012a, Town of Edson 2013, Town of Hinton 2013, Yellowhead County 2013.

Some emergency services capacity issues have been identified in the region. The Yellowhead County MDP states that, as a result of the largely rural land use within the county, emergency responses can be slow and/or costly (Yellowhead County 2006). The Town of Edson noted that the Edson RCMP is usually operating at or beyond capacity, and the number of staff fluctuates (Chomeakwich pers. comm.). Discussion with Yellowhead County indicated that the presence of resource-industry related temporary workers and work camps have contributed to capacity issues in the region, particularly for the RCMP. RCMP staffing is based on current permanent populations and do not account for the shadow population of workers living in temporary work camps and hotels (Ramme pers. comm.). It was noted that worksite issues tend to require more time than the non-industry related incidents and therefore can contribute notably to capacity pressure on RCMP resources (Knight pers. comm.).

It was noted that the RCMP detachments in the Hamlet of Evansburg, the Town of Edson and the Town of Hinton have no known plans for increased policing personnel. Alberta Sheriffs also operate along the Yellowhead Highway. All 911 calls are run out of the Yellowhead County offices (Ramme pers. comm.).

8.6.4 Emergency and Protective Services – Jasper National Park Region

Within the Jasper National Park Region there is a RCMP detachment and fire services. 9-1-1 services are available throughout the region.

Given that the Municipality of Jasper is an isolated community, emergency exercises are practiced frequently and timeliness of response is an important issue. The Municipality of Jasper indicated it works closely with all companies who move goods through Jasper (Waterworth pers. comm.). The Municipality of Jasper has an Emergency Management Office for the Municipality, and Parks Canada has an Emergency Management Office for outside of the Municipality (Pickle pers. comm.). Municipal representatives noted that the community's existing relationship with Trans Mountain related to Emergency Response Planning is positive and that Trans Mountain has been very involved (Waterworth pers. comm.).

Details on emergency and protective services for the Municipality of Jasper are summarized in Table 8.6-3.

TABLE 8.6-3

FIREFIGHTING AND PROTECTIVE SERVICES FOR THE JASPER NATIONAL PARK REGION

Footprint Community/Region	Police Services	Fire Services	Comments
Municipality of Jasper	RCMP detachment	Jasper Fire Department	<ul style="list-style-type: none"> Provides structural fire protection services to the Jasper town site and surrounding area, respond to highway rescues for motor vehicle accidents, provide Hazardous Material response and assist in wild land urban interface protection. Firefighting equipment includes one ladder truck/aerial, two pump trucks, one rescue truck, one water tanker, a Structural Protection Unit trailer, and two command vehicles Fire services: 2 fulltime professionals, 30 volunteers

Sources: Municipality of Jasper 2013, RCMP 2012a

8.6.5 Emergency and Protective Services – Fraser-Fort George/Thompson-Nicola Region

Emergency and protective services are located at numerous locations along the proposed pipeline corridor in the Fraser-Fort George/Thompson-Nicola Region. RCMP detachments and fire services are located in the Village of Valemount, the District of Clearwater, the City of Kamloops and the City of Merritt, as well as in other locations in rural areas.

Details on emergency and protective services for communities in the proposed pipeline corridor of the Fraser-Fort George/Thompson-Nicola Region are presented in Table 8.6-4.

TABLE 8.6-4

FIREFIGHTING AND PROTECTIVE SERVICES FOR COMMUNITIES ALONG THE PROPOSED PIPELINE CORRIDOR OF THE FRASER-FORT GEORGE/THOMPSON-NICOLA REGION

Footprint Community/Region	Police Services	Fire Services	Comments
Village of Valemount	RCMP Detachment	Valemount Fire Department	<ul style="list-style-type: none"> Policing: 5 officers Fire services: 25 volunteer, 1 career firefighter Valemount and District Road Rescue services also available.

TABLE 8.6-4 Cont'd

Footprint Community/Region	Police Services	Fire Services	Comments
RDFFG	Policing provided by RCMP detachments in Valemout and McBride	Additional fire services in McBride	<ul style="list-style-type: none"> Fire services: volunteer service in McBride.
District of Clearwater	RCMP Detachment	Clearwater Fire Department	<ul style="list-style-type: none"> Fire services: 20 volunteer, 1 part-time career firefighter
City of Kamloops	RCMP Detachment	Kamloops Fire Rescue	<ul style="list-style-type: none"> Policing: 120 RCMP officers; the City of Kamloops provides an additional 55 municipal employees to support the RCMP. There is also a Kamloops Traffic Services office. Fire services: 86 career firefighters; six fire stations in the city (three operated by full time firefighters, while the others are operated by a combination of full-time and paid on-call firefighters).
City of Merritt	RCMP Detachment	Merritt Fire Rescue Department	<ul style="list-style-type: none"> Policing: 19 officers; RMCP detachment has a municipal group, a highway group and four Aboriginal groups. Fire services: 27 paid on-call firefighters, 2 career firefighters, and 5 work experience program firefighters.
District of Barriere ¹	RCMP Detachment	District of Barriere Fire Department	<ul style="list-style-type: none"> Fire services: volunteer fire department.
TNRD	Additional policing services provided by RCMP detachments in T'Kumlups, Chase, Logan Lake, Lytton, Clinton, and Ashcroft	Additional fire services in rural areas	<ul style="list-style-type: none"> Policing: 47 officers throughout rural RCMP detachments Fire services: additional volunteer services located in communities of Vavenby, Black Pool, Blue River, McClure and Little Fort.

Sources: BC Ministry of Justice 2013a, City of Kamloops 2013, City of Merritt 2011b, District of Barriere 2013, District of Clearwater 2013a, Emergency Management BC 2013, Kamloops Fire Rescue 2010, Noble pers. comm., RCMP 2012b, Roline pers. comm., Village of Valemout 2013

Notes: 1 The District of Barriere is not along the proposed pipeline corridor, but is along the Darfield to Blackpines reactivated segment of TMPL.

In communities along the proposed pipeline corridor in the region, RCMP detachments are located in the Village of Valemout, the District of Clearwater, the City of Kamloops and the City of Merritt. Various RCMP traffic units exist in the Fraser-Fort George/Thompson-Nicola Region: RCMP Municipal Traffic Unit in Kamloops; RCMP Central Interior Traffic Services in Kamloops, Clearwater and Merritt; Traffic Services Unit in Valemout; and Integrated Road Safety Unit in Kamloops and Valemout (RCMP 2011). There is no RCMP detachment in the Community of Blue River; the nearest RCMP detachment is located in the District of Clearwater (RCMP 2012b), approximately 105 km away. There is also an RCMP detachment serving rural areas of RDFFG Electoral Area H located in the Village of McBride, as well as detachments in the TNRD communities Chase, Logan Lake, Lytton, Clinton and Ashcroft.

Fire services are located in the Village of Valemout, the District of Clearwater, the City of Kamloops and the City of Merritt. The RDFFG Robson Valley-Canoe Upstream OCP indicates that the Regional Board is in the process of establishing and expanding fire protection services and the development of fireguards to protect population areas from wildfires (RDFFG 2006). Fire services are also available in the Village of McBride. TNRD operates fire departments in the communities of Vavenby, Black Pool, Blue River, McClure and Little Fort. Many fire departments use volunteer fire fighters, including Barriere and Clearwater. The Cities of Kamloops and Merritt have their own fire departments, which have career staff (Storie pers. comm.). The District of Clearwater has mutual aid agreements with the Hamlet of Black Pool and the Village of Vavenby. The City of Merritt has two fire fighter training programs: a recently approved provincial forest fighting centre for wildfires, and the Merritt training centre for domestic/urban fires (Sibilleau pers. comm.). The City of Merritt indicated that some emergency services are operating at or near capacity; however police services have adequate capacity (Noble pers. comm., Roline pers. comm.).

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to emergency services in the Fraser-Fort George/Thompson-Nicola Region.

- Concerns regarding capacity issues for the Blue River Volunteer Fire Department were raised at the Blue River Community Workshop.
- Concern regarding construction impacting emergency services was identified at the Valemount Community Workshop.
- Emergency response capacity was raised as an issue for the region at the Blue River Community Workshop.
- Concern that strained healthcare services in Clearwater and surrounding communities will be burdened by temporary construction workers was identified at the Clearwater Community Workshop.

8.6.6 Emergency and Protective Services – Fraser Valley Region

Emergency and protective services are located at numerous locations along the proposed pipeline corridor in the Fraser Valley Region. RCMP detachments are located in the District of Hope and the City of Chilliwack, while fire services are located in the District of Hope, the City of Chilliwack and the City of Abbotsford. Emergency services in the FVRD include police, fire fighting, ambulance and medical support. The FVRD operates seven rural fire departments with over 150 volunteer firefighters.

Details on emergency and protective services for communities in the proposed pipeline corridor of the Fraser Valley Region are presented in Table 8.6-5.

TABLE 8.6-5

FIREFIGHTING AND PROTECTIVE SERVICES FOR COMMUNITIES ALONG THE PROPOSED PIPELINE CORRIDOR FRASER VALLEY REGION

Footprint Community/Region	Police Services	Fire Services	Comments
District of Hope	RCMP Detachment	District of Hope Fire Department	<ul style="list-style-type: none"> • Policing: 21 officers. • Fire Services: volunteer and paid on-call firefighters.
City of Chilliwack	RCMP Detachments	Chilliwack Fire Department	<ul style="list-style-type: none"> • Policing: Upper Fraser Valley Regional RCMP Detachment is located in Chilliwack, as well as the Chilliwack Community Police Office. • Fire Services: 31 career staff and 130 paid on-call firefighters. Career members have HazMat Operations training. Fire responders have received Emergency Response Training from KMC representatives.
City of Abbotsford	Abbotsford Police Department	Abbotsford Fire Rescue Service	<ul style="list-style-type: none"> • Policing: 217 officers; approximately 100 civilian staff and 80 volunteers also work for the Abbotsford Police Department. • Fire services: both career and paid on-call firefighters;
FVRD	Additional policing provided by RCMP detachments in Agassiz, Boston Bar and Mission	Rural areas serviced by seven rural volunteer fire departments	<ul style="list-style-type: none"> • Fire Services: 150 volunteers in rural departments, including Chilliwack River Valley Volunteer Fire Department, Columbia Valley Volunteer Fire Department, Popkum Volunteer Fire Department, Boston Bar/North Bend Volunteer Fire Department, Yale and District Volunteer Fire Department, Hemlock Valley Volunteer Fire Department, and North Fraser Volunteer Fire Department

Sources: Abbotsford Police Department 2011, City of Abbotsford 2013, City of Chilliwack 2013, Davidsen pers. comm., Hope BC 2012, RCMP 2012b, Sanderson pers. comm.

The Upper Fraser Valley Regional RCMP Detachment, located in Chilliwack, oversees the RCMP Community Police Offices in Hope, Chilliwack, Kent and Boston Bar (Davidsen pers. comm.). During summer months, the volume of police calls increases in the region (Burleigh pers. comm.). During technical discussions, it also was noted that a notable influx of temporary workers to a larger community such as the City of Chilliwack would not be a concern for the RCMP; however, smaller communities such as the District of Hope may see social and/or traffic-related issues that could affect policing services (Burleigh pers. comm.). It was noted that the Hope Community Policing Office (CPO) has an increased file load during the summer when the population increases due to tourists. The addition of temporary workers into the community would likely increase stress on the police detachment (Davidsen pers. comm.). The Hope CPO also identified theft of equipment from construction camps for re-sale or scrap metal as an issue in the vicinity of Hope. They also encourage the use of dry camps because of issues related to drugs and alcohol, particularly in smaller communities. It was noted that social services tend to slow down in the summer in Hope, while in the winter people are more motivated to seek assistance in finding employment (McBride pers. comm.). The City of Abbotsford has a municipal police department. The Fraser Valley Traffic Services based in the City of Chilliwack enforce traffic laws on arterial highways (Davidsen, Wilson pers. comm.).

Fire services are located in Hope, Chilliwack and Abbotsford. The FVRD also operates seven rural fire departments with over 150 volunteer firefighters.

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issue were identified with respect to emergency services in the Fraser Valley Region.

- Concern about emergency access during construction was raised at the Abbotsford Community Workshop.

8.6.7 *Emergency and Protective – Metro Vancouver Region*

Emergency and protective services in the Metro Vancouver Region include police, fire fighting, ambulance and medical support. Within the Metro Vancouver Region, RCMP detachments are located in each of the proposed pipeline corridor communities (Langley, Surrey, Coquitlam and Burnaby) as well as various Socio-Economic RSA communities. The Surrey RCMP Detachment is the largest in Canada, and the Langley Detachment serves both the City and Township of Langley (RCMP 2012b). In Burnaby and Surrey, there are RCMP Municipal Traffic Units (RCMP 2011).

According to the PMV Consolidated Land Use Plan, policing and security are available throughout the PMV, which is a joint responsibility of the PMV, terminal operators and local police jurisdiction. PMV has also implemented the International Ship and Port Facility Code (PMV 2010).

There are fire services are located in each of the major urban centres in the Metro Vancouver Region, including the footprint communities. 9-1-1 services are available throughout the Metro Vancouver Region.

Details on emergency and protective services for communities along the proposed pipeline corridor in the Metro Vancouver Region are presented in Table 8.6-6.

TABLE 8.6-6

**FIREFIGHTING AND PROTECTIVE SERVICES FOR COMMUNITIES ALONG
 THE PROPOSED PIPELINE CORRIDOR OF THE METRO VANCOUVER REGION**

Footprint Community/Region	Police Services	Fire Services	Comments
Township of Langley	RCMP Detachment	Township of Langley Fire Department	<ul style="list-style-type: none"> • Policing: 188 RCMP officers. In addition, five Community Police Offices in the City and Township of Langley. The main detachment is in Murrayville, with Community Police Offices in Aldergrove, Brookwood, Willoughby and Walnut Grove. • Fire services: 92 career and 127 paid-on call firefighters in Township of Langley Fire Department. Services also available through City of Langley (Langley City Fire-Rescue Service, which has 20 career staff and 22 paid on-call firefighters).
City of Surrey	RCMP Detachment	Surrey Fire Service	<ul style="list-style-type: none"> • Policing: Five Community Police Offices in Surrey. Also 250 City of Surrey support staff. • Fire services: 342 career and 99 paid-on-call firefighters.
City of Coquitlam	RCMP Detachment	Coquitlam Fire and Rescue	<ul style="list-style-type: none"> • Policing: 302 career and civilian RCMP members. Two Community Police Offices in Coquitlam. Serves Coquitlam, Anmore, Belcarra and Port Coquitlam. • Fire services: 148 career and 30 paid on-call
City of Burnaby	RCMP Detachment	City of Burnaby Fire Department	<ul style="list-style-type: none"> • Policing: four Community Police Offices stations are located in Burnaby. An additional 127 support staff are provided by the City of Burnaby. • Fire services: five divisions: Administration, Suppression, Training, Fire Prevention and Mechanical. Fast response fireboat services available.

Sources: City of Burnaby 2013, City of Coquitlam 2013, City of Surrey 2013, RCMP 2012b, City of Langley 2013, Township of Langley 2013

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to emergency services in the Metro Vancouver Region.

- Emergency Response Systems were raised as a concern for remote, difficult to access areas at the Surrey ESA Workshop.
- Concern that areas in the City of Burnaby would be cut off in the event of a spill was raised at the Burnaby Community Workshop. For example, Cliff Avenue is a single access road for residents near the Westridge Marine Terminal.
- At the Burnaby Community Workshop, community annoyance with current tanker and spill response drills was noted.

8.6.8 Social Services

Generally, community and social services are provided by a combination of local authorities with mandated responsibilities, municipal and band-funded initiatives, non-profit community organizations and private providers. Service providers work closely with health authorities, police, corrections and educational institutions among other organizations. They provide a wide range of services in response to the social, psychological, employment, income and crisis needs.

In Alberta, Alberta Ministry of Human Services provides a framework for a range of human and family support services, including family and community services, disability services, family violence services, women's and youth programs, homelessness services, financial support, employment services, and newcomers' services. There are numerous service delivery offices, Alberta Works Centres, Child and

Family Services Authorities, and Employment Services offices providing a range of range of programs and services across Alberta to Socio-Economic RSA communities (Alberta Human Services 2013).

In BC, several provincial ministries are involved in the provision of social services. BC Ministry of Social Development and Innovation provides services in the areas of income assistance, disability services, and employment and labour market services. BC Ministry of Child and Family Development provides various programs and services in the areas of: early childhood development, child protection and foster care, Aboriginal services, youth engagement and youth education assistance. Services are provided via Service BC or Work BC offices in many communities throughout the Socio-Economic RSA, as well as through numerous contracted organizations.

Aboriginal communities and Aboriginal-focused organizations play an active role in service provision for many community members. Many Bands provide education, social and health services to their members (see Aboriginal Community Overview in the Section 5). Also, Aboriginal Affairs and Northern Development Canada provides funds to support the delivery of social development programs in Aboriginal communities, including: the Income Assistance Program; National Child Benefit Reinvestment; Assisted Living Program; First Nations Child and Family Services Program; and Family Violence Prevention Program (AANDC 2013b).

8.7 Recreation Amenities

This subsection discusses the recreation amenities in key communities along the proposed pipeline corridor, focusing on communities that are likely to be construction hubs. A discussion of outdoor recreation activities and areas is found in Section 7.5 Outdoor Recreation Use of this report.

8.7.1 Recreation Amenities – Edmonton Region

A range of recreational amenities are found in the Edmonton Region. This area offers a diverse mix of urban-based and outdoor recreational facilities and organizations. Communities have a range of recreational infrastructure and services typically commensurate with their size. Larger centres (*i.e.*, Sherwood Park Urban Service Area, the City of Edmonton, the City of Spruce Grove and the Town of Stony Plain) tend to have a wide range of recreational services. In and around the City of Edmonton, there are many sports and recreation facilities including the City of Edmonton Recreation Centre, the Commonwealth Community Recreation Centre, outdoor and indoor swimming pools, the Edmonton Valley Zoo as well as numerous golf courses, sports fields, theatres and hiking/biking trails (City of Edmonton 2013). The Parkland Recreation Plan outlines priorities for future development, such as water spray parks, picnic areas, playgrounds, skating rinks, BMX bicycle parks, skateboard parks, cross country ski trails, outdoor swimming pools, boat launches, off leash dog parks, campgrounds, sports arenas, baseball diamonds, climbing walls, curling rinks, museums and dance rooms (Parkland County 2007).

Smaller communities, such as the Village of Wabamun, typically have a smaller range of recreational infrastructure due to smaller populations, but generally have resources such as community halls, rinks, parks and playgrounds. Recreational amenities in the Village of Wabamun, recreational amenities include a water park, three baseball diamonds and sports field, hiking/biking trails, museums, arena, golf courses and a bowling alley (Village of Wabamun 2011). According to the Wabamun MDP, developing recreational amenities within the village is a priority for Council (Village of Wabamun 2010). Some of the infrastructure (*e.g.*, the arena) in the village is aging (Hannah pers. comm.).

8.7.2 Recreation Amenities – Rural Alberta Region

The Rural Alberta Region offers a range of recreational amenities, including indoor and outdoor recreational facilities. A range of indoor recreational amenities, including recreation complexes, a curling rink, arenas, swimming pools and leisure centres are found in the Town of Edson and the Town of Hinton. Outdoor recreation amenities are abundant in the Rural Alberta Region, including golf courses, outdoor arenas, hiking/biking trails, snowmobile/ATV trails, a skateboard park, camping, fishing, skiing and numerous sports fields (Town of Edson 2013, Town of Hinton 2013). According to the Edson MDP, there will be further development of regional parks, major recreational facilities, special use parks and small

neighbourhood playgrounds within the Town of Edson (Town of Edson 2006). In the Town of Edson it was noted that during the August long weekend, the Town of Edson hosts a popular annual baseball tournament at Vision Park that is widely attended by the community (crossed by the proposed pipeline corridor from approximately RK 228.8 to RK 229.6) (Lemieux pers. comm.).

The Hamlet of Wildwood, in the HORU LSA, offers recreational services including a recreational complex (soccer, curling, ice skating and roller skating), as well as trails for biking, snowmobiling, cross country skiing, walking and hiking.

8.7.3 Recreation Amenities – Jasper National Park Region

The Municipality of Jasper and surrounding area offers an abundance of outdoor recreation amenities including, but not limited to centennial park (e.g., baseball diamonds, soccer pitches, picnic areas etc.), a skate park and tennis courts. The Municipality of Jasper's offers an arena, activity centre and a fitness and aquatic centre that was renovated in 2011 (Municipality of Jasper 2013). The capacity of the fitness centre has been doubled in recent years. Recreation amenities in the Municipality of Jasper are built for more people than currently reside in the Municipality of Jasper. This is in order to accommodate the summer tourist population. Recreation amenities in the Municipality of Jasper have plenty of excess capacity (Read pers. comm.).

8.7.4 Recreation Amenities – Fraser-Fort George/Thompson-Nicola Region

A range of recreational amenities are found in the Fraser-Fort George/Thompson-Nicola Region. The region offers a mix of urban-based and outdoor recreational facilities and organizations. Communities have a range of recreational infrastructure and services typically commensurate with their size. Larger centres (*i.e.*, the City of Kamloops and the City of Merritt) tend to have a wide range of recreational services. The City of Kamloops promotes itself as Canada's Tournament Capital, housing numerous sports venues and facilities. A range of recreational services are found in Kamloops, including multi-purpose facilities, arenas, a Canada Games Aquatic Centre, swimming pools, fitness rooms, outdoor facilities (BMX track, ball diamonds, soccer fields, tennis courts, skate parks), auditorium, theatre, hiking and biking trails (City of Kamloops 2013). The City of Merritt also offers recreational services for all seasons including aquatic centres, civic centre, ice hockey rinks, curling rinks, golf courses, mountain biking, water park, summer festivals, Nicola Valley Lake (Noble pers. comm., City of Merritt 2007).

Smaller communities, such as the Village of Valemout and the Community of Blue River, typically have a smaller range of recreational infrastructure due to smaller populations, but generally have resources such as community halls, rinks, parks and playgrounds. In and around the Village of Valemout there are many sports and recreation facilities including a community theatre, yoga, the Canoe Valley Recreation Centre (arena), baseball diamonds, art gallery, and rodeo grounds which host an annual rodeo event (Village of Valemout 2013).

8.7.5 Recreation Amenities – Fraser Valley Region

A range of recreational amenities are found in the Fraser Valley Region. This area offers a mix of urban-based and outdoor recreational facilities and organizations.

The District of Hope offers a variety of recreational services including indoor facilities (cinema, library, aquatic centre, arena, curling, bowling and racquetball) and outdoor activities such as skiing, bird watching, canoeing or kayaking, biking, fishing, golf and hiking (Hope BC 2012). In the City of Chilliwack, recreational amenities include skating rinks, leisure centre (weight room, wave pool, swimming pool and waterpark), fitness clubs, outdoor activities (biking, canoeing, paragliding, kayaking, windsurfing and wildlife viewing), golf, museums, and theatres (City of Chilliwack 2013). A range of recreational services are found in the City of Abbotsford, including a recreation centres (weight room, swimming pool and arena), exhibition park (running track, sports fields and BMX track), ball diamonds, tennis and volleyball courts, skate park, basketball courts, cultural centre, art gallery and auditorium (City of Abbotsford 2013).

8.7.6 Recreation Amenities – Metro Vancouver Region

A wide range of recreational amenities are found in the Metro Vancouver Region. This area offers primarily urban-based indoor and outdoor recreational facilities and organizations. The recreational infrastructure and services reflect the communities' size and location in the densely populated Metro Vancouver area. The Township of Langley and cities of Surrey, Coquitlam and Burnaby all offer a wide variety of recreation and community centres, pools, fitness centres, playing fields and parks (Township of Langley 2013, City of Surrey 2013, City of Coquitlam 2013, City of Burnaby 2013). Metro Vancouver operates 22 regional parks, a conservation reserve and is working with the FVRD to implement the Experience the Fraser project, designed to connect Hope with the Salish Sea by terrestrial and aquatic trails (Metro Vancouver 2011a).

The Metro Vancouver Region also offers a range of both marine and fresh water-based recreational opportunities. Kayaking, canoeing, boating and swimming are popular activities in the City of Burnaby's Deer Lake, Burnaby Lake and at the Barnet Marine Park in the Burrard Inlet (City of Burnaby 2013). The Burrard Inlet is a multi-use water body that offers recreational opportunities including boating, fishing and wildlife viewing (BIEAP 2002). More information on recreational marine use in the Burrard Inlet is found the Marine Commercial, Recreational and Tourism Use Technical Report in Volume 8B.

9.0 EXISTING CONDITIONS – NAVIGATION AND NAVIGATION SAFETY

This section presents the setting pertaining to navigation and navigation safety. The NEB indicates it intends to follow Transport Canada's longstanding definition of navigable waters and will be guided by the following definition: *navigable water will be considered as any body of water capable, in its natural state, of being navigated by floating vessels of any description for the purpose of transportation, recreation or commerce, and may also be a human-made feature such as a canal or reservoir* (NEB 2013).

As discussed in the Fisheries (Alberta) Technical Report in Volume 5C, criteria for the definition of navigability were established for the purposes of the Project by the aquatics team. The navigability criteria outlined in the *Minor Works and Waters Ministerial Order (Navigable Waters Protection Act) (NWPA)* (Government of Canada 2009) and the *Minor Waters User Guide* (Transport Canada 2010) were used as the basis for determining whether each watercourse crossed by the Project could be classed as a minor navigable water and, therefore, unlikely to be navigable. In addition to the *Minor Works* criteria, a supplemental benchmark based on industry experience was also used to further expand classification of presumably non-navigable watercourses.

According to the Navigable Waters Protection Program Application Guide (Transport Canada 2010) navigable water is defined as "any body of water capable of being navigated by floating vessels of any description for the purpose of transportation, commerce or recreation. This includes both inland and coastal waters" (Transport Canada 2010).

Wetlands in some circumstances fall within this definition as they have characteristics that allow for floating vessels to traverse across them (*i.e.*, deeper, more permanent water channels through the wetland). Specific types of wetlands that would fall under this designation include deep emergent marshes, open water ponds and non-woody fens which have open water channels throughout or any wetlands associated with a classified watercourse.

Results from field investigations were used to screen watercourses against the following criteria to determine if each watercourse could be defined as a minor navigable water (*i.e.*, non-navigable). Class 1 or Class 2 non-navigable waters meet the conditions in either Section 11(2) or 11(3), respectively, of the Minor Navigable Waters of the *Minor Works and Waters (NWPA) Ministerial Order* (Government of Canada 2009). In addition to Class 1 and 2 non-navigable waters, a third class (Class 3) was added to include minor watercourses up to 5 m wide. Experience has also shown that watercourses from 3-5 m wide, and with one or more of the criteria used to categorize Class 2 non-navigable waters, are also likely to be deemed "non-navigable". The classes of non-navigable minor waters for the Project are defined as follows:

Class 1: Watercourses that have one of the following:

- an average width measured at the high water level that is less than 1.20 m; or
- an average depth measured at the high water level that is less than 0.30 m.

Class 2: Watercourses that have an average width measured at the high water level that is greater than 1.2 m and less than 3 m and at least one of the following:

- an average depth at the high water level that is greater than 0.30 m but not more than 0.60 m;
- a slope measured at high water level that is greater than 4%;
- a sinuosity ratio that is greater than 2; or
- more than two natural obstacles with at least one upstream and another downstream from the crossing.

Class 3: Watercourses that have an average width measured at the high water level that is greater than 3 m but less than 5 m and at least one of the criteria of a Class 2 minor navigable water (above).

Watercourses which did not meet the criteria of any of these three classifications were assumed to be navigable for recreational, commercial or traditional purposes.

Additional criteria were developed to help with identifying any potentially navigable wetlands. Criteria used included:

- classification of wetland (*i.e.*, deep marsh, open water pond, non-woody fen or any wetland associated with classified watercourses);
- permanency of water (*i.e.*, semi-permanent or permanent); and
- presence of semi-permanent or permanent open water channels within the wetland (*e.g.*, within non-woody fens).

A list of watercourses and wetlands crossed by the proposed pipeline corridor, including their classification of navigability, is provided in the Pipeline EPP (see Volume 6B). Traditional Aboriginal use of watercourses for navigation, while touched on briefly in this subsection, is discussed in the Traditional Land and Resource Use Technical Report in Volume 5D. The Marine Commercial, Recreational and Tourism Use Marine Transportation Technical Report – Marine Transportation in Volume 8B provides further information about marine use patterns and navigation in the marine waters of Burrard Inlet.

Key navigable watercourses crossed by the proposed pipeline corridor that have known traditional and non-traditional human uses and that were identified as valued watercourse resources during stakeholder consultation and Aboriginal engagement and the various Community Workshops and ESA Workshops are presented in Table 9.0-1.

TABLE 9.0-1

**USE AND VESSELS ON KEY NAVIGABLE WATERCOURSES
 CROSSED BY THE PROPOSED PIPELINE CORRIDOR**

Watercourse (RK)	Types of Use	Types of Vessels/Craft
EDMONTON REGION		
North Saskatchewan River	<u>Commercial</u> <ul style="list-style-type: none"> • paddlewheeler tours <u>Non-commercial</u> <ul style="list-style-type: none"> • fishing (<i>e.g.</i>, pike, lake trout, whitefish etc.) • canoeing • kayaking • jet boating/skiing 	<ul style="list-style-type: none"> • fishing boats • paddlewheelers • canoes • kayaks • motorboats • jet skis
RURAL ALBERTA REGION		
Pembina River	<u>Commercial</u> <ul style="list-style-type: none"> • fishing • tubing <u>Non-commercial</u> <ul style="list-style-type: none"> • tubing • fishing • kayaking • traditional navigation route 	<ul style="list-style-type: none"> • rafts • tubes • fishing boats • kayaks • canoes • motorboats
McLeod River	<u>Non-commercial</u> <ul style="list-style-type: none"> • fishing • canoeing 	<ul style="list-style-type: none"> • fishing boats • canoes
Maskuta Creek	<u>Non-commercial</u> <ul style="list-style-type: none"> • fishing 	<ul style="list-style-type: none"> • fishing boats

TABLE 9.0-1 Cont'd

Watercourse (RK)	Types of Use	Types of Vessels/Craft
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION		
Fraser River	<u>Commercial</u> <ul style="list-style-type: none"> raft expeditions kayak tours fishing (e.g., several species of salmon) <u>Non-commercial</u> <ul style="list-style-type: none"> fishing (e.g., several species of salmon, sturgeon etc.) boating rowing 	<ul style="list-style-type: none"> rafts kayaks fishing boats rowboats
Swift Creek	<u>Commercial</u> <ul style="list-style-type: none"> fishing (e.g. salmon) 	<ul style="list-style-type: none"> canoes
Raft River	<u>Commercial</u> <ul style="list-style-type: none"> whitewater kayaking 	<ul style="list-style-type: none"> whitewater kayaks
Thompson River	<u>Commercial</u> <ul style="list-style-type: none"> whitewater rafting tours <u>Non-commercial</u> <ul style="list-style-type: none"> swimming fishing 	<ul style="list-style-type: none"> whitewater rafts fishing boats
Coldwater River	<u>Non-commercial</u> <ul style="list-style-type: none"> fishing (e.g., coho, steelhead, Chinook etc.) 	<ul style="list-style-type: none"> fishing boats
Nicola River	<u>Commercial</u> <ul style="list-style-type: none"> whitewater rafting whitewater kayaking 	<ul style="list-style-type: none"> whitewater rafts whitewater kayaks
FRASER VALLEY REGION		
Coquihalla River	<u>Commercial</u> <ul style="list-style-type: none"> whitewater rafting whitewater kayaking <u>Non-commercial</u> <ul style="list-style-type: none"> fishing (e.g., steelhead etc.) traditional Aboriginal cleansing¹ tubing swimming 	<ul style="list-style-type: none"> whitewater rafts whitewater kayaks fishing boats tubes
Chilliwack/Vedder River	<u>Commercial</u> <ul style="list-style-type: none"> kayaking courses <u>Non-commercial</u> <ul style="list-style-type: none"> fishing (e.g., steelhead, salmon, trout etc.) kayaking 	<ul style="list-style-type: none"> kayaks fishing boats
Sumas River	<u>Non-commercial</u> <ul style="list-style-type: none"> competitive rowing 	<ul style="list-style-type: none"> rowboats
METRO VANCOUVER REGION		
Fraser River	<u>Commercial</u> <ul style="list-style-type: none"> coastal and deep sea cargo transport log sorting and booming moorage river cruises <u>Non-commercial</u> <ul style="list-style-type: none"> fishing 	<ul style="list-style-type: none"> cargo ships tugs barges scows paddlewheeler steamboats sailboats fishing boats

Sources: BIEAP 2006, CHRS 2013, City of Edmonton 2013, Destination BC 2013, Hanlan pers. comm.

Note: 1 Some traditional uses were identified through Project-specific biophysical field studies and socio-economic interviews with Aboriginal communities.

In addition to the watercourses presented in Table 9.0-1, there are also numerous creeks, tributaries and wetlands crossed by the proposed pipeline corridor (many unnamed) which are navigable. Particular uses on such watercourses are unknown, but could include commercial and non-commercial fishing activities,

kayaking, canoeing, boating and rafting. Shore-side use for commercial and non-commercial fishing is also common along watercourses crossed by the proposed pipeline corridor.

9.1 Navigation and Navigation Safety – Edmonton Region

The proposed pipeline corridor in the Edmonton Region crosses 1 watercourse that is considered navigable, the North Saskatchewan River, 12 potentially navigable watercourses and 46 potentially navigable wetlands. Table 9.0-1 presents key navigable watercourses crossed by the proposed pipeline corridor that were noted as used watercourses during stakeholder consultation, as well as known types of use and types of vessel/craft.

The North Saskatchewan River is a focus for many outdoor recreation activities including angling and pleasure boating. The City of Edmonton park system, through its trails, provides numerous points of access to the North Saskatchewan River; boats can be launched at several locations in Edmonton (City of Edmonton 2013). It was noted during Aboriginal participation in Project-specific biophysical field studies that the North Saskatchewan and Elk rivers are used for fishing. Navigation and navigation safety is not specifically addressed in most land use plans along the proposed pipeline corridor. The Town of Stony Plain requires a minimum setback of 10 m from watercourses and wetlands (Armin A. Preiksaitis & Associates 2005).

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to navigable waters in the Edmonton Region.

- Concerns over disturbance to wetlands, and creek crossings were raised at the Edmonton East Community Workshop.
- Concern over how the North Saskatchewan River and Westwood Creek will be crossed was raised during the Edmonton West Community Workshop.

9.2 Navigation and Navigation Safety – Rural Alberta Region

The proposed pipeline corridor in the Rural Alberta Region crosses 3 watercourses that are considered navigable, including the Pembina River, Wolf Creek and McLeod River, 22 potentially navigable watercourses and 46 potentially navigable wetlands. Table 9.0-1 presents key navigable watercourses crossed by the proposed pipeline corridor that were noted as used watercourses during stakeholder consultation, as well as types of use and types of vessel/craft.

The Pembina River was identified as a navigational route and an ideal fishing area by Aboriginal participants during biophysical studies. Fishing by Aboriginal communities occurs on the McLeod River, and Maskuta Creek in Alberta. The McLeod River has traditionally been used for canoeing.

The Hinton MDP states that land along the banks of creeks/rivers and lakes must be protected for recreational access. Any development close by must create a transition between development and natural areas (Town of Hinton 1998).

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, no issues were identified with respect to navigable waters in the Rural Alberta Region:

9.3 Navigation and Navigation Safety – Jasper National Park Region

The Jasper Pump Station is not located on any waterways that are considered navigable.

During socio-economic technical discussions no issues and concerns were identified with respect to navigable waters in the JNP Region.

9.4 Navigation and Navigation Safety – Fraser-Fort George/Thompson-Nicola Region

The proposed pipeline corridor in the Fraser-Fort George/Thompson-Nicola Region crosses 30 watercourses that are considered navigable, including: the Fraser River; North Thompson River; Thompson River; Nicola River; Canoe River; Coldwater River; Albreda River; and Thunder River; 33 potentially navigable watercourses and 62 potentially navigable wetlands. Table 9.0-1 presents key navigable watercourses crossed by the proposed pipeline corridor that were noted as used watercourses during stakeholder consultation, as well as types of use and types of vessel/craft.

The Fraser River acts as a major provincial transportation corridor, is historically and environmentally important, and is an internationally recognized salmon run and nesting/staging area for shorebirds and waterfowl (CHRS 2013, BC MOE 2013). The river and basin are also used by recreationalists for sportfishing, rafting and boating (BC MOE 2013). During Project-specific field studies, Aboriginal participants noted that the Fraser River is used for fishing. The Fraser River is crossed by the proposed pipeline corridor in the Fraser-Fort George/Thompson-Nicola Region as well as in the Metro Vancouver Region.

According to the Kamloops LRMP, the proposed pipeline corridor crosses through the following Community Watershed Zones: White River (approximately RK 613); Avola Creek (approximately RK 656); and Gill Creek (approximately RK 731). The management objectives for these zones are to maintain the quantity and quality of the water and timing of flow (BC ILMB 1995).

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to navigable waters in the Fraser-Fort George/Thompson-Nicola Region.

- Concern over river crossings was made at the Clearwater Public Information Session and the Clearwater community Workshop.
- Concerns over disruption and maintenance of access to recreational waterbodies were raised during the Clearwater Community Workshop.

9.5 Navigation and Navigation Safety – Fraser Valley Region

The proposed pipeline corridor in the Fraser Valley Region crosses 17 watercourses that are considered navigable, including the Coquihalla River, Sumas River and Chilliwack/Vedder River, 30 potentially navigable watercourses and 12 potentially navigable wetlands. Table 9.0-1 presents key navigable watercourses crossed by the proposed pipeline corridor that were noted as used watercourses during stakeholder consultation, as well as types of use and types of vessel/craft.

During Project-specific biophysical field studies, Aboriginal participants noted that the Coquihalla River is used for traditional cleansing (bathing). Historically, before damming, the river was an important transportation corridor; presently, it is mainly used for recreational activities such as tubing and swimming. Kayaking courses and swimming occurs on the Vedder River. The Sumas River is used for competitive rowing (Destination BC 2013). According to the Chilliwack Forest District SRMP, the Coquihalla River is closed to fishing activities for conservation purposes; however, Kawkawa Lake is popular for kokanee fishing (BC ILMB 2004).

During socio-economic technical discussions (Table 2.1-1 in Section 2.0), and broader Project engagement, the following issues were identified with respect to navigable waters in the Fraser Valley Region.

- Concerns regarding the crossing of the Chilliwack/Vedder River were raised by the City of Chilliwack (Blain pers. comm.) and during the Abbotsford Community Workshop.

- The District of Hope raised concerns regarding waterway crossings in general (Fortloczky pers. comm.).
- Concerns regarding waterbodies, including the Chilliwack/Vedder River, Vedder Canal, Blue Heron Reserve, Cultus Lake and the wild bird conservatory, as well as the location for the marine terminal were identified at the Chilliwack Public Information Session.
- Water quality issues near Kawkawa Lake, and concerns over the location of the Chilliwack/Vedder River crossing were raised at the Hope Public Information Session.
- Concerns over location of the proposed pipeline corridor in relation to rivers and the location of the Marine Terminal were raised at the Abbotsford Public Information Session.

9.6 Navigation and Navigation Safety – Metro Vancouver Region

The proposed pipeline corridor in the Metro Vancouver Region crosses two watercourses that are considered navigable, the Fraser River and Salmon River, 7 potentially navigable watercourses and 10 potentially navigable wetlands. Table 9.0-1 presents key navigable watercourses crossed by the proposed pipeline corridor that were noted as used watercourses during stakeholder consultation, as well as types of use and types of vessel/craft.

The Fraser River is the largest river in BC (1,375 km), and supports high value salmon habitat as well as staging and nesting areas for shorebirds and waterfowl. The river also supports high recreation values including fishing, rafting and boating (CHRS 2013). At the proposed pipeline corridor crossing in the Metro Vancouver Region (RK 1168.9), the City of Surrey and City of Coquitlam are located on the north and south sides of the Fraser River, respectively. The City of Surrey has a system of dikes along the shore of the river to protect the city during high river levels (City of Surrey 2013). The City of Surrey is currently extending its dike system to the west of the proposed pipeline corridor (Baron pers. comm.). The City of Coquitlam also has dikes on sections of the city along the Fraser River (City of Coquitlam 2013). PMV has jurisdiction over various terminals and facilities on the Fraser River, including the Fraser Surrey Docks, a marine terminal that handles containers, lumber, logs and wood pulp, steel and general cargo that is located within the boundaries of the City of Surrey (PMV 2013).

The City of Surrey in partnership with the Fraser River Estuary Management Program (FREMP) develops policies, coordinates water use decisions and protects areas along the Fraser River. According to the Surrey OCP, there is a mandate to increase public access to rivers (such as access to the Fraser River in non-industrial land use areas) (City of Surrey 2013).

The proposed pipeline corridor ends at the Westridge Marine Terminal, which is located on Burrard Inlet in the Metro Vancouver Region. Burrard Inlet is a tidal saltwater inlet of 11,300 ha and is the location of Canada's busiest port, PMV (BIEAP 2011). It is also one of Canada's most productive coastal marine ecosystems and is an essential habitat for salmon and many other species of fish, birds and wildlife, as well as a destination for marine recreation and tourism.

Eight municipalities surround Burrard Inlet, including the City of Vancouver, the City of Burnaby, the City of Port Moody, the Villages of Belcarra and Anmore, the City of North Vancouver, the District of North Vancouver and the District of West Vancouver. Burrard Inlet is comprised of several distinct sections, including the Outer Harbour, the Inner and Central Harbour, the Port Moody Arm and the Indian Arm. The Inner Harbour is for the most part heavily industrialized and is bounded by the First Narrows to the west and the Second Narrows to the east. The Second Narrows is crossed by a vehicle bridge and rail bridge. The Central Harbour continues east of the Second Narrows and contains marine terminals including the Westridge Marine Terminal. The Central Harbour also is the location of an oil refinery, a Rockfish Conservation Area, regional parks, and popular dive sites. Port Moody Arm was heavily industrialized in the past, and still contains some major marine terminals as well as mixed residential and urban development. Indian Arm is mostly surrounded by provincial and regional parks, although much of the land area has been extensively logged (BIEAP 2011).

PMV has jurisdiction over commercial port operations and management in the Lower Mainland, including within Burrard Inlet. PMV is responsible for oversight of all marine traffic within Burrard Inlet, and operates harbour patrol vessels and services including emergency response, harbour monitoring and support services (PMV 2013). The port contains 28 major cargo terminals, 23 of which are in Burrard Inlet. Vancouver is the homeport for the Vancouver-Alaska cruise ship industry, with two cruise ship terminals in the Inner Harbour which provide berthing facilities for cruise ship companies (PMV 2013). Commercial vessel traffic in Burrard Inlet is comprised of vessels accessing the various marine terminals within Burrard Inlet, including: cargo ships (forest products, steel products, machinery, grains, coal, chemicals, potash and sulphur); oil tankers (petroleum products); cruise ships; and container ships (household goods) (PMV 2013).

According to the PMV Consolidated LUP, the proposed pipeline corridor crosses a water use area zoned for Log Storage & Moorage (approximately RK 1168.7), a water area zoned as undetermined (approximately RK 1169.1) and a water area zoned as recreation/park (approximately RK 1169.1) (PMV 2010).

During socio-economic technical discussions (Table 2.1-1 in Section 2), and broader Project engagement, the following issues were identified with respect to navigable waters in the Metro Vancouver Region.

- The Township of Langley encouraged Trans Mountain to coordinate river crossings with others such as Metro Vancouver when they install new infrastructure (Seifi pers. comm.).
- Loss of access to recreational watercourses, for camping, angling and gold panning via pipeline rights-of-way was raised as a concern at the Surrey Community Workshop.
- Concerns over watercourse crossings were raised at the Surrey ESA Workshop.

10.0 EXISTING CONDITIONS – EMPLOYMENT AND ECONOMY

This subsection describes the regional economic setting of the Project. The factors discussed include:

- economic activity, including key industrial sectors;
- labour force and employment; and
- educational attainment within the labour force.

Where possible, key economic trends are to be identified and discussed, particularly around other major developments anticipated during the timeframe of the Project which may contribute to cumulative demands on the regional labour force.

The discussion of these economic factors will frame the discussion of Project-related effects on key economic and employment-related indicators. Baseline discussion of economic activity will support the analysis of effects on national and provincial economies, contracting/procurement, municipal economic effects, and business and livelihood disruption. Labour force and employment characteristics discussion will provide context for the discussion of Project-related effects on regional employment. Educational attainment within the labour force will provide context for the discussion of Project-related effects on training and capacity development. Business and livelihood disruption also draws on information about resource-based livelihoods and industrial/commercial land use areas as described in HORU in Section 7.0

10.1 Economic Activity

This subsection discusses economic activity in the Socio-Economic RSA, focusing on key economic sectors and identifying growth trends including other proposed developments. Understanding the key activity in the regional economy is critical to ascertaining the extent to which regional businesses may participate in contracting and procurement opportunities related to the Project. The extent of anticipated growth due to other proposed develops is key to ascertaining cumulative demand for construction-related labour in the Project construction timeframe.

There is no direct method for assessing the current capability of regional businesses to provide the goods and services required directly for Project construction, or to supply Trans Mountain or its contractors with goods and services. Further, there is limited available information inventorying regional businesses and their capacity. Trans Mountain has engaged, and will continue to engage, with chambers of commerce, economic development and other key business organizations in key Socio-Economic RSA communities to discuss the range of service needs related to the Project and associated regional business opportunities, and will be developing an on-line procurement information-sharing tool for interested businesses and service providers.

Generally, it is anticipated that regions where there is a higher ratio of the workforce employed in industries that typically support primary sectors (supporting industries), in comparison to the number of people employed in basic industries such as construction and manufacturing, will have a greater likelihood of participating in Project opportunities. Higher supporting industry to basic industry ratios typically indicate a more diversified regional economy that can offer a wider range of services to the construction industry. Lower ratios infer a less developed economy that may have lesser ability to provide goods and services required to support the construction industry.

Table 10.1-1 provides percentages of the workforce employed in businesses in basic and supporting industries in 2011 by Socio-Economic Region.

TABLE 10.1-1
PERCENTAGE OF THE LABOUR FORCE IN
SELECT INDUSTRIES BY SOCIO-ECONOMIC REGION (2011)

Industrial Category	% of Labour Force in Industrial Category (2011)					
	Edmonton Region	Rural Alberta Region	Jasper National Park Region	Fraser-Fort George/Thompson-Nicola Region	Fraser Valley Region	Metro Vancouver Region
Basic Industries (%)						
Construction	9.8	8.5	4.6	7.7	9.9	6.5
Manufacturing	6.5	7.2	0.0	5.4	8.5	6.3
Agriculture, forestry, fishing and hunting	0.9	5.3	0.0	3.6	5.9	1.0
Mining, quarrying, oil and gas extraction	3.0	16.6	0.0	3.5	0.4	4.0
Total – Basic Industries	20.2	37.5	4.6	20.2	24.7	17.8
Industries Supporting Basic Industry (%)						
Retail Trade	11.1	11.2	8.8	12.5	11.6	10.4
Transportation and Warehousing	4.7	7.9	13.2	5.5	6.1	5.4
Professional, scientific, technical services	6.9	4.4	2.4	4.8	4.4	9.1
Accommodation and food services	6.1	7.5	28.9	8.4	6.6	7.8
Wholesale Trade	4.8	2.5	0.0	3.3	3.8	4.8
Other Services	5.0	4.8	7.2	3.9	5.2	4.8
Total – Supporting Industries	38.7	38.3	60.5	38.4	37.6	42.3
Ratio of Supporting Industries to Basic Industries						
Ratio	1.91 :1	1.02 :1	13.13 :1	1.90 :1	1.52 :1	2.38 :1

Source: Statistics Canada 2013a

Note: Totals may not add due to rounding.

Of the socio-economic regions where Project construction will be focused (thus excluding Jasper National Park Region), the region with the highest ratio of supporting industries to basic industries is the Metro Vancouver Region (2.38:1). This means that for every worker employed in construction, manufacturing, agriculture/forestry, or mining/quarrying/oil and gas extraction in the Metro Vancouver Region, there are 2.38 workers in industries that could support primary industries (supporting industries include: wholesale trade, retail trade, transportation and warehousing, professional and technical services, accommodation and food services, and other services). As such, the Metro Vancouver Region is anticipated to have the greatest capacity to provide required goods and services during Project construction. The Edmonton Region has the second highest capacity, with a 1.91:1 ratio of supporting to primary industries, followed very closely by the Fraser-Fort George/Thompson Nicola Region with a 1.90:1 ratio. The Fraser Valley Region has a ratio of supporting to primary industries of 1.52:1, while the Rural Alberta Region has the lowest ratio at 1.02:1 (all based on 2011 labour force data).

The Jasper National Park Region had the highest ratio of supporting to primary industries across the Socio-Economic RSA (ratio of 13.13:1); this is due to its primarily tourist/recreational economic base and the fact that the accommodation and food services industry employs almost 29% of its small labour force. However, there will be limited construction activities in the Jasper National Park Region, as only pump station upgrades are proposed as well as the potential for some reactivation activities associated with the Hinton to Hargreaves segment (*i.e.*, no new pipeline construction), and no work is anticipated to be staged from within the Jasper National Park Region.

Further detail on economic activity by Socio-Economic Region is provided below.

10.1.1 Economic Activity – Edmonton Region

The Edmonton Region's economic base has expanded from a provincial government and regional commercial centre to include agriculture, biofuels, chemicals and petrochemicals, commercial/retail, residential, forestry and related industries, infrastructure, institutional, mining, oil and gas, oil sands, other industrial, pipelines, power, and tourism and recreation. For the Edmonton Region overall within in the Socio-Economic RSA, in 2011 the most active industries (by industrial classification) were: retail trade (employing approximately 11.1% of the labour force); health care and social assistance (10.5%); and construction (9.8%). Public administration was another key industry (employing 8.1% of the labour force), as well as professional, scientific and technical services (6.9%) and educational services (7.4%) (Statistics Canada 2013a). The Edmonton Region is encompassed by the Capital Region Plan that aims to coordinate the growth of the numerous municipalities, counties and hamlets in the region, particularly through improved land-use planning, inter-municipal transit, information services and affordable housing. One of the six founding principles of the plan is to support regional economic development (Government of Alberta 2012b).

The City of Edmonton has a diversified economy that is one the fastest growing of any large Canadian city in 2011 (City of Edmonton 2013). The top leading private employers in the city include PCL Construction Group Inc., CN and Stantec Inc. (City of Edmonton 2011, Edmonton Economic Development Corporation 2013). In 2011, the most active industries in the City of Edmonton (by industrial classification) were: retail trade (employing approximately 11.6% of the labour force); health care and social assistance (11.1%); and construction (8.9%) (Statistics Canada 2013a).

The City of Spruce Grove has grown from a small agricultural service centre, to a more diversified regional commercial and industrial service centre. The city has a growing retail and commercial sector and an industry base that includes agriculture, food processing, oil field services and manufacturing, general manufacturing and fabrication, consulting engineering, construction services and transportation/logistics/warehousing (City of Spruce Grove 2010). In 2011, the most active industries in the City of Spruce Grove (by industrial classification) were: construction (employing approximately 14.7% of the labour force); health care and social assistance (10.5%); and retail trade (10.5%) (Statistics Canada 2013a). The city has identified several sectors as anticipated growth areas over the next 10 years including: transportation and logistics; warehousing and supply; food processing and distribution; environmental products, services and technologies; oilfield and industrial services and manufacturing; destination retail/hospitality; business and professional services; and event tourism (City of Spruce Grove 2013).

The Town of Stony Plain's economy is based around coal, cement, oil and gas, and agriculture. The Fording Coal Mine and Edmonton Genesee Power Plant are major contributors to the local economy. Light manufacturing and government services have also played a role in the town's economic growth. The town has two business parks zoned for commercial and light industrial use. Businesses located in the business parks include Maple Leaf Gold Inc., Petro Canada, Best Western Inn & Suites, Canada Safeway and Jen-Col Construction (Alberta Community Profiles 2013). In 2011, the most active industries in the Town of Stony Plain (by industrial classification) were: construction (employing approximately 13.7% of the labour force); retail trade (10.7%), and health care and social assistance (10.1%) (Statistics Canada 2013a).

The Village of Wabamun's economy has traditionally been based on coal, electric power generation, gravel, strip mining, and the presence of the railway. The TransAlta Wabamun coal-fired power plant operated in the community for over 50 years, along with the associated Whitewood Coal Mine. The mine and power plant ceased operations in 2010 and the plant's decommissioning and reclamation process ended in November 2012 (TransAlta 2012). In recent years, the village has been moving toward residential and commercial growth, as well as tourism based on the nearby Wabamun Provincial Park and recreational opportunities associated with Wabamun Lake (Alberta Community Profiles 2013, Village of Wabamun 2011).

Details of economic activity by industrial classification for all Socio-Economic RSA communities in the region (where reported) are presented in Table D-1 in Appendix D. Information is based on the North American Industry Classification System (NAICS), as provided by Statistics Canada.

There is substantial reasonably foreseeable development proposed in the region, representing approximately \$24.5 billion of capital expenditures, that may coincide with the construction of the Project. This includes numerous potential pipeline and energy-related developments (e.g., the Heartland Pipeline and Terminals Projects, Heartland Transmission Project, Polaris Expansion Project, Edmonton to Hardisty Pipeline Project, ACCESS Northeast Pipeline Expansion) and multiple municipal infrastructure and services projects (e.g., Edmonton Visual Performing Arts Centre, libraries, transit expansion, recreation facilities, hospital expansions, post-secondary education institution expansions, and regional airport expansions). There are also numerous oil and gas wells anticipated. See Volume 5B Section 8.0 (Cumulative Effects Assessment) for details on reasonably foreseeable developments in the region.

10.1.2 Economic Activity – Rural Alberta Region

The Rural Alberta Region's economy is more resource-based than the Edmonton Region. Key sectors include forestry, coal, oil and gas, agriculture and tourism. The oil and gas industry is a steady contributor to the economy within Yellowhead County (Lyons pers. comm.). The leading employers include Teck Coal, Hinton Pulp and Grande Yellowhead Regional School Division (Town of Hinton 2013). Yellowhead County has a large tax base of which 85% is from non-residential and predominantly resource-based and linear assessment (e.g., power lines, oil and gas wells, pipelines, and telecommunication). The County and the Towns of Edson and Hinton are discussing revenue and cost-sharing options, in consideration that the population servicing industry largely reside in the urban town areas (Yellowhead County 2013).

For the Rural Alberta Region in the Socio-Economic RSA the most active industries in 2011 (by industrial classification) were: mining, quarrying, and oil and gas extraction (employing approximately 16.6% of the labour force); retail trade (11.2%); construction (8.5%); and accommodation and food services (7.5%) (Statistics Canada 2013a).

The Town of Edson's economy is resource-based; resources available locally include coal, clay, sand/gravel, oil and natural gas and timber. Agriculture is also a key economic activity in the surrounding area. Key businesses/services in the town include: Luscar (mining), Weyerhaeuser (forestry), Sundance Forest Industries and construction services (Alberta Community Profiles 2013). In 2011, the most active industries in the Town of Edson (by industrial classification) were: retail trade (employing approximately 14.0% of the labour force); mining, quarrying, and oil and gas extraction (12.7%); accommodation and food services (11.0%); and construction (7.2%) (Statistics Canada 2013a). At the Edson Community Workshop, it was noted that the Project is viewed as a positive for the town, in terms of employment and economy.

The Town of Hinton's economy is also traditionally resource-based. The town is aiming to diversify its economy and has goal of expanding its identity as a college/educational services community (Kreiner pers. comm.). The town is a service centre for other communities including the Town of Grande Cache, Municipality of Jasper, Yellowhead County and the Village of Valemount, BC (Town of Hinton 2013). In 2011, the most active industries in the Town of Hinton (by industrial classification) were: mining, quarrying, and oil and gas extraction (employing approximately 17.7% of the labour force); retail trade (13.2%); accommodation and food services (9.7%); and manufacturing (9.8%) (Statistics Canada 2013a).

Details of economic activity by NAICS industrial classification for all Socio-Economic RSA communities in the region (where reported) are presented in Table D-1 in Appendix D.

There is other reasonably foreseeable development proposed in the region representing approximately \$774 million of capital expenditures, that may coincide with the construction of the Project. This includes: the Vista Coal Mine Project and the Robb Trend Project (mine expansion) both near Hinton. There are also numerous oil and gas wells anticipated. See Volume 5B Section 8.0 (Cumulative Effects Assessment) for details on reasonably foreseeable developments in the region.

10.1.3 Economic Activity – Jasper National Park Region

The economy of the Jasper National Park Region is based primarily on tourism and recreation related to the presence of the Jasper National Park, as well as regional railway lines. Key employers in the Municipality of Jasper include Parks Canada, the Municipality of Jasper, CN Rail, Fairmount Jasper Park Lodge, Marmot Basin ski resort, and the wide range of businesses and services related to the hospitality tourism industry (Alberta Directory 2013). The study region located within the Province of Alberta's Jasper-Banff-Rocky Mountain House Economic Region.

For the Jasper National Park Region in 2011, the most active industries (by industrial classification) were: accommodation and food services (employing approximately 28.9% of the labour force); transportation and warehousing (13.2%); healthcare and social assistance (9.6%); and retail trade (8.8%) (Statistics Canada 2013a).

Details of economic activity by NAICS industrial classification for all Socio-Economic RSA communities in the region (where reported) are presented in Table D-1 in Appendix D.

10.1.4 Economic Activity – Fraser-Fort George/Thompson-Nicola Region

The Fraser-Fort George/Thompson-Nicola Region's economic base includes forestry and wood products, agriculture, tourism and government services. For the Fraser-Fort George/Thompson-Nicola Region overall within in the Socio-Economic RSA, in 2011 the most active industries (by industrial classification) were: retail trade (employing approximately 12.5% of the labour force); health care and social assistance (12.3%); accommodation and food services (8.4%); and construction (7.7%) (Statistics Canada 2013a).

In the RDFFG, key economic sectors are forestry and wood products, agriculture, tourism, senior government services, and freelance professional services (RDFFG 2010). Forestry has traditionally been the main economic driver, but recent initiatives have diversified the economy and facilitated growth in sectors such as education, tourism and clean energy (Northern Development Initiatives Trust [NDIT] 2013).

The Village of Valemount's economy is based on logging and a growing tourism industry. Valemount is on the main transportation route between Edmonton and Vancouver and is near Jasper National Park and Mount Robson Provincial Park. During the summer season, more than 1.2 million travellers use Highway 5; more than 120,000 tourists stay in local hotels and motels annually (NDIT 2013, RDFFG 2010). In 2011, the most active industries in the Village of Valemount (by industrial classification) were: accommodation and food services (employing approximately 19.4% of the labour force); transportation and warehousing (17.2%); retail trade (7.5%); and health care and social assistance (7.5%) (Statistics Canada 2013a).

Key economic sectors in the TNRD include mining/aggregates, forestry, agriculture, food production/processing. The TNRD has goals to encourage eco-tourism activities and tourism sector in general, as well as attracting clean, high-tech knowledge-based industries (TNRD 2013). The TNRD RGS aims to increase economic diversity while balancing human, economic and environmental actions (TNRD 2013). In the TNRD, the industrial sector is expected to grow, with a projected 4,000 jobs being created over 25 years. The most rapidly growing sector in the TNRD is anticipated to be health services, while the slowest growing sector is projected to be manufacturing and processing (TNRD 2013).

The District of Clearwater's economy is historically based on forestry, but has diversified to include a range of other service industries. The district is aiming to expand tourism opportunities, as well as light industry and commercial ventures (NDIT 2013, RDFFG 2010, District of Clearwater 2013b). Key employers in the district include Borrow Enterprises (construction), Canadian Forest Products, the District of Clearwater, and Interior Health Authority (District of Clearwater 2013b). In 2011, the most active industries in the District of Clearwater (by industrial classification) were: accommodation and food services (employing approximately 14.7% of the labour force); construction (12.7%); health care and social assistance (12.7%); retail trade (9.5%); and agriculture, forestry, fishing and hunting (9.1%) (Statistics Canada 2013a).

The City of Kamloops's economy was historically based on forestry, mining and agriculture. Recently, growth has occurred in other sectors including technology, bioenergy, tourism and manufacturing (Grover pers. comm., Venture Kamloops 2012,). The leading employers include Interior Health Authority, School District No. 73 and Thompson Rivers University, followed by Highland Valley Copper Mine (Venture Kamloops 2012). In 2011, the most active industries in the City of Kamloops (by industrial classification) were: retail trade (employing approximately 13.4% of the labour force); health care and social assistance (13.1%); accommodation and food services (8.7%); and educational services (7.6%) (Statistics Canada 2013a).

The City of Merritt's economy is based on forestry (timber storage, sawmills and other wood manufacturers), agriculture, transportation and tourism. Health, education, government services, research, arts and culture are growing contributors to the local economy. The city aims to diversify the economy further by promoting tourism and entertainment events. Tourism in the City of Merritt is boosted by highway traffic volumes during the summer (City of Merritt 2011a). In 2011, the most active industries in the City of Merritt (by industrial classification) were: retail trade (employing approximately 15.3% of the labour force); health care and social assistance (10.5%); educational services (11.1%); and manufacturing (10.4%) (Statistics Canada 2013a).

Details of economic activity by NAICS industrial classification for all Socio-Economic RSA communities in the region (where reported) are presented in Table D-2 in Appendix D.

There is other reasonably foreseeable development proposed in the region, representing approximately \$1.1 billion of capital expenditures, that may coincide with the construction of the Project. This includes the Ajax Mine in Kamloops, Harper Creek Copper-Gold-Silver Project near Vavenby, Merritt Area Transmission Project, TransCanada Highway improvements, and various hydroelectric projects. See Volume 5B Section 8.0 (Cumulative Effects Assessment) for details on reasonably foreseeable developments in the region.

10.1.5 Economic Activity – Fraser Valley Region

The economy of the Fraser Valley Region is based primarily on agriculture, manufacturing and construction. Historically, the predominant sectors have been agriculture and resource development, but the economy is diversifying based on growth in the manufacturing, services, aerospace and technology sectors (FVRD 2010). The FVRD generates the largest annual farm receipts of any Regional District in BC and is one of the most intensively farmed areas in Canada. The ALR, a provincial zone in which agriculture is recognized as the priority use and where farming is encouraged and non-agricultural uses are controlled, has historically contained urban growth. Nonetheless, the region is growing to include a greater variety of commercial and industrial activity. The FVRD's agricultural production has continued to grow in terms of livestock, land under cultivation and agriculture taking place in greenhouses (FVRD 2004). While the economies of the City of Abbotsford and the City of Chilliwack have diversified and grown, the economies in many smaller communities remain resource-dependent (FVRD 2010). For the Fraser Valley Region overall within in the Socio-Economic RSA, in 2011 the most active industries (by industrial classification) were: retail trade (employing approximately 11.6% of the labour force); health care and social assistance (10.0%); construction (9.9%); and manufacturing (8.5%) (Statistics Canada 2013a).

The District of Hope's economy was historically based around forestry, transportation and mining. The economy has diversified to include tourism and transportation-related industries, spurred by its location on Highways 1, 3 and 5 (Advantage Hope 2011, Hope Chamber of Commerce 2013). Commercial manufacturing and retail services are also important economic contributors. In 2011, the most active industries in the District of Hope (by industrial classification) were: health care and social assistance (employing approximately 14.7% of the labour force); retail trade (13.5%); and accommodation and food services (10.8%); and construction (9.7%) (Statistics Canada 2013a).

The City of Chilliwack has a diverse and growing economy based around agriculture, manufacturing, retail and wholesale trade and professional services. Retail, wholesale trade, insurance, finance, real estate, public administration, health and education are the largest of these sectors and account for

approximately 50% of the city's GDP. The goods producing industries and manufacturing account for 13%, construction at 8% and agriculture and forestry at 5% of Chilliwack's GDP. Agriculture remains a key economic driver of the city's economy (Chilliwack Economic Partners Corporation 2010). In 2011, the most active industries in the City of Chilliwack (by industrial classification) were: retail trade (employing approximately 12.8% of the labour force); health care and social assistance (11.5%); and construction (9.2%) (Statistics Canada 2013a).

The City of Abbotsford is a growing business centre due to its location near key transportation infrastructure including the Abbotsford International Airport, US border crossings, rail lines and the Trans-Canada Highway. Abbotsford's economy is based around agriculture, regional retail and services, health, education, transportation, accommodation and manufacturing (City of Abbotsford 2009b). In 2011, the most active industries in the City of Abbotsford (by industrial classification) were: retail trade (employing approximately 10.8% of the labour force); construction (9.5%); health care and social assistance (9.3%); and manufacturing (9.0%) (Statistics Canada 2013a).

Details of economic activity by NAICS industrial classification for all Socio-Economic RSA communities in the region (where reported) are presented in Table D-2 in Appendix D.

There is other reasonably foreseeable development proposed in the region, representing over \$400 million of capital expenditures, that may coincide with the construction of the Project. This includes numerous hydroelectric projects, transmission line development, and the Abbotsford Airport Expansion project. See Volume 5B Section 8.0 (Cumulative Effects Assessment) for details on reasonably foreseeable developments in the region. There is also discussion regarding the development of an old nickel mine site near Hope into an all season resort (Fortoloczky pers. comm.).

10.1.6 Economic Activity – Metro Vancouver Region

The Metro Vancouver Region's economic base is diverse and includes trade and commerce, manufacturing, goods distribution, professional services, tourism, education and agriculture. Most of the employment is in sales and service, business, finance and administration, and trades and related occupations (Metro Vancouver 2010a, PMV 2009, Vancouver Economic Commission 2012). For the Metro Vancouver Region overall within in the Socio-Economic RSA, in 2011 the most active industries (by industrial classification) were: retail trade (employing approximately 10.4% of the labour force); health care and social assistance (9.6%); accommodation and food services (7.8%); and professional, scientific and technical services (9.2%) (Statistics Canada 2013a).

Details of economic activity by NAICS industrial classification for all Socio-Economic RSA communities in the region (where reported) are presented in Table D-2 in Appendix D.

PMV is an economic generator in the Metro Vancouver Region due to the amount of employment that serves the port as well as essential infrastructure linking Canada's domestic market to markets around the world (Metro Vancouver 2010a, PMV 2009). PMV is the busiest port in Canada and the fourth largest tonnage port in North America. The port facilitates trade with more than 160 world economies, with 95% of port activity focused on Canadian import/export markets. In 2011, the port moved 122 million tonnes of cargo (a 3.4 % increase over 2010), and is planning a series of terminal expansion projects to increase the throughput capacity in order to meet forecasted demand through 2030. Ongoing operations at PMV make considerable contributions to regional employment and the provincial economy, as well as to jobs, wages, and GDP across Canada. It is estimated that PMV's operations support 38,200 direct jobs in BC, of which 91.8% are in the Metro Vancouver Region. The direct economic impact of this employment on the BC economy has been estimated at \$3.5 billion in GDP, \$8.5 billion in economic output, and \$2.3 billion in wages. It is estimated PMV operations support an additional 7,000 direct jobs across Canada (InterVISTAS Consulting 2013).

Tourism is a key industry for the Metro Vancouver Region. The provincial government is aspiring to double tourism revenues by 2015. Vancouver and surrounding areas offer a wide variety of tourism opportunities and services for business meetings and conventions. The Vancouver Economic Commission indicates that visitor spending is approximately \$600 million annually, and that between 2008

and 2015 these numbers are anticipated to more than double (Vancouver Economic Commission 2012). In 2011, tourism generated a direct contribution to the BC economy of approximately \$6.5 billion, and in 2010, the tourism industry employed about 127,000 people in BC (BC Ministry of Jobs, Tourism and Skills Training 2013).

Generally, the economy of the Metro Vancouver Region is expected to continue to grow. The RGS Plan aims to guide the region’s development while supporting and improving transportation, infrastructure and community services. The strategy aims to balance space for industry and commerce throughout the region while protecting environmental assets (Metro Vancouver 2010a).

At the Burnaby Community Workshop, concerns were raised that local businesses would be impacted by construction of the Project due to access issues.

There is other reasonably foreseeable development proposed in the region, representing over \$16.7 billion of capital expenditures, that may coincide with the construction of the Project. This includes the Roberts Bank Terminal 2 Expansion, expansion at Vancouver International Airport, rail and transit developments, residential developments, road works, substations, and multiple other municipal utility, infrastructure and services projects. See Volume 5B Section 8.0 (Cumulative Effects Assessment) for details on reasonably foreseeable developments in the region.

10.2 Labour Force and Employment

This subsection provides an overview of labour force and employment characteristics in the various socio-economic regions, including labour force size, unemployment rates and participation rates and identification of future labour force trends. The labour force includes the adult population (aged 15 and older) that is working, looking for work or willing to work, including both those employed or unemployed. It does not include adults that have opted out of seeking wage employment for whatever reason (e.g., retirement, engaging in traditional livelihoods, etc.). The participation rate represents the proportion of the adult population that is in the labour force. The unemployment rate represents the proportion of the labour force that is not employed. This information provides context for understanding the extent to which regional workers may be available to participate in Project-related employment opportunities. Emphasis is placed on labour force characteristics of the communities that are crossed directly by the proposed pipeline corridor; however workers from across the region could participate in Project opportunities as all communities are in reasonable commuting distance to some area of proposed Project activity.

As of 2011, there were approximately 2.2 million workers in the Socio-Economic RSA labour force, with notable distinctions amongst socio-economic regions. The labour force ranged from approximately 2,500 workers in the Jasper National Park Region to a high of almost 1.3 million workers in the Metro Vancouver Region. Table 10.2-1 provides an overview of labour force characteristics for each Socio-Economic Region, summarized by municipal areas, rural areas, and IRs within each region.

TABLE 10.2-1

**SELECT LABOUR FORCE CHARACTERISTICS
 IN THE SOCIO-ECONOMIC REGIONAL STUDY AREA (2011)**

Location	Labour Force Size ³	Participation Rate (%)	Unemployment Rate (%)	Construction Industry (%)
EDMONTON REGION				
Sub-Total Municipal Areas	591,220	73.0	5.8	9.4
Sub-Total Rural Areas	104,125	74.7	4.2	12.5
Sub-Total IRs	1,265	49.7	23.3	7.9
Edmonton Region Total	696,610	73.2	5.6	9.8

TABLE 10.2-1 Cont'd

Location	Labour Force Size ³	Participation Rate (%)	Unemployment Rate (%)	Construction Industry (%)
RURAL ALBERTA REGION				
Sub-Total Municipal Areas	10,785	75.2	5.7	6.7
Sub-Total Rural Areas	6,095	72.3	6.3	11.5
Sub-Total IRs	105	23.1	n/a ¹	10.0
Rural Alberta Region Total	16,985	73.2	5.9	8.5
JASPER NATIONAL PARK REGION				
Sub-Total Municipal Areas	2,490	84.3	1.6	4.6
Sub-Total Rural Areas	n/a ¹	n/a/A ¹	n/a ¹	n/a ¹
Sub-Total IRs ²	-	-	-	-
Jasper National Park Region Total	2,490	84.3	1.6	4.6
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION				
Sub-Total Municipal Areas	55,140	64.1	8.8	7.2
Sub-Total Rural Areas	5,470	62.1	11.4	12.0
Sub-Total IRs	2,565	59.4	17.7	9.3
Fraser-Fort George/Thompson-Nicola Region Total	63,175	63.7	9.4	7.7
FRASER VALLEY REGION				
Sub-Total Municipal Areas	134,210	65.1	7.6	9.9
Sub-Total Rural Areas	2,395	63.7	7.7	11.5
Sub-Total IRs	1,880	47.8	37.2	6.1
Fraser Valley Region Total	138,485	64.7	8.0	9.9
METRO VANCOUVER REGION				
Sub-Total Municipal Areas	1,262,475	66.2	7.1	6.5
Sub-Total Rural Areas	5,360	52.4	9.4	1.7
Sub-Total IRs	3,595	57.2	11.1	7.0
Metro Vancouver Region Total	1,271,430	66.1	7.1	6.4
SOCIO-ECONOMIC RSA TOTAL	2,189,180	68.1	6.8	7.8

Source: Statistics Canada 2013a

- Notes:**
- 1 data for this area have been suppressed for data quality or confidentiality reasons.
 - 2 No IRs are located in the Jasper National Park Region.
 - 3 Labour force estimates are calculated based on data provided by the National Household Survey (NHS). Underlying population counts may differ from those provided by the Census of Canada; however, labour force metrics based on the NHS are the best available at the community/municipality level.

Generally, both Alberta and BC are in a period of economic growth resulting in growing employment and a tightening in labour supply. Alberta's economy is projected to grow 2.9% in 2013. Jobs are expected to grow moderately to 1.9% in 2013, after two years of rapid growth. In Alberta, high in-migration has taken pressure off of the labour market and has prevented the unemployment rate from declining. As a result of Alberta's strong labour market, population growth is anticipated to stay around 2% per year between 2013 and 2016, drawing individuals from other provinces and countries (Alberta Treasury Board and Finance 2012).

In 2012, Alberta had the lowest unemployment rate in the country at 4.6%, compared to 7.2% for Canada and 6.7% for BC. In 2012, Alberta's employment rate of 70% continued to be the highest among all

provinces. The Canadian employment rate was 61.8%. Alberta's rate of 70% was 0.3 percentage points higher than the year before and 1.9 percentage points higher than in 2010. The number of unemployed people in Alberta declined for the third consecutive year in 2012: it fell by 1,400 in 2010, 19,700 in 2011, and by 17,200 in 2012. In 2012, Alberta saw increases in the numbers of interprovincial in-migrants and temporary foreign workers and landed immigrants compared to 2011 (Government of Alberta 2012c). From 2010 to 2021, Alberta's labour demand is projected to grow by an annual average rate of 2.4%, while occupational supply is anticipated to increase at a rate of 1.9% annually. Alberta could experience a labour shortage of approximately 114,000 workers by 2021 (Alberta Enterprise and Advanced Education 2013a).

The Construction Sector Council anticipates that the construction industry in Alberta will continue to expand and employment will rise. Recruiting challenges have been reported in both the residential and non-residential sectors. The oil sands are anticipated to lead resource development in Alberta between 2012 and 2021. The Construction Sector Council anticipates a plateau in employment growth from 2014 to 2016, as a result of declining housing activity and the completion of certain major infrastructure projects. The momentum of resource development will increase, resulting in a period of expansion from 2016 to 2021. The Construction Sector Council anticipates that the construction labour force will expand by 14,000 workers from 2013 to 2021. Taking into consideration replacement demands and first-time new entrants, there is anticipated to be a gap of 21,000 workers which will need to be sourced outside of the construction industry (Construction Sector Council 2013).

BC is also anticipated to face labour constraints over the next decade. The BC Labour Market Scenario Model indicates that 1.03 million job openings are expected in BC between 2010 and 2020. The BC Ministry of Finance forecasts employment in BC to expand by 1.4% in 2013 (33,000 jobs). Employment growth is projected to increase 1.4% annually in the coming decade, and approximately 78% of job openings are expected to require some post-secondary or higher level of education and training (BC Ministry of Jobs, Tourism and Skills Training 2013). The three occupational sectors expected to incur the most job openings are: sales and service; business, finance and administration; and trades, transport and equipment operators and related occupations (BC Ministry of Jobs, Tourism and Skills Training 2013). The BC Labour Market Outlook 2010-2020 indicates that by 2016 the number of workers need in BC is expected to exceed the number of workers available province wide. The trend toward a tightening labour market is more apparent in some regions; labour shortfalls are anticipated earliest in BC's Northeast and Cariboo regions (the Project traverses a portion of BC's Cariboo region; see Table 10.2-2.). It is estimated that there will be a shortage of approximately 61,500 workers across BC by 2020 (WorkBC 2013a). The Business Council of BC's Labour Supply Report also anticipates labour shortages to occur (go2 Tourism HR Society 2012).

The Construction Sector Council anticipates that job gains will continue in most sectors of the construction industry in BC to 2016. It is anticipated that by 2016, most of the skilled workforce will be absorbed, coinciding with the timing of planned resource development projects. Labour requirement estimates rely on these proposed projects. It is anticipated that demand for labour will be felt more in northern BC where there is a concentration of utility and mining projects. Strong demands for specialized labour in trades and construction occupations will likely occur. The Construction Sector Council anticipates that the construction labour force will expand by 22,500 workers from 2013 to 2021. Taking into consideration replacement demands and first-time new entrants, there is anticipated to be a gap of 30,500 workers which will need to be sourced outside the construction industry (Construction Sector Council 2013).

The Petroleum Human Resources Council of Canada (PHRCC) indicates that in Canada, the petroleum industry is at risk of not meeting 36% of its net hiring requirements between 2012 and 2015. This is primarily due to a shortage of potential labour supply and amounts to approximately 3,400 jobs. If employee turnover occurs, particularly the loss of workers to competing industries, PHRCC anticipates that the labour shortage will be substantially higher. Moreover, there are disconnects between the skills and experience of the available labour supply and those required to replace retiring workers, which can cause a skill shortage and may impact worker productivity (PHRCC 2012).

As of 2011, average unemployment rates for the socio-economic regions were lower in Alberta than in BC portions. Unemployment rates ranged from a low of 5.6% in the Edmonton Region, to a high of 9.3% in the Fraser-Fort George/Thompson-Nicola Region. While more recent data specific to Socio-Economic RSA communities are not available, recent labour force information for the provincial Economic and Development regions in which the socio-economic regions are located indicate further employment growth and tightening of the labour market since 2011. As noted in Table 10.2-2, in June 2013 the unemployment rates in relevant Alberta Economic Regions was between 4.0% and 4.6%; unemployment rates in the relevant BC Development Regions were between 5.0% and 6.6% (Alberta Enterprise and Advanced Education 2013c, WorkBC 2013a,b,c,d).

TABLE 10.2-2
UNEMPLOYMENT RATES (2013) AND
LABOUR FORCE OUTLOOK BY PROVINCIAL ECONOMIC REGION

Provincial Economic/ Development Region	Relevant Socio-Economic Region	Unemployment Rate (June 2013)	Labour Force Outlook
Edmonton Region	Edmonton Region	4.6%	From 2010 to 2021, Alberta's labour demand is projected to grow by an annual average rate of 2.4%, while occupational supply is anticipated to increase at a rate of 1.9% annually. Alberta could experience a labour shortage of approximately 114,000 workers by 2021. The anticipated growth in labour demand is higher in the Edmonton Region than for the province as a whole, with approximately 2.9% growth in labour demand anticipated in the region annually from 2013 to 2017.
Banff-Jasper-Rocky Mountain House	Rural Alberta Region Jasper National Park Region	4.0%	From 2010 to 2021, Alberta's labour demand is projected to grow by an annual average rate of 2.4%, while occupational supply is anticipated to increase at a rate of 1.9% annually. Alberta could experience a labour shortage of approximately 114,000 workers by 2021. The anticipated growth in labour demand is lower in the Banff-Jasper-Rocky Mountain House Region than for the province as a whole, with approximately 1.9% growth in labour demand anticipated in the region annually from 2013 to 2017.
Caribou	Fraser-Fort George/Thompson-Nicola Region	5.0%	Employment demand expected to grow at an average rate of 0.5% annually between 2011 and 2020. Growth in demand is slightly outpacing supply (0.4% annually). Employment demand is anticipated to exceed labour supply starting in 2011 to 2017, peaking in 2014. Employment growth is mainly driven by the service-producing sector.
Thompson-Okanagan	Fraser-Fort George/Thompson-Nicola Region	6.5%	Employment demand expected to grow at an average rate of 1.1% annually between 2011 and 2020. Growth in demand is expected to outpace labour supply (0.8%) growth by 0.3 percentage points. Due to this, tightening in labour market is expected to occur. A shortage of workers is projected starting in 2014 and continuing toward 2020. Employment growth is mainly driven by the service-producing sector.
Mainland/Southwest	Fraser Valley Region Metro Vancouver Region	6.6%	Employment demand expected to grow at an average rate of 1.6% annually between 2011 and 2020. Growth in demand is outpacing supply (1.3% annually). Due to this, a tightening in labour market is expected to occur. The region is expected to see shortages in the supply of workers starting in 2017 through 2020. Employment growth is mainly driven by the service-producing sector.

Sources: Alberta Enterprise and Advanced Education 2013a,c,d, Work BC 2013b,c,d,e

While the natural rate of unemployment in a region can vary based on a number of factors, the Alberta government notes that a 5% unemployment rate often indicates a balanced labour pool (Alberta Enterprise and Advanced Education 2009), with higher rates of unemployment suggesting a surplus labour market. Labour shortages tend to occur when the unemployment rate drops to 3% or less. However, workers can be induced to enter the labour market through training and other initiatives, thereby increasing available workers without altering the unemployment rate and improving access to labour in circumstances of high unemployment rates. The rule of thumb of 5% unemployment as a balanced labour market supports the understanding that some local labour will be available to participate in the Project, but that the Project should not anticipate there being extensive regional supply.

Given this, it is anticipated that the labour force in the Socio-Economic RSA has capacity to meet some of the workforce needs of the Project. In the context of the estimated direct construction workforce required for the Project, labour force analysis indicates there will be different levels of availability of regional workers across the Socio-Economic RSA. The levels of regional participation in construction workforce opportunities is estimated to range from 5% in smaller communities with a small labour pool (such as Valemount) to 30% in larger communities that have a bigger labour pool (such as Edmonton and Metro Vancouver). Table 10.2-3 and 10.2-4 provides details on labour force capacity in potential construction hubs as well as aggregated for each Socio-Economic Region, in the context of Project demand and considering the potential demand of other reasonably foreseeable developments where construction may overlap with the construction of the Project.

The estimates of 30% regional labour participation for Edmonton and Metro Vancouver Regions are conservative, given the large labour pool in each region. However, estimates consider the regional unemployment rate, the size of the construction industry, as well as the numerous other major projects potentially drawing on regional labour in these metropolitan areas at the same time (approximately \$24.4 billion of other major capital projects in the Edmonton Region and \$16.7 billion in the Metro Vancouver Region, based on reasonably foreseeable developments outlined in the socio-economic Cumulative Effects Assessment in Volume 5B Section 8). Some non-local workers in smaller regions may come from the Edmonton and Metro Vancouver areas, thus still representing regional workers from an employment perspective but who would require accommodation and services in other regions during certain periods. Certain very small communities, such as Blue River, Vavenby, and Clearwater, have anticipated maximums in terms of local employment (*i.e.*, they are not likely to meet a 5% maximum of regional employment). These determinations considered estimated availability of local workers based on labour force construction and resource-based industry experience and unemployment rates, as well as previous construction and maintenance experience of Trans Mountain. It again considered other major capital projects that may be occurring regionally during the construction phase of the Project, which will also be drawing from the regional labour pool and with which Trans Mountain will be competing for workers.

TABLE 10.2-3

LABOUR FORCE ANALYSIS – CONSTRUCTION HUBS AND SOCIO-ECONOMIC REGION TOTALS

Socio-Economic Region	Community (Construction Hub)	Population (No.) ^a (Construction hub only; regional total for Regions)	Labour Force - 2011						TMEP Worker-Month Estimates per Construction Hub			TMEP in Context of Estimated Other Labour Demand					Estimated Regional vs. Non-Regional Labour					
			Participation Rate (%) ^b	Labour Force Size (No.) ^b	Unemployment Rate (%) ^b	Est. Total Available Labour (No.)	Labour Force Experienced Construction Industry (%) ^b	Available Labour Experienced in Construction Industry (No.)	Low	High	Average	Other Major Projects, Capex ^c (\$M)	% of TMEP in Hub or Region ^d	Approx. TMEP Capex in Hub or Region ^d (\$ M)	TMEP as % of Total Projects (% of Experienced Labor Available to TMEP)	Experienced Labour Available to TMEP ^e	TMEP Estimated % Regional Workers	Rationale	Approx. No. of TMEP Regional Workers (Peak)	Approx. No. of TMEP Regional Workers (Average)	Approx. No. of TMEP Non-Regional Workers (Peak)	Approx. No. of TMEP Non-Regional Workers (Average)
Edmonton Region Total	Hubs: Edmonton / Stony Plain	1,118,968	73.2	696,610	5.6	39,010	9.8	3,823	136	734	377	24,533	0.119	547	2.2%	104	30%	Contractors will have extra-regional crews, but be guided to maximize local content. Higher availability of experienced local labour in context of TMEP direct worker demand.	220	113	514	264
	Edson	8,475	70.5	8,008	5.2	416	8.8	37	53	896	383	387	0.089	409	51.4%	24	10%	Contractors will have extra-regional crews, but be guided to maximize local content. Lower availability of experienced local labour in context of TMEP direct worker demand. However, will draw on local workers currently employed by oil and gas contractors.	90	38	806	345
	Hinton	9,640	75.7	8,978	6.5	584	8.1	47	4	336	101	387	0.025	115	22.9%	15	10%	Contractors will have extra-regional crews, but be guided to maximize local content. Lower availability of experienced local labour in context of TMEP direct worker demand. However, will draw on local workers currently employed by oil and gas contractors.	34	10	302	91
Rural Alberta Region Total	Hubs: Hinton, Edson	29,335	73.2	16,985	5.9	1,002	7.7	85	57	1,232	484	774	0.114	524	40.4%	43	10%		123	48	1,109	436
Jasper National Park Region Total	N/A (Jasper activities based from Hinton)^f	4,085	84.3	2,490	1.6	40	4.6	2	n/a	n/a	n/a	n/a	n/a	n/a	N/A	2	n/a		n/a	n/a	n/a	n/a
	Valemount	1,020	65.5	1,775	12.1	215	5.7	12	9	629	289	224	0.077	354	61.3%	9	5%	Contractors will have extra-regional crews, but be guided to maximize local content. Low availability of experienced local labour in context of TMEP direct worker demand. Considers experience during Anchor Loop construction.	31	14	598	275
	Blue River	283	54.8	710	21.8	155	7.0	11	14	287	121	224	0.032	147	39.7%	5	10% to a max of 5 people	Contractors will have extra-regional crews, but be guided to maximize local content. Low availability of experienced local labour in context of TMEP direct worker demand.	5	5	258	109
	Clearwater	2,331	62.1	1,385	15.2	211	12.3	26	41	570	327	224	0.082	377	62.8%	20	10% to a max of 50 people	Contractors will have extra-regional crews, but be guided to maximize local content. Lower availability of experienced local labour in context of TMEP direct worker demand. However, will draw on local workers currently employed by local contractors.	50	33	513	294
	Kamloops	85,678	64.9	53,395	8.5	4,539	7.7	349	9	889	297	224	0.099	455	67.0%	293	10%	Contractors will have extra-regional crews, but be guided to maximize local content. Moderate availability of experienced local labour in context of TMEP direct worker demand. Will draw on local workers currently employed by local contractors.	89	30	800	267
	Merritt	7,113	55.2	5,910	12.4	733	7.4	54	9	820	323	224	0.091	419	65.2%	44	10%	Contractors will have extra-regional crews, but be guided to maximize local content. Lower availability of experienced local labour in context of TMEP direct worker demand. However, will draw on local workers currently employed by local contractors	82	32	738	291
Fraser Fort George / Thompson-Nicola Region - Total	Hubs: Valemount, Blue River, Clearwater (Vavenby), Kamloops, Merritt	128,978	63.7	63,175	9.4	5,939	7.7	457	82	3,195	1,357	1,119.00	0.38	1,753	61.0%	349	10%		320	136	2,876	1,221
	Hope	5,969	51.2	2,700	10.6	286	9.2	26	93	399	250	136	0.067	308	69.4%	23	10%	Contractors will have extra-regional crews, but be guided to maximize local content. Lower availability of experienced local labour in context of TMEP direct worker demand. However, will draw on local workers currently employed by local contractors	40	25	359	225
	Chilliwack	77,936	61.9	45,980	6.7	3,081	9.3	287	61	202	149	136	0.027	124	47.7%	171	10%	Contractors will have extra-regional crews, but be guided to maximize local content. Higher availability of experienced local labour in context of TMEP direct worker demand, but limited positions on crews suitable for local hires. Considering BC workers also are drawn to opportunities in Alberta.	20	15	182	134

Socio-Economic Region	Community (Construction Hub)	Population (No.) ^a (Construction hub only; regional total for Regions)	Labour Force - 2011						TMEP Worker-Month Estimates per Construction Hub			TMEP in Context of Estimated Other Labour Demand					Estimated Regional vs. Non-Regional Labour					
			Participation Rate (%) ^b	Labour Force Size (No.) ^b	Unemployment Rate (%) ^b	Est. Total Available Labour (No.)	Labour Force Experienced Construction Industry (%) ^b	Available Labour Experienced in Construction Industry (No.)	Low	High	Average	Other Major Projects, Capex c (\$M)	% of TMEP in Hub or Region ^d	Approx. TMEP Capex in Hub or Region ^d (\$ M)	TMEP as % of Total Projects (% of Experienced Labor Available to TMEP)	Experienced Labour Available to TMEP ^e	TMEP Estimated % Regional Workers	Rationale	Approx. No. of TMEP Regional Workers (Peak)	Approx. No. of TMEP Regional Workers (Average)	Approx. No. of TMEP Non-Regional Workers (Peak)	Approx. No. of TMEP Non-Regional Workers (Average)
	Abbotsford	133,497	66.8	89,805	8.2	7,364	10.2	751	9	262	150	136	0.042	193	58.7%	551	10%	Contractors will have extra-regional crews, but be guided to maximize local content. Higher availability of experienced local labour in context of TMEP direct worker demand, but limited positions on crews suitable for local hires. Considering BC workers also are drawn to opportunities in Alberta.	26	15	236	135
Fraser Valley Region Total	Hubs: Hope, Chilliwack, Abbotsford	274,404	64.7	138,485	8.0	11,079	9.9	1,097	163	863	549	408	0.136	626	60.5%	830	10%		86	55	777	494
Metro Vancouver Region	Metro Vancouver area	2,313,328	66.1	1,271,430	7.1	90,264	6.4	5,777	14	1,204	655	16,710	0.250	1,150	6.4%	465	30%	Contractors will have extra-regional crews, but be guided to maximize local content. Higher availability of experienced local labour in context of TMEP direct worker demand.	361	197	843	459

Sources: KMC 2013, Statistics Canada 2012, 2013a

Notes: All numbers are approximate.

- a Population in construction hub only, not including surrounding areas. Regional population totals, however, also include all communities/areas within the Socio-economic Region
- b Labour force characteristics for each construction hub has been calculated to include the hub community itself plus other regional labour it is likely to draw on (labour catchment area) (see Table 10.2-4 Regional Labour Force Associated With Construction Hubs)
- c Based on reasonably foreseeable major developments as used in ESA cumulative effects assessment, considering developments with construction windows that may overlap with TMEP. Any development with construction period noted to 2015 (to account for delays) and unknown construction period are included, to be conservative.
- d Based on percentage of total estimated TMEP construction workforce in each construction hub, applied to total capital cost of \$4.6 billion (capital cost of Project excluding sunk costs and financing costs)
- e Based on available labour experienced in the construction industry, considering concurrent demand of reasonably foreseeable developments and including 25% multiplier to factor workers induced into the labour force or drawn from other industries or where labour force not reported.
- f Available workers from Jasper National Park Region are included in the Hinton labour force.

TABLE 10.2-4

REGIONAL LABOUR FORCE ASSOCIATED WITH CONSTRUCTION HUBS

Construction Hub	Labour Catchment Areas
Edmonton	Edmonton Region
Edson	Edson, half of Yellowhead County, O'Chiese 203
Hinton	Edson, half of Yellowhead County, Jasper
Valemount	Valemount, McBride, RDIFFG Area H
Blue River	TNRD Area A
Clearwater	Clearwater, North Thompson 1
Kamloops	Kamloops, Sun Peaks, Chase, Logan Lake, TNRD Area P, TNRD Area J, Kamloops 4, Whispering Pines 4, Quaaout 1, Sahhaltkum 4, Neskonlith, Skeetchestn, Kamloops 1
Merritt	Merritt, TNRD Area M, TNRD Area N, Zoht 4 & 5, , Joeyaska 2, Coldwater 1, Douglas Lake 3, Nicola Lake 1, Nicola Mameet 1, Paul's Basin 1
Hope	Hope, Ohamil 1, Stullawheets 8, Schkam 2, Chawathil 4
Chilliwack	Chilliwack, Kent, Harrison Hot Springs, FVRD Areas D & E, Tzeachten 13, Seabird Island, Cheam 1, Chehalis 5, Skowkale, Soowahlie 14, Skwah 4, Kwawkwawapilt 6, Squiaala, Skway 5, Holachten 8, Skweahm 10, Lakahahmen 11
Abbotsford	Abbotsford, Mission, FVRD Area G, Matsqui Main 2, Upper Sumas 6
Metro Vancouver	Metro Vancouver

Notes: Only Regional District Electoral Areas, municipalities, and IRs with reported labour force data are noted.

The 25% labour multiplier noted in Table 10.2-3 also factors in small localities where labour force data is not reported or suppressed.

Aboriginal people comprise a substantial percentage of the labour force in Western Canada. However labour market outcomes tend to be lower for Aboriginal people. In 2006, Aboriginal people had a higher unemployment rate, lower employment rate, lower incomes and a lower participation rate than the Canadian average (Sharpe and Arsenault 2010). In particular, the Aboriginal population could play a key role in mitigating the looming long-term labour shortages caused by Canada's aging population and low birth rate. This is true not only because of their relatively young population and higher population growth rate, but also because their participation and employment rates currently lag far behind the Canadian average. Among men, labour force participation for Aboriginal and non-Aboriginal people appeared to be stabilizing. In 2005, employment rose and unemployment declined for both Aboriginal men and women. In Alberta in 2005, the highest rate of labour force participation (70.0%) and employment (64.1%) was amongst Aboriginal people. Aboriginal people in Alberta also had the lowest unemployment rate (8.5%) among the Aboriginal people in western provinces. In coming years, the Aboriginal young adult population (aged 20 to 29) is projected to experience a faster growth rate than that of the same age group for the overall population. Aboriginal youth offer an enormous potential for increasing Aboriginal people's participation in the labour market (Luffman and Sussman 2007). If trends continue, it is anticipated that the Aboriginal population will account for 19.9% of labour force growth and 22.1% of employment growth between 2006 and 2026 across Canada (Sharpe and Arsenault 2010).

Another notable current trend is the movement of labour from BC to Alberta. BC as whole is experiencing net interprovincial out-migration of people, many of which are going to Alberta. Recent reports on interprovincial migration indicate that in 2012 BC had a net out-migration of over 8,600 people, of which approximately 56% went to Alberta (TD Economics 2013). In 2012, Alberta had a total interprovincial in-migration of approximately 46,000 people, a notable increase over previous year. BC's outmigration in 2012 follows eight consecutive years of BC being a net gainer of population. This trend of migration from Alberta to BC is reflective of the relative strength of Alberta's labour market compared to BC, as well as higher incomes in Alberta compared to BC. In 2012, Alberta's unemployment rate was the lowest in the country (3.0 percentage points below the national rate) and Alberta's per capita income was more than \$14,000 higher than the national average, while in BC it was over almost \$900 below the national average. This trend was discussed in some BC's communities during Project-related engagement (e.g., Kamloops), noting that some residents work for periods of time in Alberta. Table 10.2-5 presents further information comparing inter-provincial migration between Alberta and BC.

TABLE 10.2-5

NET INTER-PROVINCIAL MIGRATION, ALBERTA AND British Columbia (2012)

Province	Net Inter-Provincial Migration				Unemployment Rate Differential ¹ (2012)	Per Capita Income Differential ¹ (2012)
	Period Averages			Annual		
	2002-2007	2008-2009	2010-2012	2012		
Alberta	25,550	10,020	21,004	45,718	-3.0	\$14,158
BC	7,192	10,261	-855	-8,657	-0.6	\$-884

Source: TD Economics 2013

Notes: Discussion of labour force and employment characteristics within each Socio economic region is provided in the subsections below.

1 Differentials are expressed as a comparison to the rest of Canada.

10.2.1 Labour Force and Employment – Edmonton Region

For the Edmonton Region overall within in the Socio-Economic RSA, in 2011 there was a labour force of approximately 696,600 workers, with a participation rate of about 73.2% and an unemployment rate 5.6%. Approximately 9.8% of the regional labour force worked in the construction industry (Statistics Canada 2013a). Selected labour characteristics (2011) for communities in the Socio-Economic RSA of the Edmonton Region (where reported) are presented in Table D-3 in Appendix D.

The City of Edmonton has recently experienced job growth in the manufacturing sector, which has gained more than 14,000 full-time jobs in 2012. Employment growth is projected to be strongest in the manufacturing and primary industry sectors along with wholesale trade, commercial and non-commercial services, and construction. It is estimated that employment will continue to grow by 2.3% annually for a total of 135,000 additional jobs by 2016. Future employment growth projections from 2016 to 2041 could slow to 1% to 1.2% per year, resulting in an additional 200,000 jobs. Employment throughout the Edmonton Region is expected to grow to 863,000 jobs by 2041 (Government of Alberta 2007).

The City of Edmonton's unemployment rate improved from 4.7% in March 2012 to 4.2% in March 2013. The unemployment rate also improved between February and March 2013 from 4.4% to 4.2% (City of Edmonton 2013). Residents of Edmonton also experience a higher per capita average annual disposable income than the national average and higher than Canada's largest centres, including Toronto and Vancouver (Edmonton Economic Development Corporation 2013). Table 10.2-6 presents key economic indicators for metro Edmonton and Table 10.2-7 presents employment by major industry for the City of Edmonton.

TABLE 10.2-6

KEY ECONOMIC INDICATORS CITY OF EDMONTON - Q4 2012

Indicator	As of:	2012	2011	Percent Change
GDP (Millions)	2012 (Forecast)	57,214	54,795	4.4
Labour Force	December	733,600	712,900	2.9
Employment	December	703,000	679,600	3.4
Unemployment Rate	December	4.3%	5.4%	-20.4
Inflation (year over year)	December	1.1%	2.5%	-56.0
Housing Starts (YTD)	December	9,021	7,827	15.3
Average Residential Selling Price	December	\$333,020	\$316,020	5.4
Total Building Permits (Monthly)	December	\$259,975,000	\$214,211,300	21.4

Source: Edmonton Economic Development Corporation 2013.

TABLE 10.2-7

EMPLOYMENT BY MAJOR INDUSTRY CITY OF EDMONTON 2013 TO 2017

Major Industry	2012 Q4	Changes in Employment 2013-2017
Manufacturing	49,015	1,962
Construction	89,412	9,708
Primary and Utilities	44,191	1,119
Transportation and Warehousing	35,536	470
Information and Cultural Industries	10,792	940
Wholesale and Retail Trade	114,594	11,054
Finance, Insurance and Real Estate	32,295	2,999
Business Services	68,403	9,794
Personal Services	88,418	7,675
Non-Commercial Services	131,167	9,491
Public Administration and Defence	38,436	2,407

Source: Edmonton Economic Development Corporation 2013

As of 2011, the Town of Stony Plain had a labour force size of approximately 8,255 with an unemployment rate of 4.9% (Statistics Canada 2013a). Local officials noted that most residents of Stony Plain commute to Edmonton, with only approximately 40% working in the town. Many individuals also travel west to work at coal and power plants, as well as north to work in Fort McMurray (Frostad pers. comm.). It was also noted that at times temporary workers related to resource-development and other projects reside in Stony Plain (Frostad pers. comm.)

Labour force participation rates tend to be lower in IRs within the Edmonton Region within the Socio-Economic RSA. For example, based on available data in 2011 the average labour force participation rate for municipal areas and rural areas within the region was 73.0% and 74.7% respectively, while the participation rate for IRs was 49.7% (Statistics Canada 2013a).

10.2.2 Labour Force and Employment – Rural Alberta Region

For the Rural Alberta Region overall within in the Socio-Economic RSA, in 2011 there was a labour force of approximately 17,000 workers, with a participation rate of 73.2% and an unemployment rate of 5.9%. Selected labour characteristics (2011) for communities in the Socio-Economic RSA of the Rural Alberta Region (where reported) are presented in Table D-3 in Appendix D.

As of 2011, the Town of Edson had a labour force size of approximately 4,960 with an unemployment rate of 5.1% (Statistics Canada 2013a). The Town of Edson identified that labour force capacity is tight, but there is more capacity than at the time of the 2007/2008 economic boom (Lemieux, Lyons pers. comm.). There is a lack of labour available to fill service positions, as well as a limited number of skilled workers in the town (Lemieux pers. comm.). It was noted that long-term infrastructure and services are not available in the Town of Edson to attract and keep residents (Lemieux pers. comm.).

As of 2011, the Town of Hinton had a labour force size of approximately 5,825 with an unemployment rate of 6.7% (Statistics Canada 2013a). Local officials indicated that labour force capacity in Hinton is tight, particularly in the context of the proposed Vista Coal Mine Project. It was also noted that there has been an increase in temporary foreign workers in Hinton in recent years to meet the labour demand (Kreiner pers. comm.).

Labour force participation rates tend to be lower in reserves within the Rural Alberta Region of the Socio-Economic RSA. For example, based on available data in 2011 the average labour force participation rate for municipal areas and rural areas within the region was 74.2% and 72.3% respectively, while the participation rate for IRs was 23.1% (Statistics Canada 2013a). Labour force data are available for only one reserve in the Socio-Economic RSA within the Rural Alberta Region (IR O'Chiese 203).

10.2.3 Labour Force and Employment – Jasper National Park Region

In 2011, the labour force of the Jasper National Park Region was approximately 2,490 people. The region had an unemployment rate of 1.6%. Approximately 4.6% of the regional labour force was experienced in the construction sector. Selected labour characteristics (2011) for communities in the Socio-Economic RSA of the Jasper National Park Region are presented in Table D-3 in Appendix D.

The Jasper National Park Region is located within the provincial Banff-Jasper-Rocky Mountain House region. In 2012, the labour force in the Banff-Jasper-Rocky Mountain House region declined by 1,000 participants. Although the region had the lowest unemployment rate in Alberta in 2011, in 2012 it increased 0.5% to a 3.9% unemployment rate (Government of Alberta 2012b).

It was noted that there is typically a labour shortage related to skills required in the service industries in the Municipality of Jasper during the peak tourist season (approximately mid-May to mid-October); however, unskilled labour is typically more available during the off-season (Waterworth pers. comm.).

10.2.4 Labour Force and Employment – Fraser-Fort George/Thompson-Nicola Region

In the Fraser-Fort George/Thompson-Nicola Region, there is a diversity of the size of the labour force, depending on community. While the overall regional labour force is approximately 63,200, it ranges from a high of about 46,700 workers in the City of Kamloops (with an unemployment rate of 8.5%) to approximately 470 workers in the Village of Valemount (with an unemployment rate of 8.5%). The rural areas within the Fraser-Fort George/Thompson-Nicola Region have a collective labour force of approximately 5,500 with an unemployment rate of 11.4% (Statistics Canada 2013a). As of 2011, approximately 7.7% of the regional labour force was experienced in the construction sector.

Selected labour characteristics (2011) for Socio-Economic RSA in the Fraser-Fort George Region (where reported) are presented in Table D-4 in Appendix D.

The Village of Valemount and the RDFFG are included in the BC Cariboo Development Region. The Cariboo Development Region (including areas that extend beyond the Socio-Economic RSA) expanded its labour market by 4,800 jobs in 2010 and 900 jobs in 2011. In 2012, the total employment for the region was 85,200, which was a 4,000 job increase from 2011 (Institute of Chartered Accountants of BC 2012). Goods-producing industries job losses were offset by employment growth in the service-producing sectors (Institute of Chartered Accountants of BC 2012). In the Village of Valemount, it was noted that there is limited available local available labour (McCracken pers. comm.). Local officials noted that even 1-2 new full-time jobs in the Village of Valemount would be a substantial benefit to municipal economy (McCracken pers. comm.). Officials in the RDFFG also noted there was limited labour availability in the region (McEachen pers. comm.);

The TNRD, District of Clearwater, City of Kamloops and City of Merritt are located in BC's Thompson-Okanagan Development Region. In 2011, the Thompson-Okanagan Development Region's economy lost 1% of jobs across all sectors, primarily in the goods sector. Growth in the service sector created 1,700 jobs. The annual average unemployment rate was 7.9% in 2011, below the 2009 high of 8.8% (Institute of Chartered Accountants of BC 2012). In 2012, employment in the Thompson-Okanagan Development Region increased slightly with the addition of 2,000 new jobs. As a result, the unemployment rate decreased from 7.9% in 2011 to 6.9% in 2012 (Institute of Chartered Accountants of BC 2012). The industrial sector throughout the TNRD is expected to grow and create a projected 4,000 jobs over 25 years. The most rapidly growing sector is health, while the slowest growing sector is projected to be manufacturing and processing (TNRD 2013). The labour force is expected to grow by an average of 0.7% per year, more slowly than the overall population increase of 0.8% per year. Approximately 17,000 new jobs across all sectors are forecast to be created over the next 25 years (TNRD 2013).

While the District of Barriere is not crossed by the proposed pipeline corridor, it is centrally located in the Fraser-Fort George/Thompson-Nicola Region and, therefore, is considered a source of regional labour.

During consultation, it was noted that residents of the District of Barriere may commute to areas such as Vavenby and Kamloops for work (Humphreys pers. comm.). Labour force data are not reported for the District of Barriere.

Local officials noted there is high unemployment in the City of Merritt area, particularly in Aboriginal communities (Perog pers. comm.). The local labour market was characterized by local officials as young, with numerous contractors and road builders (Umpherson pers. comm.). In the City of Kamloops, it was noted that many residents are moving to Alberta to find work (Kwiatkowski pers. comm.). It was also noted to the extent that the Ajax Project overlaps with construction of the Trans Mountain Expansion Project there could be limited available local labour force (Fretz pers. comm.);

There are numerous IRs in the Fraser-Fort George/Thompson-Nicola Region of the Socio-Economic RSA; however, labour force data for many are not available. The largest IR in the region is Kamloops No. 1, which in 2011 had a labour force of about 1,300, a participation rate of 54.8%, and an unemployment rate of 11.3%. Labour force participation rates tend to be lower in reserves within the region. For example, in 2011 the average labour force participation rate for municipal areas within the region was 64.1%, while the participation rate for IRs was 59.2% (Statistics Canada 2013a).

10.2.5 Labour Force and Employment – Fraser Valley Region

Of the total labour force in the Fraser Valley Region (approximately 138,500 in 2011), the labour force in municipal areas ranged from a low of about 580 in the Village of Harrison Hot Springs to a high of about 71,000 in the City of Abbotsford (Statistics Canada 2013a). Employment in the Fraser Valley Region is concentrated within the urban areas of Abbotsford, Chilliwack and Mission. Smaller communities surrounding these centres provide employment primarily in the agricultural areas. Service industries in the region are expected to remain the dominant growth sector (e.g., jobs related to health care, retail trade, accommodation and food services). Health care-related jobs are one of the largest growing sectors as the population continues to age (FVRD 2010).

Selected labour characteristics (2011) for communities in the Socio-Economic RSA of the Fraser Valley Region (where reported) are presented in Table D-4 in Appendix D.

In 2011, the District of Hope had a labour force of approximately 2,600 workers, with a participation rate of 51.9% and an unemployment rate of 9.8%. The largest private employers in the District of Hope in 2010 were Nestlé Waters bottling facility, Cooper's Foods and Emil Anderson Maintenance (Advantage Hope 2011). Also in 2011, the City of Chilliwack's labour force was estimated at about 39,000 people, representing a participation rate of 63.1% and with an unemployment rate of 6.3% (Statistics Canada 2013a).

The City of Abbotsford indicated it is familiar with temporary workers, particularly in relation to the seasonal farm workers in the agricultural sector (Teichroeb pers. comm.). The District of Hope is also experienced with temporary workers in relation to seasonal work associated with forestry, forestry fire-fighting, and the rail industry (McBride pers. comm.).

There are numerous IRs in the Fraser Valley Region of the Socio-Economic RSA; however, labour force data for many are not available due to data suppression for small communities. Based on available data, labour force participation rates tend to be lower in reserves within the region. For example, in 2011 the average labour force participation rate for municipal areas and rural areas within the region was 65.1% and 63.7% respectively, while the participation rate for IRs was 47.8% (Statistics Canada 2013a)

10.2.6 Labour Force and Employment – Metro Vancouver Region

In 2011, the total labour force in the Metro Vancouver Region was approximately 1.3 million workers, representing a participation rate of 66.1% and with an unemployment rate of 7.1%. The workforce ranged from a high of approximately 349,000 workers in the City of Vancouver to a low of approximately 360 workers in the Village of Belcarra (Statistics Canada 2013a). For municipalities crossed by the Project, the labour force size ranged from a high of approximately 245,600 workers in the City of Surrey (with an

unemployment rate of 7.9%) to approximately 58,500 workers in the Township of Langley (with an unemployment rate of 6.1%).

Selected labour characteristics (2011) for communities in the Socio-Economic RSA in the Metro Vancouver Region are presented in Table D-4 in Appendix D.

The Metro Vancouver and Fraser Valley regions are located within BC's Mainland/Southwest Development Region. Between 2010 and 2011, 30,700 new jobs were created in the Mainland/Southwest Development Region. 2011 marked the second year of overall positive employment growth since the 2009 recession. Employment growth was observed in the goods producing sector rather than in the service sector (Institute of Chartered Accountants of BC 2012). In 2012, 28,300 new jobs were created in the Mainland/Southwest Development Region, which included 8,500 new jobs in the goods-producing sector and 19,800 new jobs in the services-producing sector (Institute of Chartered Accountants of BC 2012).

Within the Metro Vancouver Region, the labour force on IRs in 2011 was about 3,500 workers representing a participation rate of 57.2%; the unemployment rate for IRs within the Metro Vancouver Region was 10.6%.

It was noted that other projects in the Surrey area have trained Aboriginal firms to work on-site as a way to involve Aboriginal communities (Baron pers. comm.). Moreover, the proposed timing of the Project coincides with the ending of other current major projects in Surrey; therefore it is likely that there will be labour availability (Baron pers. comm.).

10.3 Educational Attainment

This sub-section discusses educational attainment of the labour force in the Socio-Economic RSA. Labour force educational attainment and post-secondary education or higher are directly related to labour productivity, long term prosperity, and well-being (Institute of Chartered Accountants of British Columbia 2012), and are reflective of the skill level of the regional labour force that may be available to participate in Project-related employment opportunities.

Across the Socio-Economic RSA in 2011, approximately 27.2% of the adult population (aged 15 or older) had high school certificate or degree as their highest level educational attainment. Approximately 56.6% of the adult population had a post-secondary certificate as their highest level of educational attainment. Approximately 9.5% of the population had an apprenticeship or trades certificate or diploma as the highest level of educational attainment (Table 10.3-1).

There are notable differences between socio-economic regions. In 2011, the Rural Alberta Region had the highest proportion of the adult population with an apprenticeship or trades certificate or diploma as their highest level of educational attainment (16.1%), while the Metro Vancouver Region had the lowest proportion (8.1%).

The population on IRs tended to show lower levels of educational attainment within their socio-economic regions, particularly in Alberta. In the Rural Alberta Region, 42.9% of the total adult population had a post-secondary certificate, diploma or degree as their highest level of education attainment, while only 6.6% of the adult population on IRs had a similar level of educational attainment. The on-reserve population in BC regions are far more comparable to off-reserve population in terms of educational attainment. In the Metro Vancouver Region, 58.6% of the total adult population had a post-secondary certificate, diploma or degree as their highest level of education attainment, and 58.7% of the adult population on IRs had completed a similar level of educational attainment.

TABLE 10.3-1

LABOUR FORCE EDUCATIONAL ATTAINMENT IN THE SOCIO-ECONOMIC REGIONAL STUDY AREA (HIGHEST LEVEL ACHIEVED) (2011)

Location	No Certificate, Diploma or Degree (%)	High School Certificate or Degree (%)	Post-Secondary Certificate, Diploma or Degree (%)	Apprenticeship or Trades Certificate or Diploma (%) ³	College, CEGEP or Other Non-University Certificate or Diploma (%) ³	University Certificate Below the Bachelor Level (%) ³	University Certificate, Diploma or Degree at Bachelor Level or Above (%) ³	Bachelor's Degree (%) ⁴	University Certificate, Diploma or Degree Above Bachelor Level (%) ⁴
EDMONTON REGION									
Sub-Total Municipal Areas	17.5	26.5	55.9	10.3	18.3	4.7	22.6	15.2	7.5
Sub-Total Rural Areas	17.5	28.0	54.4	15.1	19.6	3.6	16.0	11.8	4.1
Sub-Total IRs	53.8	17.3	29.1	10.4	13.9	2.4	2.0	2.0	0.0
Edmonton Region Total	17.6	26.7	55.7	11.0	18.5	4.6	21.6	14.6	7.0
RURAL ALBERTA REGION									
Sub-Total Municipal Areas	26.4	29.0	44.5	15.2	18.1	2.2	9.0	6.9	2.1
Sub-Total Rural Areas	31.6	26.2	42.1	18.3	14.4	3.1	6.3	4.8	1.5
Sub-Total IRs	90.1	3.3	6.6	3.3	2.2	0.0	2.2	0.0	0.0
Rural Alberta Region Total	29.5	27.5	42.9	16.1	16.5	2.5	7.9	6.0	1.9
JASPER NATIONAL PARK REGION									
Sub-Total Municipal Areas	12.7	32.7	54.5	12.2	19.8	4.2	18.3	13.5	4.7
Sub-Total Rural Areas	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹
Sub-Total IRs ²	-	-	-	-	-	-	-	-	-
Jasper National Park Region Total	12.7	32.7	54.5	12.2	19.8	4.2	18.3	13.5	4.7
FRASER FORT-GEORGE/THOMPSON-NICOLA REGION									
Sub-Total Municipal Areas	19.0	30.1	50.9	13.7	16.3	5.8	15.1	10.2	4.9
Sub-Total Rural Areas	20.7	35.0	44.3	13.6	15.8	4.9	10.1	6.7	3.3
Sub-Total IRs	25.0	29.5	45.4	13.9	16.3	5.2	9.0	6.4	2.1
Fraser-Fort George/Thompson-Nicola Region Total	19.4	30.5	50.1	13.7	16.3	5.7	14.4	9.7	4.7
FRASER VALLEY REGION									
Sub-Total Municipal Areas	21.3	31.3	47.4	12.5	16.4	5.9	12.6	7.5	5.1
Sub-Total Rural Areas	19.3	29.3	51.6	16.0	16.4	7.8	11.4	7.4	4.3
Sub-Total IRs	34.0	25.7	39.9	14.8	14.3	5.4	4.1	2.1	1.1
Fraser Valley Region Total	21.6	31.1	47.3	12.6	16.4	5.9	12.4	7.4	5.0
METRO VANCOUVER REGION									
Sub-Total Municipal Areas	14.6	26.8	58.6	8.1	16.3	6.6	27.5	17.6	9.9
Sub-Total Rural Areas	7.4	20.1	72.5	3.0	5.6	4.5	59.4	23.3	36.1
Sub-Total IRs	18.5	23.8	57.7	11.9	17.8	5.0	23.1	13.9	8.8
Metro Vancouver Region Total	14.6	26.8	58.6	8.1	16.3	6.6	27.7	17.6	10.1
SOCIO-ECONOMIC RSA TOTAL	16.2	27.2	56.6	9.5	16.9	5.9	24.3	15.7	8.6

Source: Statistics Canada 2013a

Notes: Educational attainment estimates are calculated based on labour force data provided by the NHS. Underlying population counts may differ from those provided by the Census of Canada; however educational attainment metrics based on the NHS are the best available at the community/municipality level. Percentages represent portion of labour force that has achieved that level of attainment. Percent totals do not sum to 100%, as certain sub-categories are also presented as a percentage of the total labour force opposed to a percentage of the category to which they are a sub-set.

- 1 Data for this area have been suppressed for data quality or confidentiality reasons.
- 2 No IRs are located in the Jasper National Park Region.
- 3 These educational attainment categories are sub-categories under "Post-Secondary Certificate, Diploma or Degree".
- 4 These educational attainment categories are sub-categories under "University Certificate, Diploma or Degree at Bachelor Level or Above".

10.3.1 Educational Attainment – Edmonton Region

Educational attainment characteristics (2011) for communities in Socio-Economic RSA of the Edmonton Region (where reported) are presented in Table D-5 in Appendix D.

In the Edmonton Region in 2011, 55.7% of the adult population had a post-secondary certificate, diploma or degree as their highest level educational attainment. In municipal areas, the percentage was 55.9%, whereas in IRs, the percentage was 29.1%. Of footprint communities, the City of Edmonton had the highest percentage of post-secondary degree attainment in the Edmonton Region, at 56.3%. In the Edmonton Region in 2011, 11.0% of the population had an apprenticeship or trades certificate or diploma as their highest level of educational attainment. In the Edmonton Region, rural areas had the highest percentage at 15.1%. On IRs, 10.4% of the population had an apprenticeship or trades certificate or diploma as their highest level educational attainment. Of footprint communities, the City of Spruce Grove had the highest percentage of trades educational attainment in the Edmonton Region at 15.7%. Large discrepancies in educational attainment between IRs and other communities and areas exist in the Edmonton Region. For example, in IRs, 53.8% of the population have no certificate, diploma or degree, compared to 17.5% in both municipal and rural areas.

Educational services in the Edmonton Region are discussed in Section 8.5.1 of this report.

10.3.2 Educational Attainment – Rural Alberta Region

Educational attainment characteristics (2011) for communities in Socio-Economic RSA of the Rural Alberta Region are presented in Table D-5 in Appendix D.

In the Rural Alberta Region in 2011, 42.9% of the adult population had a post-secondary certificate, diploma or degree as their highest level educational attainment. In municipal areas, the percentage was 44.5%, whereas in IRs, the percentage was 6.6%. Of footprint communities, the Town of Hinton had the highest percentage of post-secondary degree attainment in the Rural Alberta Region, at 45.7%. In the Rural Alberta Region in 2011, 16.1% of the population had an apprenticeship or trades certificate or diploma as their highest level educational attainment. In the Rural Alberta Region, rural areas had the highest percentage at 18.3%. On IRs, 3.3% of the population had an apprenticeship or trades certificate or diploma. Of footprint communities, the Town of Hinton had the highest percentage of trades educational attainment in the Rural Alberta Region at 15.9%. Large discrepancies in educational attainment between IRs and other communities and areas exist in the Rural Alberta Region. For example, across IRs, 90.1% of the population have no certificate, diploma or degree, compared to 26.4% and 31.6% in municipal and rural areas, respectively.

Educational services in the Rural Alberta Region are discussed in Section 8.5.2 of this report.

10.3.3 Educational Attainment – Jasper National Park Region

Education attainment characteristics (2011) for communities in the Socio-Economic RSA of the Jasper National Park Region (where reported) are presented in Table D-5 in Appendix D.

In the Jasper National Park Region in 2011, 54.5% of the adult population had a post-secondary certificate, diploma or degree as their highest level educational attainment; 12.2% of the population had an apprenticeship or trades certificate or diploma as their highest level educational attainment.

In the Jasper National Park Region in 2011 data for the rural areas was suppressed for data quality or confidentiality reasons. There are no IRs located in the Jasper National Park Region.

Educational services in the Jasper National Park Region are discussed in Section 8.5.3 of this report.

10.3.4 Educational Attainment – Fraser-Fort George/Thompson-Nicola Region

Education attainment characteristics (2011) for communities in the Socio-Economic RSA of the Fraser-Fort George/Thompson-Nicola Region (where reported) are presented in Table D-6 in Appendix D.

In the Fraser-Fort George/Thompson-Nicola Region in 2011, 50.1% of the adult population had a post-secondary certificate, diploma or degree as their highest level educational attainment. In municipal areas, the percentage was 50.9%, whereas in IRs, the percentage was 45.4%. Of footprint communities, the City of Kamloops had the highest percentage of post-secondary degree attainment in the Fraser-Fort George/Thompson-Nicola Region, at 52.7%. In the Fraser-Fort George/Thompson-Nicola Region in 2011, 13.7% of the population had an apprenticeship or trades certificate or diploma as their highest level educational attainment. In this region, IRs have the highest percentage of trades educational attainment at 13.9% compared to other Socio-Economic Regions, although municipal and rural areas have similar percentages at 13.7% and 13.6%, respectively. Of footprint communities, the Village of Valemout had the highest percentage of trades educational attainment in the Fraser-Fort George/Thompson-Nicola Region at 21.5%. Slight discrepancies in educational attainment between IRs and other communities and areas exist in the Fraser-Fort George/Thompson-Nicola Region. For example, in IRs approximately 25.0% of the population have no certificate, diploma or degree, compared to approximately 19.0% and 20.7% in municipal and rural areas, respectively.

The Institute of Chartered Accountants of BC includes the Fraser-Fort George/Thompson-Nicola Region in the Cariboo Development Region as well as the Thompson-Okanagan Development Region. The Cariboo Development Region primarily overlaps with the RDFFG and Village of Valemout. In 2011, the CDR's labour force, age 25 to 54, with a post-secondary certificate/diploma or higher increased by 2.7% to 55.8% of the labour force. In 2012 it increased another 4.5% to reach 60.3% of the labour force (Institute of Chartered Accountants of British Columbia 2012). Similarly, the TODR's labour force, age 25 to 54, increased to a record high of 61.5% of the labour force with a post-secondary certificate/diploma or higher. This increased another 0.7% in 2012 to reach a total of 62.2% of the labour force (Institute of Chartered Accountants of British Columbia 2012).

Educational services in the Fraser-Fort George/Thompson-Nicola Region are discussed in Section 8.5.4 of this report.

10.3.5 Educational Attainment – Fraser Valley Region

Education attainment characteristics (2011) for communities in the Socio-Economic RSA of the Fraser Valley Region (where reported) are presented in Table D-6 in Appendix D.

In the Fraser Valley Region in 2011, approximately 47.3% of the adult population had a post-secondary certificate, diploma or degree as their highest level educational attainment. In municipal areas, the percentage was 47.4%, whereas for IRs the percentage was 39.9%. Of footprint communities, the District of Hope had the highest percentage of post-secondary degree attainment in the Fraser Valley Region, at 47.9%. In the Fraser Valley Region in 2011, approximately 12.6% of the population had an apprenticeship or trades certificate or diploma as their highest level educational attainment. In this region, IRs had a trades educational attainment 14.8%, higher than municipal areas (12.5%). Rural areas had the highest percentage of trades educational attainment at 16.0%. Of footprint communities, the District of Hope had the highest percentage of trades educational attainment in the Fraser Valley Region at 14.0%. There are notable differences in educational attainment between IRs and other communities and areas in the Fraser Valley Region. For example, in IRs, approximately 34.0% of the population had no certificate, diploma or degree, compared to 21.3% and 19.3% in municipal and rural areas, respectively.

Across the FVRD as a whole, much of the post-secondary education is focused in engineering and technical, business, and health and fitness fields (FVRD 2010). Employment service providers in Hope indicated that many high school students in the community do not graduate (McBride pers. comm.).

Educational services in the Fraser Valley Region are discussed in Section 8.5.5 of this report.

10.3.6 Educational Attainment – Metro Vancouver Region

Education characteristics (2011) for communities in the Socio-Economic RSA of the Metro Vancouver Region (where reported) are presented in Table D-6 in Appendix D.

In the Metro Vancouver Region in 2011, approximately 58.6% of the adult population had a post-secondary certificate, diploma or degree as their highest level educational attainment. In municipal areas, the percentage was 58.6%, similar to IRs, where the percentage was 57.7%. Of footprint communities, the City of Burnaby had the highest percentage of post-secondary degree attainment in the Metro Vancouver Region, at approximately 51.1%. In the Metro Vancouver Region in 2011, 8.1% of the population had an apprenticeship or trades certificate or diploma as their highest level educational attainment. In this region, IRs had the highest percentage of trades educational attainment at 11.9%. Municipal and rural areas had 8.1% and 3.0%, respectively. Of footprint communities, the Township of Langley had the highest percentage of trades educational attainment in the Metro Vancouver Region at 12.5%. Slight differences exist in educational attainment between IRs and other communities and areas in the Metro Vancouver Region in select data categories. For example, in IRs in 2011, approximately 18.5% of the adult population had no certificate, diploma or degree, compared to 14.6% and 7.4% in municipal and rural areas, respectively.

Educational services in the Metro Vancouver Region are discussed in Section 8.5.6 of this report.

11.0 DISCUSSION AND MITIGATION RECOMMENDATIONS

This section presents an overview of the potential effects and associated mitigation and enhancement measures related to social and cultural well-being, HORU, infrastructure and service, navigation and navigation safety and infrastructure and services. This overview considers the potential interactions discussed in Section 3.1 of this report in the context of the Project and the existing socio-economic conditions presented in previous sections.

The discussion of potential effects and mitigation and enhancement recommendations is presented in an integrated manner for Project as a whole (including pump stations, tanks, temporary facilities, pipeline reactivation activities, and Westridge Marine Terminal). This is because many socio-economic effects cannot be meaningfully isolated by Project component and are largely related to the combination of Project activities, presence of workers, and economic opportunities associated with all components in a particular region or area. Any unique effects associated with the Westridge Marine Terminal are identified separately, where applicable.

11.1 Supplemental Studies

No supplemental studies are recommended pertaining to social and cultural well-being, HORU, infrastructure and service, navigation and navigation safety and infrastructure and services elements.

11.2 Socio-Economic Management Approach

The discussion of socio-economic effects and mitigation/enhancement measures lies in the context of “shared responsibility”, meaning that the responsibility and ability to address many Project-related socio-economic issues lies with a wide variety of individuals, organizations and governments in addition to the active role of Trans Mountain.

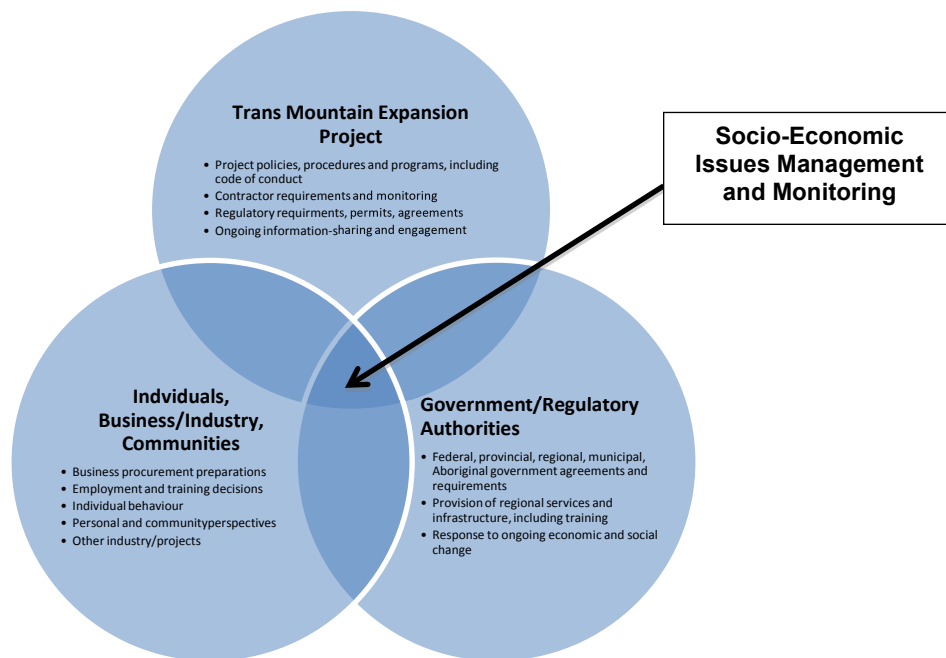
By their nature, socio-economic issues in any Project context are dynamic and affected by many factors. Whether related to employment, business opportunities, services or social effects on communities, how socio-economic issues play out in the context of the Project will be determined by a complex and nuanced balance of Project actions, government policies and programs, individual choices and broader economic forces. As such, the Project requires a collaborative approach and therefore does not have sole ownership or complete control over the management of all issues. Issues management will require shared responsibility and collaboration between the Project and the various orders of governments, service organizations and other informal and/or non-elected groups that may be active in decision-making and service implementation at the community level. This concept is shown in Figure 11.2-1.

There are several examples that illustrate this point.

- The Project (primarily through its Contractors) will provide employment opportunities for individuals. Individuals will need to choose to apply for employment, ensure that they have the required skills or experience, and then ultimately maintain their employment.
- The Project can work with training institutions to design and support appropriate training programs to enhance the ability of regional residents to successfully obtain employment opportunities. While Trans Mountain is not a training institution, they will support training initiatives and explore partnerships with regional training institutions to deliver required programs.
- Individuals will make personal choices about how to use the income earned through Project-related employment. Project-derived income could be spent in positive or negative ways (*i.e.*, purchasing assets and services that improve quality of life or, for example, on drugs and alcohol). While the Project can provide information and resources to assist workers in making positive spending and financial decisions, it is ultimately up to the individual to choose how they use their income.

- The Project will provide contracting opportunities for businesses. The Project can develop processes to inform businesses about what will be required to qualify for bidding and working on the Project and assist businesses to prepare for opportunities (*i.e.*, guidance about appropriate health and safety programs). It is the business's responsibility to become prepared to take advantage of the Project opportunities, to qualify for bidding, to respond to contract bids, manage their business risk and to successfully complete any work awarded according to the contract terms.
- The Project may temporarily influence population growth in the study regions due to construction phase workforce needs, which could in turn place increased demands on community services such as health, policing, or transportation infrastructure. The Project will take steps to minimize its effect on those public services through work force planning and hiring strategies, worker transportation and accommodation, and providing the services to direct Project workers. The Project has no influence over indirect or induced workers (those hired by other organizations serving the growing economy and population). To the extent that an increased demand on services is anticipated in relation to the Project and in the context of overall regional growth, community organizations and businesses, municipal, Aboriginal, provincial and federal governments may take action to increase local capacity of the services or infrastructure that is in their mandate to provide. The Project can support such initiatives strategically without directly providing such services (*e.g.*, through timely information provision and collaborative planning).

Figure 11.2-1 Socio-Economic Issues Management - Shared Responsibility Model



The Socio-Economic Management Plan (SEMP) in Volume 6A summarizes the proposed mitigation and enhancement measures that have been designed to manage potential social, economic and health-related issues and economic opportunities associated with the Project. The SEMP focuses on mitigation and enhancement measures that are not covered by the EPPs or other management plans developed for the Project and should be read in parallel with the various Project EPPs (Pipeline EPP, Facilities EPP and Westridge Marine Terminal EPP, Volumes 6B to 6D) and other management plans for a complete understanding of how Project-related issues will be managed. Generally, the EPPs focus on measures aimed at protecting the biophysical and natural environment. Certain measures in the EPPs and other management plans, however, also serve to assist in the management of socio-economic issues, in particular those measures and management plans related (but not limited) to:

- traffic and access control management;
- waste management;
- noise, air emissions, dust control, lighting, odour and visual buffering;
- temporary construction camps;
- water quality and quantity;
- vegetation;
- timber;
- agricultural land;
- fish and fish habitat;
- watercourse crossings; and
- wildlife.

The SEMP focuses on additional policies, programs and initiatives developed to address socio-economic issues that could emerge in relation to the Project, which Trans Mountain and its Contractors will implement. These measures will contribute to the enhancement of the Project benefits and work opportunities and minimize potentially adverse socio-economic effects. The SEMP focus on measures pertinent to procurement, employment and training, worker accommodation, traffic, emergency management, other regional infrastructure and services, worker health, HORU, navigation and navigation safety, and community way-of-life.

The SEMP also outlines the timing (during what phase of the Project the measure should be implemented) and the accountable parties (parties who are responsible or involved in implementing the mitigation or enhancement measure) for each measure. It discusses the various responsibilities between Trans Mountain, its General Contractors and their sub-contractors. It also notes where external agencies may need to be involved (*e.g.*, emergency services, social services, training organizations).

11.3 Social and Cultural Well-Being

This subsection discusses the anticipated effects on social and cultural well-being indicators, as well as mitigation and enhancement measures that have been established to minimize negative effects and enhance Project-related opportunities.

Potential effects associated with the construction and operations of the Project on social and cultural well-being indicators are listed in Table 11.3.1-1. These interactions are based on the results of the literature review, desktop analysis, field surveys, interviews and TEK, consultation/engagement with Aboriginal communities, landowners, government authorities (*e.g.*, regulatory authorities, municipalities), stakeholders (*e.g.*, ENGOs, recreation associations), the general public (Section 3.0) and the professional experience of the assessment team.

A summary of mitigation and enhancement measures provided in Table 11.3.1-1 was principally developed in accordance with Trans Mountain standards as well as industry practices.

Potential residual effects are discussed in detail, and evaluated for significance, in Section 7.0 of Volume 5B.

TABLE 11.3-1

POTENTIAL EFFECTS AND MITIGATION MEASURES – SOCIAL AND CULTURAL WELL-BEING PROJECT CONSTRUCTION AND OPERATION

Potential Effect	Socio-Economic Region/Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP Reference] ²
1. Social and Cultural Well-Being Indicator – Population and Demographics			
1.1 Change in population and demographics during construction	All regions, except Jasper National Park Region New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	Measures to maximize regional employment and procurement will limit the effects of the Project in terms of the need for in-migrating workers and effects on population and demographics. These measures include: <ul style="list-style-type: none"> • Develop and implement a program to enhance awareness of pipeline and facilities construction and operations jobs and career opportunities in cooperation with business, industry, community and education and training organizations [Section 8.4.2]. • Create an online employment communications tool where potential workers who are interested in employment can register to receive regular updates [Section 8.4.2]. • Continue to communicate with Aboriginal communities to discuss issues and interests related to employment opportunities [Section 8.4.2]. • Include regional employment clauses in all Project contracts [Section 8.4.2]. • Give first consideration for employment opportunities to qualified regional and Aboriginal residents with appropriate skills and qualifications, where possible [Section 8.4.2]. • Develop and provide typical job descriptions, including skills and qualifications required to support employment opportunities [Section 8.4.2]. • Ensure Contractors communicate upcoming employment opportunities directly to Project area employment offices, women's organizations and Aboriginal communities and organizations [Section 8.4.2]. • Require that General Contractors report to Trans Mountain their steps taken to attempt to hire within the Project area and nationally and report the number of hires from Project area Aboriginal residents and other regional residents [Section 8.4.2]. • Develop a mentorship program for Aboriginal workers to encourage work site integration and retention Section 8.4.2]. • Initiate an Aboriginal Employment and Training Program to support increased access to Aboriginal employment opportunities on the Project [Section 8.4.2]. • Provide information about procurement opportunities to potential Aboriginal, regional, provincial and Canadian suppliers using various communication means [Section 8.4.1]. • Maintain an online procurement registry where interested parties can register their capabilities and express interest in providing goods or services to the Project [Section 8.4.1]. • Develop and implement a process to share information at the regional level in a timely manner about general Project procurement needs and required qualifications, so businesses can prepare [Section 8.4.1]. • Work with Contractors to give first consideration to qualified regional suppliers of goods and services, where practical and in conformance with procurement policies [Section 8.4.1].
1.2 Change in population during operations	All regions, except Jasper National Park Region	RSA	Given the relatively small number of new operating positions, no population effects are anticipated during operations. Measures to maximize regional employment and procurement during operations will nonetheless support current regional residents' participation in operations phase employment opportunities. These measures include:

TABLE 11.3-1 Cont'd

Potential Effect	Socio-Economic Region/Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP Reference] ²
1.2 Change in population during operations (cont'd)	New pipeline segments Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	See above	<ul style="list-style-type: none"> • Develop and implement a program to enhance awareness of pipeline and facilities construction and operations jobs and career opportunities in cooperation with business, industry, community and education and training organizations [Section 8.4.2]. • Continue to communicate with Aboriginal communities to discuss issues and interests related to employment opportunities [Section 8.4.2]. • Include regional employment clauses in all Project contracts [Section 8.4.2]. • Give first consideration for employment opportunities to qualified regional and Aboriginal residents with appropriate skills and qualifications, where possible [Section 8.4.2]. • Provide information about procurement opportunities to potential Aboriginal, regional, provincial and Canadian suppliers using various communication means [Section 8.4.1]. • Work with Contractors to give first consideration to qualified regional suppliers of goods and services, where practical and in conformance with procurement policies [Section 8.4.1]. • Establish and implement a process for the use of qualified regional Aboriginal Contractors for operations phase maintenance contracts [Section 8.4.2].
2. Social and Cultural Well-Being Indicator – Income Levels and Distribution			
2.1 Changes in income patterns	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> • See recommended mitigation measures in sections 1.1 and 1.2 of this table. • The Worker Accommodation Strategy [Section 8.4.4] will consider the use of construction camps in certain locations to off-set pressure on housing markets; the use of construction camps will reduce any contribution to housing price pressure that could have implications for community residents with lower or fixed incomes. • Trans Mountain will support existing initiatives aimed at increasing female participation in the construction workforce, driven by government, labour organizations and education institutions. • Develop and implement an issues tracking process to monitor and respond to Project-related socio-economic issues and opportunities that emerge during construction and reclamation [Section 8.4.11]. • Continue communication and engagement with stakeholders as the Project progresses [Section 8.4.11].
3. Social and Cultural Well-Being Indicator – Community Way-of-Life			
3.1 Change to community life due presence of construction activity and temporary workers	All regions, except Jasper National Park Region New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> • Develop a Code of Conduct for employees and Contractors that provides guidance and policies on appropriate and inappropriate worker behaviour and community interactions [Section 8.4.11]. • Establish a process by which community members can raise complaints or concerns related to Project activities or workers [Section 8.4.11]. • Adhere to a policy of no tolerance of use or being under the influence of illicit drugs or alcohol during work hours [Section 8.4.11]. • The Worker Accommodation Strategy will consider the use of construction camps in certain locations. Camps will include recreational amenities for workers (e.g., leisure/fitness areas) [Section 8.4.4]. • Endeavour to align construction schedules around statutory holidays and key community events, to the extent practical [Section 8.4.11]. • Develop and implement a communication plan for sharing information about key Project construction milestones and information with the general public in affected areas [Section 8.4.6]. • Ensure any changes in planned timing or location of construction activities are communicated [Section 8.4.6]. • Continue communication and engagement with stakeholders as the Project progresses [Section 8.4.11].

TABLE 11.3-1 Cont'd

Potential Effect	Socio-Economic Region/Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP Reference] ²
3.1 Change to community life due presence of construction activity and temporary workers (cont'd)	See above	See above	<ul style="list-style-type: none"> Develop and implement an issues tracking process to monitor and respond to Project-related socio-economic issues and opportunities that emerge during construction and reclamation [Section 8.4.11].
3.2 Physical disturbance to community assets (e.g., schools, public facilities, parks)	All regions, except Jasper National Park Region New pipeline segments Temporary facilities	Footprint	<ul style="list-style-type: none"> Minimize disturbance of valued natural and built features during final route selection to the extent practical [Section 8.4.6]. Narrow the construction right-of-way at key locations to avoid valued built or natural features, to the extent practical [Section 8.4.6]. Develop and implement a communication plan for sharing information about key Project construction milestones and information with the general public in affected areas [Section 8.4.6]. Ensure any changes in planned timing or location of construction activities are communicated [Section 8.4.6]. Install signs in parks and protected areas and known recreational use areas in the vicinity notifying users of construction activities and timing [Section 8.4.6]. Maintain access to established recreation features, through the clearing, construction and reclamation period, where practical [Section 8.4.6].
4. Social and Cultural Well-Being Indicator – Aboriginal Culture			
4.1 Effects on Aboriginal harvesting practices and cultural sites	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments	RSA	<ul style="list-style-type: none"> Coordinate pipeline construction activity to ensure access to traditional subsistence hunting and fishing areas [Section 8.4.6]. See recommended mitigation measures in the Traditional Land and Resource Use Technical Report of Volume 5D.
4.2 Effects on Aboriginal culture due to employment opportunities and other Project activities	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> Maximize the hiring of on-reserve and off-reserve Aboriginal community members [Section 8.4.2]. Continue to communicate with Aboriginal communities to discuss issues and interests related to employment opportunities [Section 8.4.2]. Provide Aboriginal/Community Liaison workers to liaise with appropriate resources and with Contractors [Section 8.4.2]. Initiate an Aboriginal Employment and Training Program to support increased access to Aboriginal employment opportunities on the Project [Section 8.4.2]. Develop a mentorship program for Aboriginal workers to encourage work site integration and retention Section 8.4.2]. Evaluate Contractors' recruitment and selection processes to ensure opportunities will be available to Aboriginal workers [Section 8.4.2]. Ensure Contractors communicate upcoming employment opportunities directly to Project area employment offices, women's organizations and Aboriginal communities and organizations [Section 8.4.2]. See other recommended mitigation measures in section 1.1 of this table. On-going TLU studies supported by the Project may also contribute to and support broader Aboriginal community cultural objectives. Any mutual benefit agreements established between Trans Mountain and Aboriginal communities may also contribute to and support broader Aboriginal community cultural objectives.

Notes: 1 RSA = Socio-Economic RSA
2 Detailed mitigation measures are outlined in the SEMP (Volume 6B).

No unique or distinct potential effects on social and cultural well-being indicators were anticipated related specifically to the Westridge Marine Terminal activity. Construction-related activities at the Terminal would result in population effects and income effects associated with the presence of workers as previously discussed. There are no unique community assets in the vicinity of the Terminal that would be disturbed during construction.

11.4 Human Occupancy and Resource Use

This section discuss the anticipated effects on HORU – including marine commercial, recreational and tourism use related to the Westridge Marine Terminal - as well as mitigation measures that have been established to minimize negative effects and enhance Project-related opportunities.

11.4.1 Pipeline and Facilities

Potential effects associated with the construction and operations of the Project on HORU indicators are listed in Table 11.4.1-1. These interactions are based on the results of the literature review, desktop analysis, consultation engagement with Aboriginal communities, landowners, government authorities (e.g., regulatory authorities, municipalities), stakeholders (e.g., ENGOs, recreation associations) and the general public (Section 3.0), and the professional experience of the assessment team.

A summary of recommended mitigation measures provided in Table 11.4-1 was principally developed in accordance with Trans Mountain standards as well as industry best practices. A full list of socio-economic mitigation measures is found in the SEMP of Volume 6B, as well as in the Pipeline EPP and Facilities EPP of Volume 6B and 6C respectively.

Potential residual effects are discussed in detail, and evaluated for significance, in Section 7.0 of Volume 5B.

TABLE 11.4-1

POTENTIAL EFFECTS AND RECOMMENDED MITIGATION MEASURES – HUMAN OCCUPANCY AND RESOURCE USE - PIPELINE AND FACILITIES CONSTRUCTION AND OPERATION

Potential Effect	Socio-Economic Region/ Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ²
1. HORU Indicator – Parks and Protected Areas			
1.1 Physical disturbance to protected areas	Jasper National Park Region Fraser-Fort George/Thompson-Nicola Region Fraser Valley Region Metro Vancouver Region / New pipeline segments Temporary facilities Reactivated pipeline segment (Hinton to Hargreaves)	Footprint	<ul style="list-style-type: none"> Minimize disturbance of valued natural features with a non-traditional human use (e.g., recreational trails, recreational use areas, key use areas within parks and protected areas) during final route selection to the extent practical [SEMP Section 8.4.6]. Reduce the amount of land disturbed by using previously disturbed areas for stockpiles, staging areas and camps where possible [SEMP Section 8.4.6]. Provide provincial and federal regulatory authorities, municipal / regional governments; Aboriginal communities; affected landowners, occupants and Crown tenure holders and recreational organizations with final routing information, including maps, as well as construction schedule information [SEMP Section 8.4.6]. Install signs in parks and protected areas and known recreational use areas in the vicinity notifying users of construction activities and timing [SEMP Section 8.4.6]. Develop and implement a communication plan for sharing information about key Project construction milestones and information with the general public in affected areas [SEMP Section 8.4.6].

TABLE 11.4-1 Cont'd

Potential Effect	Socio-Economic Region/ Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ²
1.1 Physical disturbance to protected areas (cont'd)	See above	See above	<ul style="list-style-type: none"> • Ensure any changes in planned timing or location of construction activities is communicated to the public, relevant municipal and regional governments, Aboriginal communities, landowners, occupants, Crown tenure holders and formal recreation organizations in affected areas [SEMP Section 8.4.6]. • Apply all mitigation measures pertaining to HORU in the SEMP and all mitigation measures pertaining to notification and vegetation management in the EPPs.
1.2 Physical disturbance to facilities, including trails and trailheads, within protected areas	Fraser-Fort George/ Thompson-Nicola Region Fraser Valley Region Metro Vancouver Region New pipeline segments Temporary facilities	Footprint	<ul style="list-style-type: none"> • Avoid disturbance of built features during final route selection, to the extent practical [SEMP Section 8.4.6]. • Narrow the construction right-of-way at key locations to avoid valued built or natural features, to the extent practical [SEMP Section 4.6]. • Ensure closure signage is placed on the affected established trails or trailheads [SEMP Section 8.4.6]. • Contact appropriate regulatory authorities (e.g., Alberta Environment and Sustainable Resource Development, BC Ministry of Forests, Lands and Natural Resource Operations, Alberta Tourism, Parks, and Recreation, BC Parks, Parks Canada, etc.) and municipal tourism offices prior to construction activities and provide maps and schedules of the proposed construction activities to enable them relay information about possible trail and recreational use area closures [SEMP Section 8.4.6]. • Develop and implement a communication plan for sharing information about key Project construction milestones and information with the general public in affected areas [SEMP Section 8.4.6]. • Apply all mitigation measures pertaining to HORU in the SEMP and all measures pertaining to notification and vegetation management in the EPPs.
1.3 Change to access of protected areas	All regions, except Jasper National Park Region / New pipeline segments Temporary facilities	RSA	<ul style="list-style-type: none"> • Maintain access to established recreation features, through the clearing, construction and reclamation period, where practical [SEMP Section 8.4.6]. • Deactivate and reclaim temporary access routes and sites required to construct the Project once Project construction is complete [SEMP Section 8.4.6]. • Place signage on access roads in the vicinity of the construction activities to ensure users are aware that construction activities are taking place [SEMP Section 8.4.6]. • Bore under paved and high use roads where practical [SEMP Section 8.4.6]. • Where minor roads are crossed that may affect established community use/access routes, complete open cut crossing within one day, to the extent practical [SEMP Section 8.4.6]. • Provide provincial and federal regulatory authorities, municipal / regional governments; Aboriginal communities; affected landowners, occupants and Crown tenure holders and recreational organizations with final routing information, including maps, as well as construction schedule information [SEMP Section 8.4.6]. • Develop Traffic Control Plans for site-specific sections of roads affected by the Project [SEMP Section 8.4.3]. • Develop a communication plan for activities that impact normal traffic flow, such as road closures, detours, etc. [SEMP Section 8.4.3]. • Develop and implement a communication plan for sharing information about key Project construction milestones and information with the general public in affected areas [SEMP Section 8.4.6]. • Ensure any changes in planned timing or location of construction activities is communicated to the public, relevant municipal and regional governments, Aboriginal communities, landowners, occupants, Crown tenure holders and formal recreation organizations in affected areas [SEMP Section 8.4.6]. • Apply all other mitigation measures pertaining to notification, access and traffic management in the SEMP and EPPs.

TABLE 11.4-1 Cont'd

Potential Effect	Socio-Economic Region/ Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ²
1.4 Sensory disturbance of land and resource users	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments	RSA	<ul style="list-style-type: none"> See recommended mitigation measures for potential effect 8.1 of this table.
2. HORU Indicator – Indian Reserves, Métis Settlements and asserted traditional territories			
2.1 Physical disturbance to IRs and Aboriginal communities	Fraser-Fort George/ Thompson-Nicola Region Fraser Valley Region New pipeline segments Temporary facilities	Footprint	<ul style="list-style-type: none"> Minimize disturbance of valued natural features with a non-traditional human use (e.g., recreational trails, recreational use areas, key use areas within parks and protected areas) during final route selection to the extent practical [SEMP Section 8.4.6]. Avoid disturbance of built features during final route selection, to the extent practical [SEMP Section 8.4.6]. Reduce the amount of land disturbed by using previously disturbed areas for stockpiles, staging areas and camps where possible [SEMP Section 8.4.6]. Avoid disturbance to ornamental trees, windbreaks and shelterbelts on landowner property, to the extent practical [SEMP Section 8.4.6]. Narrow the construction right-of-way at key locations to avoid valued built or natural features, to the extent practical [SEMP Section 8.4.6]. Provide provincial and federal regulatory authorities, municipal / regional governments; Aboriginal communities; affected landowners, occupants and Crown tenure holders and recreational organizations with final routing information, including maps, as well as construction schedule information [SEMP Section 8.4.6]. Develop and implement a communication plan for sharing information about key Project construction milestones and information with the general public in affected areas [SEMP Section 8.4.6]. Ensure any changes in planned timing or location of construction activities is communicated to the public, relevant municipal and regional governments, Aboriginal communities, landowners, occupants, Crown tenure holders and formal recreation organizations in affected areas [SEMP Section 8.4.6]. Develop and implement an issues tracking process to monitor and respond to Project-related socio-economic issues and opportunities that emerge during construction and reclamation [SEMP Section 8.4.11]. Continue communication and engagement with stakeholders as the Project progresses [SEMP 8.4.11].
2.2 Physical disturbance to asserted traditional territories	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments	Footprint	<ul style="list-style-type: none"> Reduce the amount of land disturbed by using previously disturbed areas for stockpiles, staging areas and camps where possible [SEMP Section 8.4.6]. Narrow the construction right-of-way at key locations to avoid valued built or natural features, to the extent practical [SEMP Section 8.4.6]. Provide provincial and federal regulatory authorities, municipal / regional governments; Aboriginal communities; affected landowners, occupants and Crown tenure holders and recreational organizations with final routing information, including maps, as well as construction schedule information [SEMP Section 8.4.6]. Ensure closure signage is placed on the affected established trails or trailheads [SEMP Section 8.4.6]. Ensure any changes in planned timing or location of construction activities is communicated to the public, relevant municipal and regional governments, Aboriginal communities, landowners, occupants, Crown tenure holders and formal recreation organizations in affected areas [SEMP Section 8.4.6].

TABLE 11.4-1 Cont'd

Potential Effect	Socio-Economic Region/ Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ²
2.2 Physical disturbance to asserted traditional territories (cont'd)	See above	See above	<ul style="list-style-type: none"> • Develop and implement an issues tracking process to monitor and respond to Project-related socio-economic issues and opportunities that emerge during construction and reclamation [SEMP Section 8.4.11]. • Continue communication and engagement with stakeholders as the Project progresses [SEMP 8.4.11]. • Also see recommended mitigation measures in the Traditional Land and Resource Use Technical Report in Volume 5D.
2.3 Disruption of traditional land and resource use activities	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments	LSA	<ul style="list-style-type: none"> • See recommended mitigation measures in the Traditional Land and Resource Use Technical Report in Volume 5D.
2.4 Change to access of IRs and asserted traditional territories	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments	RSA	<ul style="list-style-type: none"> • See recommended mitigation measures for potential effect 1.3 of this table.
2.5 Sensory disturbance of land and resource users	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments	RSA	<ul style="list-style-type: none"> • See recommended mitigation measures for potential effect 8.1 of this table.
3. HORU Indicator – Residential Use			
3.1 Physical disturbance to residential areas	All regions, except Jasper National Park Region / New pipeline segments Temporary facilities	Footprint	<ul style="list-style-type: none"> • See recommended mitigation measures for potential effect 2.1 of this table.
3.2 Disturbance to community use areas (schools, playgrounds, public facilities)	All regions, except Jasper National Park Region New pipeline segments Temporary facilities	Footprint	<ul style="list-style-type: none"> • See recommended mitigation measures for potential effect 2.1 of this table.
3.3 Sensory disturbance of land and resource users	All regions, except Jasper National Park Region New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments	RSA	<ul style="list-style-type: none"> • See recommended mitigation measures for potential effect 8.1 of this table.
4. HORU Indicator – Agricultural Use			
See Agricultural Assessment Technical Report (Volume 5D)			

TABLE 11.4-1 Cont'd

Potential Effect	Socio-Economic Region/ Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ²
5. HORU Indicator – Outdoor Recreation Use			
5.1 Physical disturbance of waterways used for recreational activities	All regions, except Jasper National Park Region New pipeline segments Pump stations (Black Pines Pump Station power line)	RSA	<ul style="list-style-type: none"> See recommended mitigation measures pertaining to Navigation and Navigation Safety in Tables 11.6.1-1 and 11.6.2-1 in this report.
5.2 Physical disturbance to outdoor recreation trails and use areas	All regions, except Jasper National Park Region New pipeline segments Temporary facilities	RSA	<ul style="list-style-type: none"> See recommended mitigation measures for potential effect 1.1 and 1.2 of this table. Prohibit the recreational use of ATVs or snowmobiles by construction personnel on the construction right-of-way or at a construction site [EPP Section 7.0].
5.3 Disruption to commercial recreation tenures	All regions, except Jasper National Park Region New pipeline segments Temporary facilities Pump stations (Rearguard Pump Station)	RSA	<ul style="list-style-type: none"> See recommended mitigation measures for potential effect 1.1 and 1.2 of this table. Contact directly affected commercial recreation tenure holders prior to clearing and construction activities, providing maps and schedule information to enable them to select alternate areas for their activities [SEMP Section 8.4.6]
5.4 Sensory disturbance of land and resource users	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments	RSA	<ul style="list-style-type: none"> See recommended mitigation measures in for potential effect 8.1 of this table.
6. HORU Indicator – Other Land and Resource Use			
6.1 Disruption of outfitting, trapping, hunting and fishing activities	All regions, except Jasper National Park Region / New pipeline segments Temporary facilities Pump stations (Hinton, Rearguard, Darfield, Black Pines, Kingsvale power line)	RSA	<ul style="list-style-type: none"> See recommended mitigation measures for potential effect 1.1 of this table. Contact trappers of affected registered fur management areas and traplines and guide-outfitters in relevant wildlife management units prior to clearing and construction activities, providing maps and schedule information to enable them to select alternate areas for their activities [SEMP Section 8.4.6]. Provide compensation, considering various forms, to affected trappers according to established industry and provincial protocols if reduced fur harvest and lost revenue is proven [SEMP Section 8.4.6]. Prohibit the vandalism or theft on trapper equipment or trapped animals if they are observed on the construction right-of-way or the construction site prior to clearing [EPP Section 7.0]. Prohibit recreational fishing by Project personnel on or in the vicinity of the construction right-of-way. The use of the construction right-of-way to access fishing sites is prohibited [EPP Section 7.0]. See measures for potential effect 8.1 of this table (sensory disturbance). Apply all mitigation measures in the EPPs regarding fish and fish habitat, wildlife, vegetation, access management, and notification.
6.2 Effects on managed forest areas and forest health	See Managed Forest Areas and Forest Health Technical Report (Volume 5D)		

TABLE 11.4-1 Cont'd

Potential Effect	Socio-Economic Region/ Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ²
6.3 Disruption of oil and gas activities	All regions, except Jasper National Park Region New pipeline segments Temporary facilities Pump stations	LSA	<ul style="list-style-type: none"> See recommended mitigation measures for potential effect 1.1 of this table. Notify all oil and gas tenure/disposition holders before construction to coordinate planned activities and secure agreements, as necessary [SEMP Section 8.4.6].
6.4 Disruption of mineral and aggregate extraction activities	Fraser-Fort George/ Thompson-Nicola Region Fraser Valley Region New pipeline segments Temporary facilities Pump stations (Rearguard, Kingsvale power line)	LSA	<ul style="list-style-type: none"> See recommended mitigation measures for potential effect 1.1 of this table. Notify all affected mineral and aggregate tenure / disposition holders before construction to coordinate planned activities and secure agreements, as necessary [SEMP Section 8.4.6].
6.5 Physical disturbance to industrial and commercial use areas	All regions, except Jasper National Park Region New pipeline segments Temporary facilities	Footprint	<ul style="list-style-type: none"> See recommended mitigation measures for potential effect 1.1 of this table.
6.6 Change to access for other land and resource users during construction	All regions, except Jasper National Park Region New pipeline segments Temporary facilities	RSA	<ul style="list-style-type: none"> See recommended mitigation measures for potential effect 1.3 of this table. For construction in urban areas that impacts traffic routes, establish alternate access routes for commercial or residential areas where applicable and practical [SEMP Section 8.4.6].
6.7 Sensory disturbance of land and resource users	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments	RSA	<ul style="list-style-type: none"> See recommended mitigation measures in for potential effect 8.1 of this table.
7. HORU Indicator – Water Supply and Use			
7.1 Alteration of surface water supply and quality for downstream water users	All, except Jasper National Park Region New pipeline segments Temporary facilities	RSA	<ul style="list-style-type: none"> See recommended mitigation measures pertaining to Water Quality and Quantity in Section 7.2.3 of Volume 5A.
7.2 Alteration of well water flow and quality for water users	All, except Jasper National Park Region / New pipeline segments Temporary facilities	Footprint	<ul style="list-style-type: none"> See recommended mitigation measures in the Groundwater Technical Report in Volume 5A.

TABLE 11.4-1 Cont'd

Potential Effect	Socio-Economic Region/ Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ²
8. HORU Indicator – Aesthetic Attributes			
8.1 Sensory disturbance	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments	RSA	<ul style="list-style-type: none"> • Adhere to all federal and provincial guidelines and legislation for noise management [EPP Section 7.0]. • Schedule construction activities to be conducted within 250 m of residences, cabins, campgrounds or parks in accordance with applicable municipal noise bylaws or approval conditions [EPP Section 7.0]. • Noise abatement and construction scheduling will be considered at noise-sensitive locations (<i>i.e.</i>, neighboring landowners) and during noise-sensitive periods [EPP Section 7.0]. • Enforce vehicle speed limits and inform Contractor truck drivers and equipment operators that engine retarder braking in urban areas is prohibited [EPP Section 7.0]. • Use only the size and power of tools necessary to limit noise from power tool operations. Ensure stationary equipment, such as compressors and generators, will be located away from noise receptors, to the extent feasible [EPP Section 7.0]. • Maintain noise suppression equipment (<i>e.g.</i>, silencers) on all construction machinery and vehicles [EPP Section 7.0]. • Implement mitigation measures where night-time activity (<i>e.g.</i>, HDD) on the construction right-of-way or facility site is located within 500 m of residences [EPP Section 7.0]; notify potentially affected residents of any major construction activities that will occur at night [SEMP Section 8.4.7]. • Enclose noisy equipment and use baffles such as material storage and subsoil piles, where and when feasible, to limit the transmission of noise beyond the construction site [EPP Section 7.0]. • Restrict the duration that vehicles and equipment are allowed to sit and idle to less than one hour, unless air temperature is less than 0°C [EPP Section 7.0]. • To reduce noise and air emissions from Project-related vehicles, use multi-passenger vehicles for the transportation of crews to and from the job sites, where feasible [EPP Section 7.0; SEMP Section 8.4.3]. Encourage car-pooling when shuttle bus services are not practical [SEMP Section 8.4.3]. • Install tree/shrub plantings at potential access points and viewsheds to the construction right-of-way to provide a visual screen to the construction right-of-way [EPP Section 8.0]. • Direct lighting for all construction activities downward and, where feasible, positioned to avoid or reduce annoyance of nearby residents [Facilities EPP Section 7.0]. • Post signs stating the applicable speed limits for construction traffic to reduce dust [EPP Section 7.0]. • Trans Mountain will consult with and inform landowners with the potential to be affected by dust emissions from construction activities prior to commencement of these activities in proximity to the respective landowners [EPP Section 8.0]. • Water down construction sites and access roads, when warranted, to reduce or avoid the potential for dust emissions. Increase the frequency of watering roads and sites during periods of high risk (<i>e.g.</i>, high winds). Additional dust abatement measures (<i>e.g.</i>, covering topsoil windrows, installing sediment fences, applying a tackifier) will be implemented, when warranted, during clearing and construction activities [EPP Section 8.0]. • Implement all other mitigation measures pertaining to noise, air/GHG emissions and dust suppression in the EPPs. • Develop and implement an issues tracking process to monitor and respond to Project-related socio-economic issues and opportunities that emerge during construction and reclamation [SEMP 8.4.11].

TABLE 11.4-1 Cont'd

Potential Effect	Socio-Economic Region/ Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ²
8.2 Alteration of existing viewsheds	All regions New pipeline segments (where deviating from TMPL right-of-way) Pump station (Black Pines) Terminal activities	LSA and RSA	<ul style="list-style-type: none"> • Replace ornamental trees and other vegetation disturbed during construction or site-specific maintenance on residential and commercial properties, as per landowner agreements [SEMP Section 8.4.7]. • To limit the effects of clearing in areas of new pipeline right-of-way, during reclamation use seeds that ensure vegetation regrowth blends with adjacent vegetation [SEMP Section 8.4.7]. • Use seedlings and/or larger trees for vegetation screens that have been salvaged from the construction right-of-way or sourced from acceptable donor sites or commercially propagated rooted stock seedlings and container trees grown from a seed sources obtained from the same natural subregion/Biogeoclimatic Zone, as well as the same general latitude and elevation [EPP Section 8.0]. • Maintain an undisturbed vegetation screen between a new borrow site and an adjacent road [EPP Section 11.0]. • Landscape facility sites to limit visual impacts to wildlife and the public (<i>i.e.</i>, leave a vegetation buffer between facility sites and public roads) [Facilities EPP Section 7.0]. • Install lighting control systems in the facility site that permit the reduction of the amount of lighting during periods of low activity [Facilities EPP Section 7.0]. • Paint tanks neutral colors so they blend into the surrounding environment [Facilities EPP Section 7.0]. • Install tree and shrub plantings at access points no longer required and at viewscapes to provide a visual screen to the facility site [Facilities EPP Section 8.0; see Drawing Visual Screen – Facility Site in Appendix R of Facilities EPP]. • Develop and implement an issues tracking process to monitor and respond to Project-related socio-economic issues and opportunities that emerge during construction and reclamation [SEMP 8.4.11]. • Continue communication and engagement with stakeholders as the Project progresses [SEMP 8.4.11].

Notes: 1 LSA = HORU LSA; RSA = HORU RSA.

2 Detailed mitigation measures are outlined in the SEMPs (Volume 6B) and the EPPs (Volume 6B and 6C).

11.4.2 Westridge Marine Terminal

Potential effects associated with the construction and operations activities at the Westridge Marine Terminal on the HORU indicators are listed in Table 11.4-2. These interactions were based on the results of the literature review, desktop analysis, consultation/engagement with Aboriginal communities, government authorities (*e.g.*, regulatory authorities, municipalities) and other stakeholders (Section 3.0), and the professional experience of the assessment team.

A summary of recommended mitigation measures provided in Table 11.4-2 was principally developed in accordance with Trans Mountain standards as well as industry best practices.

Given the location of the Westridge Marine Terminal and its geographic context, key human resource uses for consideration in this subsection are:

- parks and protected areas (marine);
- IRs, Métis Settlements and asserted traditional territories (marine and marine access);
- aesthetic attributes; and
- marine commercial, recreational and tourism use (MCRTU).

MCRTU is a unique indicator for the assessment of HORU effects for the Westridge Marine Terminal, which is not discussed in the assessment of the proposed pipeline and facilities. This is due to the fact that the only marine interface related to the Project occurs at the Westridge Marine Terminal. The discussion of MCRTU in this subsection pertains only to the construction and direct operation of the expansion at the Westridge Marine Terminal, and it is assessed as a single indicator in which all four measurement endpoints are discussed.

MCRTU effects related to marine transportation (*i.e.*, the increase in marine vessel traffic anticipated as a result of the Project) are discussed separately in Volume 8A, as a stand-alone element within that ESA. In Volume 8A, MCRTU is assessed by several measurement endpoints, including commercial fishing, other marine commercial use, marine recreational use and marine tourism use. Full details can be found in the Marine Commercial, Recreational and Tourism Use – Marine Transportation Technical Report of Volume 8B.

Potential residual effects are discussed in detail, and evaluated for significance, in Section 7.0 of Volume 5B.

TABLE 11.4-2

POTENTIAL EFFECTS AND RECOMMENDED MITIGATION MEASURES – HUMAN OCCUPANCY AND RESOURCE USE - WESTRIDGE MARINE TERMINAL CONSTRUCTION AND OPERATION

Potential Effect	Spatial Boundary	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ¹
1. HORU Indicator – Parks and Protected Areas		
1.1 Disturbance to Rockfish Conservation Areas during construction	Marine HORU LSA	<ul style="list-style-type: none"> See recommended mitigation measures pertaining to fish and fish habitat in the Westridge Marine Terminal EPP.
1.2 Disruption to marine access to protected areas during construction and operations	Marine HORU RSA	<ul style="list-style-type: none"> Dock has been designed so that it will not interfere with existing anchorages, will remain within the east-west limits of the current water lot, and will allow the safe passing of marine traffic. Contact stakeholders, including municipal governments and marine use organizations, prior to construction activities. Provide maps and schedules of the construction activities [EPP Section 4.0], so that implications for marine use patterns can be considered. Ensure any changes in the construction schedule are communicated [EPP Section 4.0]. Place an announcement in local papers notifying the public and marine users of the location and timing of construction activities at least 14 days prior to activities [EPP Section 4.0]. Discourage unauthorized marine vessel access at the Westridge Marine Terminal through use of signs, markers and/or buoys [EPP Section 4.0]. Place warning signs (<i>e.g.</i>, Warning – Construction in the Vicinity) offshore and onshore, near construction activities. The signs are to be legible at a distance of 50 m. [EPP Section 4.0]. Ensure barges used for heavy equipment access are placed (anchored or spudded down) in appropriate areas with minimal impacts [EPP Section 8.2] Notify regulatory authorities and licensees and/or distribute a notification to the shipping industry in order to advise commercial and recreational marine operators of the Project schedule and construction activities at the Westridge Marine Terminal [EPP Section 4.0]. Communicate with marine and local fishing industry organizations, Aboriginal groups, marine recreation organizations and other affected stakeholders to provide Project information related to Project activities affecting marine use areas [SEMP Section 8.4.10]. Apply other measures in the EPP pertaining to marine construction.
1.3 Sensory disturbance of marine users in protected areas	Marine HORU RSA	<ul style="list-style-type: none"> See recommended mitigation measures in potential effect 3.2 of this table.

TABLE 11.4-2

Potential Effect	Spatial Boundary	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ¹
2. HORU Indicator – Indian Reserves, Métis Settlements and asserted traditional territories		
2.1 Physical disturbance to marine Aboriginal traditional use areas	Marine HORU RSA	<ul style="list-style-type: none"> See recommended mitigation measures pertaining to traditional marine resource use in the Westridge Marine Terminal EPP.
2.2 Disruption to marine access and use patterns of IRs and traditional territories	Marine HORU RSA	<ul style="list-style-type: none"> See recommended mitigation measures in potential effect 1.2 of this table.
2.3 Disruption of traditional marine resource use activities	Marine HORU RSA	<ul style="list-style-type: none"> See recommended mitigation measures pertaining to traditional marine resource use in the Westridge Marine Terminal EPP.
2.4 Sensory disturbance of marine users	Marine HORU RSA	<ul style="list-style-type: none"> See recommended mitigation measures in potential effect 3.2 in this table.
3. HORU Indicator – Aesthetic Attributes		
3.1 Visual effects and alteration of viewshed	Marine HORU RSA Socio-Economic RSA	<ul style="list-style-type: none"> Dock has been designed to reduce viewshed effects on nearby residential areas.
3.2 Sensory disturbance during construction and operations (due to increases in nuisance air emissions, noise and lighting)	Marine HORU RSA Socio-Economic RSA	<ul style="list-style-type: none"> Contact stakeholders, including municipal governments, prior to construction activities. Provide maps and schedules of the construction activities. Ensure any changes in the construction schedule are communicated, as warranted [EPP Section 4.0]. Place an announcement in local papers notifying the public and marine users of the location and timing of construction activities at least 14 days prior to activities [EPP Section 4.0]. Schedule construction activities to be conducted within 250 m of residences, during the period from 07:00 to 20:00, during weekdays, and 09:00 to 20:00, during weekends, if feasible, as per the City of Burnaby Noise and Sound Abatement Bylaw [EPP Section 7.0]. Ensure equipment is well-maintained during construction to minimize air and noise emissions [EPP Section 7.0]. Noise abatement and construction scheduling will be considered during noise-sensitive times, to limit disruption to sensitive receptors (<i>i.e.</i>, neighbouring landowners, wildlife migratory periods, nesting birds, etc.) [EPP Section 7.0]. Enclose noisy equipment and use baffles, where and when feasible, to limit the transmission of noise beyond the construction site [EPP Section 7.0]. Vessel operators will avoid rapid acceleration to control noise [EPP Section 8.2]. Direct the lighting for all construction activities downward and, where feasible, positioned to avoid or reduce impact to nearby residents [EPP Section 7.0]. Design lighting requirements at the Westridge Marine Terminal to meet the Canada Labour Code and Transport Canada - International Ship and Port Requirements [EPP Section 7.0]. Use low level and low intensity lighting and reduce night lighting, when feasible [EPP Section 7.0]. See all other noise, light and air emissions-related mitigation measures in the Westridge Marine Terminal EPP.
4. HORU Indicator – Marine Commercial, Recreational and Tourism Use		
4.1 Sensory disturbance for commercial, recreation and tourism users (<i>e.g.</i> , noise, lighting, visual, air quality) during construction and operations	Marine HORU RSA	<ul style="list-style-type: none"> See recommended mitigation measures in potential effect 3.2 in this table.
4.2 Change in distribution and abundance of harvested species	Marine HORU RSA	<ul style="list-style-type: none"> See recommended mitigation measures pertaining to Fish and Fish Habitat in the Westridge Marine Terminal EPP.
4.3 Displacement of commercial, recreational and tourism users around Westridge Marine Terminal during construction and operations	Marine HORU RSA	<ul style="list-style-type: none"> See recommended mitigation measures in potential effects 1.2 and 3.2 of this table.
4.4 Change in commercial, recreational and tourism vessel routing/access routes during construction and operations	Marine HORU RSA	

Note: 1 Detailed mitigation measures are outlined in the SEMP (Volume 6B) and the Westridge Marine Terminal EPP (Volume 6D).

11.5 Infrastructure and Services

This section discusses the anticipated effects on infrastructure and services indicators, as well as mitigation measures that have been established to minimize negative effects.

Potential effects associated with the construction and operations of the Project on infrastructure and services indicators are listed in Table 11.5-1. These interactions are based on the results of the literature review, desktop analysis, field surveys, interviews and TEK, consultation/engagement with Aboriginal communities, landowners, government authorities (e.g., regulatory agencies, municipalities), stakeholders (e.g., ENGOs, recreation associations), the general public (Section 3.0) and the professional experience of the assessment team.

A summary of mitigation and enhancement measures provided in Table 11.5-1 was principally developed in accordance with Trans Mountain standards as well as industry practices.

Potential residual effects are discussed in detail, and evaluated for significance, in Section 7.0 of Volume 5B.

TABLE 11.5-1

POTENTIAL EFFECTS AND RECOMMENDED MITIGATION MEASURES – INFRASTRUCTURE AND SERVICES - PROJECT CONSTRUCTION AND OPERATION

Potential Effect	Socio-Economic Region/Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ²
1. Infrastructure and Services Indicator –Transportation Infrastructure			
1.1 Increased traffic due to transportation of workers and supplies	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	Footprint to RSA	<ul style="list-style-type: none"> Use of rail for major equipment deliveries to regional centres will reduce the Project-related traffic. Develop estimates of Project-related traffic volumes associated with all Project components, related to both the movement of workers and the movement of equipment and materials [SEMP Section 8.4.3]. Continue to consult with the BC Ministry of Transportation, the Alberta Ministry of Transportation and relevant municipalities regarding traffic volumes anticipated and traffic management protocols SEMP Section 8.4.3]. Develop a Traffic and Access Control Management Plan for the Project, and Traffic Control Plans for particular contracts [SEMP Section 8.4.3]. Where possible, provide daily shuttle bus service from designated staging areas to work sites [SEMP Section 8.4.3]. Actively encourage carpooling for times when shuttles/buses is not practical or available [SEMP Section 8.4.3]. Communicate with local police and emergency services personnel to keep these organizations informed of traffic schedules [SEMP Section 8.4.3]. Develop a communication plan for activities that impact normal traffic flow, such as road closures, detours, etc. [SEMP Section 8.4.3]. Apply all other transportation and traffic related mitigation measures outlined in the EPPs (Volumes 6B to 6D).
1.2 Physical disturbance to roads	All regions New pipeline segments Temporary facilities Pump stations Terminal activities	Footprint to RSA	<ul style="list-style-type: none"> See mitigation for potential effect 1.1 of this table. Follow acceptable heavy truck routes and approved access routes [SEMP Section 8.4.3]. Bore under paved and high-use roads, where practical [SEMP Section 8.4.6]. Where minor roads are crossed that may affect established community use/access routes, complete open cut crossing within one day, to the extent practical [SEMP Section 8.4.6]. Inspect roads periodically during construction and repair them as needed. All roads cut open will be fully reinstated to the satisfaction of the road owner. Roads that deteriorate during Project construction as a result of Project traffic will be maintained by the Contractor subject approval to of the road owner, on the basis of a pre and post-construction condition assessment. Work with regulatory authorities to determine the necessary road crossing agreements prior to construction; meet all conditions of such agreements [EPP Section 6.0].

TABLE 11.5-1 Cont'd

Potential Effect	Socio-Economic Region/Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ²
1.3 Disturbance to railway lines	All regions, except Jasper National Park Region New pipeline segments	Footprint	<ul style="list-style-type: none"> Rail lines will be crossed using a trenchless crossing method (e.g., bore or HDD). Crossing details will be negotiated with rail line owners in advance of construction. Work with regulatory authorities to determine the necessary rail crossing agreements prior to construction; meet all conditions of such agreements [EPP Section 6.0].
1.4 Physical disturbance to airports	Fraser-Fort George/Thompson-Nicola Region: Merritt Airport New pipeline segment	Footprint	<ul style="list-style-type: none"> The Project will work with the Merritt Airport owner to coordinate construction activity around periods of airport use.
1.5 Increased use of PMV during construction	Metro Vancouver Region New pipeline segments Westridge Marine Terminal	Marine HORU RSA	<ul style="list-style-type: none"> See recommended mitigation measures pertaining to Navigation and Navigation Safety in Table 11.6.2-1 of this report.
2. Infrastructure and Services Indicator – Linear Infrastructure and Power Supply			
2.1 Effects on linear infrastructure (e.g., sub-surface lines, power lines)	All regions New pipeline segments	Footprint	<ul style="list-style-type: none"> Work with regulatory authorities to determine the necessary utility crossing agreements prior to construction; meet all conditions of such agreements [EPP Section 6.0]. Continue discussions with municipalities and regional authorities regarding restrictions related to the presence of the proposed pipeline in relation to municipal sub-surface infrastructure and future infrastructure planning [SEMP Section 8.4.9]. Notify pipeline and utility companies with lines that cross the construction right-of-way prior to commencing mainline pressure testing [EPP Section 4.0].
2.2 Increased demand for power	All regions New pipeline segments Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> No mitigation recommended. Trans Mountain has met with BC Hydro and the Alberta Electric System Operator to discuss the Project's power needs and is working toward ensuring any required upgrades in the transmission and distribution networks are developed at no cost to the rate payer. Ensuring the provincial electrical systems meet the needs of industrial and residential customers is in the purview of the provincial electric system operators of BC and Alberta.
3. Infrastructure and Services Indicator – Waste and Water Infrastructure			
3.1 Increase water infrastructure demand	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> Consider municipal/regional water capacity issues as part of the Worker Accommodation Strategy [SEMP Section 8.4.4]; work closely with municipal and regional officials to identify and implement actions to prevent workforce demands exacerbating any municipal water supply capacity issues. Include information about camp potable water and sewage needs projections in Project information shared with local municipalities [SEMP Section 8.4.9]. Enter into water use agreements with the regulatory authorities as the Project develops. Develop and implement an issues tracking process to monitor and respond to Project-related socio-economic issues and opportunities that emerge during construction and reclamation [SEMP Section 8.4.11]. Apply all measures in EPPs pertaining to water withdrawal and discharge.
3.2 Increased need for waste management during construction	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> Include information about camp potable water and sewage needs projections in Project information shared with local municipalities [SEMP 8.4.9]. Communicate with operators of pre-approved waste facilities to determine options for Project-related waste disposal [SEMP Section 8.4.9]. Sewage and grey water will be treated in a temporary treatment facility, including any related to construction camps, onsite at each facility and hauled to regional facilities for disposal. Ensure any temporary construction camps' detailed waste management protocols are established in conjunction with regional officials. Ensure wastes are recycled where practical [EPP Section 7.0]. Apply all mitigation measures in EPP Waste Management Standard (EPP Appendix C) and Spill Contingency Standard (EPP Appendix B). Apply all mitigation measures in EPPs pertaining to water withdrawal and discharge.

TABLE 11.5-1 Cont'd

Potential Effect	Socio-Economic Region/Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ²
3.2 Increased need for waste management during construction (cont'd)	See above	See above	<ul style="list-style-type: none"> Develop and implement an issues tracking process to monitor and respond to Project-related socio-economic issues and opportunities that emerge during construction and reclamation [SEMP Section 8.4.11].
4. Infrastructure and Services Indicator – Housing			
4.1 Demand for housing during construction	All regions, except Jasper National Park Region / New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> Continue to refine Project workforce estimates, construction schedule and construction hub locations, in order to plan for direct Project accommodation needs [SEMP Section 8.4.4]. Monitor temporary, short-term and rental housing and accommodation availability in potential construction hub communities [SEMP Section 8.4.4]. Develop and implement a Worker Accommodation Strategy in collaboration with Contractors and local municipalities, which considers a range of worker housing options, including: <ul style="list-style-type: none"> temporary construction camps in select locations (e.g., Edson, Blue River and Clearwater/Vavenby); pre-booking hotel and motel space; and working with regional organizations to identify anticipated extended-stay recreational vehicle spaces [SEMP Section 8.4.4]. Develop and implement an issues tracking process to monitor and respond to Project-related socio-economic issues and opportunities that emerge during construction and reclamation [SEMP Section 8.4.11]. Apply all other recommended mitigation measures in the SEMP pertaining to worker accommodation.
5. Infrastructure and Services Indicator – Educational Services			
5.1 Demand for post-secondary educational services/training	All regions / New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> Initiate an Aboriginal Employment and Training Program to support increased access to Aboriginal employment opportunities on the Project [SEMP Section 8.4.2]. Continue to collaborate with regional training providers to identify ongoing opportunities for Trans Mountain to facilitate, support or participate in delivery of training for Aboriginal communities [SEMP Section 8.4.2]. Provide information in a timely manner to educators and governments about the types of Project-related jobs that will be available, and the required skills and qualifications, to assist training providers in developing and implementing appropriate training [SEMP Section 8.4.2]. Work with Contractors and labour organizations to encourage Project Contractors to provide training and apprenticeship opportunities related to the work they perform, including opportunities for on-the-job training on the Project [SEMP Section 8.4.2]. While some use of training services is anticipated related to Project-specific training and job preparation for Aboriginal residents, all training programs that are supported by the Project will be mutually agreeable with particular training providers.
6. Infrastructure and Services Indicator – Emergency, Protective and Social Services			
6.1 Demand for emergency, protective and social services during construction	All regions / New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> Prepare a Project Emergency Response Plan (ERP) that covers the Project construction phase [SEMP Section 8.4.8]. Develop site-specific ERPs [SEMP Section 8.4.8]. Consult with emergency response agencies and municipal emergency planners regarding ERPs, as required, to ensure understanding of potential Project-related service needs [SEMP Section 8.4.8]. Provide key Project contact numbers, pipeline route maps, the construction schedule and emergency response program information to local and regional police services, fire departments and medical/health services [SEMP Section 8.4.8]. Provide appropriate levels of security at camps and worksites. This will minimize the potential for external events to impact Project personnel, at the same time reducing diversion of emergency services from regional residents [SEMP Section 8.4.8]. Communicate with local health authorities, emergency medical service authorities, social service authorities on the timing of the Project, duration of stay in the local community, expected number of people coming into the area and on-site health care plans [SEMP Section 8.4.9].

TABLE 11.5-1 Cont'd

Potential Effect	Socio-Economic Region/Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ²
6.1 Demand for emergency, protective and social services during construction (cont'd)	See above	See above	<ul style="list-style-type: none"> To reduce response requirements related to Project worker / community interactions, develop a Code of Conduct for employees and Contractors that provides guidance and policies on appropriate and inappropriate worker behaviour and community interactions [SEMP Section 8.4.11]. To reduce local agency response requirements related to Project worker / community interactions, adhere to a policy of no tolerance of use or being under the influence of illicit drugs or alcohol during work hours [SEMP Section 8.4.11]. Establish and enforce a policy whereby workers who disregard mitigation measures will be subjected to appropriate disciplinary measures including, if appropriate, removal from the work site and/or dismissal [SEMP Section 8.4.11]. Ensure camp residents have access to information about worker assistance and social services support systems [SEMP Section 8.4.4]. Develop and implement an issues tracking process to monitor and respond to Project-related socio-economic issues and opportunities that emerge during construction and reclamation [SEMP Section 8.4.11]. Apply all mitigation measures in SEMPs and EPPs related to Emergency Response, Worker Accommodation, Community Way-of-Life, Worker Health and Traffic Management.
7. Infrastructure and Services Indicator – Recreational Amenities			
7.1 Use of recreational amenities by workers during construction	All regions, except Jasper National Park Region / New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> Provide recreational amenities in camps (e.g., leisure/fitness areas) [SEMP Section 8.4.4]. Develop a Code of Conduct for employees and Contractors that provides guidance and policies on appropriate and inappropriate worker behaviour and community interactions [SEMP Section 8.4.11]. Develop and implement an issues tracking process to monitor and respond to Project-related socio-economic issues and opportunities that emerge during construction and reclamation [SEMP Section 8.4.11]. Establish a process by which community members can raise complaints or concerns related to Project activities or workers [SEMP Section 8.4.11].

- Notes:**
- 1 RSA = Socio-Economic RSA
 - 2 Detailed mitigation measures are outlined in the SEMPs (Volume 6B) or the EPPs (Volume 6B, 6C and 6D).

No unique or distinct potential effects on infrastructure and services indicators were anticipated related specifically to the Westridge Marine Terminal activity. Many potential effects are related to presence of temporary construction workforce, the transportation of workers and materials during construction, general construction practices that interface with existing infrastructure (e.g., water supply and waste), and Project interactions with emergency services. The Westridge Marine Terminal, however, is a key port which will have increased capacity to accommodate the movement of tankers as a result of the Project.

11.6 Navigation and Navigation Safety

This section discusses the anticipated effects on navigation and navigation safety indicators, as well as mitigation measures that have been established to minimize negative effects. Unique effects associated with the Westridge Marine Terminal are anticipated and thus are discussed separately.

11.6.1 Pipeline and Facilities

Potential effects associated with the construction and operations of the Project on navigation and navigation safety are listed in Table 11.6-1. These interactions are based on the results of the literature review, desktop analysis, field surveys, interviews and TEK, consultation/engagement with Aboriginal communities, landowners, government authorities (e.g., regulatory authorities, municipalities), stakeholders (e.g., ENGOs, recreation associations), the general public (Section 3.0) and the professional experience of the assessment team.

A summary of mitigation and enhancement measures provided in Table 11.6-1 was principally developed in accordance with Trans Mountain standards as well as industry practices.

Potential residual effects are discussed in detail, and evaluated for significance, in Section 7.0 of Volume 5B.

TABLE 11.6-1

POTENTIAL EFFECTS AND RECOMMENDED MITIGATION MEASURES - NAVIGATION AND NAVIGATION SAFETY – PIPELINE AND FACILITIES CONSTRUCTION AND OPERATIONS

Potential Effect	Socio-Economic Region/Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ²
<ul style="list-style-type: none"> Navigation and Navigation Safety Indicator – Navigable Watercourses 			
1.1 Disruption of watercourse users on navigable watercourses	Navigable watercourses All regions, except Jasper National Park region New pipeline segments Pump Stations (Blackpool Pump Station; Black Pines and Kingsvale Pump Stations' power lines)	LSA	<ul style="list-style-type: none"> Ensure temporary vehicle crossing structures do not disrupt fish passage at fish-bearing watercourses and do not interfere with or impede flow or navigation at any location [EPP Section 8.7]. Limit instream construction to the shortest duration practical given the characteristics of the watercourse and the construction season [EPP Section 8.7]. Ensure streamflow is maintained at all times when trenching through a watercourse [SEMP Section 8.4.10]. Restore natural contours of bed of watercourse [SEMP Section 8.4.10]. Stabilize disturbed shoreline to prevent erosion [SEMP Section 8.4.10]. Keep channel clear upon completion of construction [SEMP Section 8.4.10]. Allow navigation through the construction site where practical, assisting if necessary (e.g., have the ability to transport watercourse users around construction activity to a downstream watercourse re-entry point [SEMP Section 8.4.10]. Apply all mitigation measures in the EPPs pertaining to watercourse crossings and navigability.
1.2 Concern for safety of watercourse users on navigable watercourses	Navigable watercourses All regions, except Jasper National Park region / New pipeline segments Pump Stations (Blackpool Pump Station; Black Pines and Kingsvale Pump Stations' power lines)	LSA	<ul style="list-style-type: none"> Notify recreational boaters of the hazards associated with instream construction [EPP Section 4.0]. Place warning signs (e.g., Warning – Pipeline Construction Ahead) up and downstream of all navigable crossings. The signs are to be legible at a distance recommended by the conditions of permit approval(s) granted by the NEB [EPP Section 4.0]. Maintain signage and other warning systems required by the NEB in place until navigational hazards are removed [EPP Section 8.7]. Contact appropriate regulatory authorities and municipal tourism offices prior to construction activities and provide maps and schedules of the proposed construction activities to enable them relay information about possible recreational use area closures [SEMP Section 8.4.6]. Develop and implement a communication plan for sharing information about key Project construction milestones and information with the general public in affected areas [SEMP Section 8.4.6]. Apply all mitigation measures in the EPPs pertaining to watercourse crossings and navigability.

- Notes:**
- 1 LSA = HORU LSA
 - 2 Detailed mitigation measures are outlined in SEM (Volume 6B) the EPPs (Volume 6B to 6C).

11.6.2 Westridge Marine Terminal

Potential effects associated with the construction and operations activities at the Westridge Marine Terminal on the navigation and navigation safety indicator are listed in Table 11.6-2. These interactions were based on the results of the literature review, desktop analysis, consultation/engagement with Aboriginal communities, regulatory authorities and other stakeholders (Section 3.0), and the professional experience of the assessment team.

A summary of recommended mitigation measures provided in Table 11.6-2 was principally developed in accordance with Trans Mountain standards as well as industry best practices.

Potential residual effects are discussed in detail, and evaluated for significance, in Section 7.0 of Volume 5B.

TABLE 11.6-2

POTENTIAL EFFECTS AND RECOMMENDED MITIGATION MEASURES – NAVIGATION AND NAVIGATION SAFETY - WESTRIDGE MARINE TERMINAL CONSTRUCTION AND OPERATION

Potential Effect	Spatial Boundary	Key Recommendations/Mitigation Measures [SEMP or EPP Reference] ¹
1. Navigation and Navigation Safety Indicator – Navigable Watercourses		
1.1 Disruption to navigable water.	Marine HORU RSA	<ul style="list-style-type: none"> • Dock has been designed so that it will not interfere with existing anchorages, will remain within the east-west limits of the current water lot, and will allow the safe passing of marine traffic. • Contact stakeholders, including municipal governments and marine use organizations, prior to construction activities. Provide maps and schedules of the construction activities [EPP Section 4.0], so that implications for marine use patterns can be considered. Ensure any changes in the construction schedule are communicated [EPP Section 4.0]. • Place an announcement in local papers notifying the public and marine users of the location and timing of construction activities at least 14 days prior to activities [EPP Section 4.0]. • Ensure barges used for heavy equipment access are placed (anchored or spudded down) in appropriate areas with minimal impacts [EPP Section 8.2] • Communicate with marine and local fishing industry organizations, Aboriginal groups, marine recreation organizations and other affected stakeholders to provide Project information related to Project activities affecting marine use areas [SEMP Section 8.4.10], include provision of regularly updated information on Project-related construction delivery vessels • Notify regulatory authorities and licensees and/or distribute a notification to the shipping industry in order to advise commercial and recreational marine operators of the Project schedule and construction activities at the Westridge Marine Terminal [EPP Section 4.0]. • Apply other measures in the EPP pertaining to marine construction. • Ensure compliance with all established regulations, including the Navigation Safety Regulations under the <i>Canada Shipping Act, Fisheries Act</i> and other applicable regulations. • Comply with PMV's Marine Restricted Area (MRA) regulations, including Clear Narrows Regulations.
1.2 Concern for safety of watercourse users.	Marine HORU RSA	<ul style="list-style-type: none"> • See recommended mitigation measures in potential effect 1.1 of this table. • Notify marine commercial and recreational operators of the hazards associated with construction in accordance with NEB requirements or approval conditions for navigable waters [EPP Section 4.0]. • Place warning signs (e.g., Warning – Construction in the Vicinity) offshore and onshore, near construction activities. The signs are to be legible at a distance of 50 m. [EPP Section 4.0]. • Operate Project-related vessels at slow speeds during construction in order to decrease the likelihood of striking other vessels [EPP Section 8.2]. • Discourage unauthorized marine vessel access at the Westridge Marine Terminal through use of signs, markers and/or buoys [EPP Section 4.0].

Note: 1 Detailed mitigation measures are outlined in the SEMP (Volume 6B) and the Westridge Marine Terminal EPP (Volume 6D).

11.7 Employment and Economy

This section discuss the anticipated effects on employment and economy indicators, as well as mitigation measures that have been established to minimize negative effects and enhance Project-related opportunities.

Potential effects associated with the construction and operations of the Project on social and cultural well-being indicators are listed in Table 11.7-1. These interactions are based on the results of the literature review, desktop analysis, field surveys, interviews and TEK, consultation/engagement with

Aboriginal communities, landowners, government authorities (e.g., regulatory authorities, municipalities), stakeholders (e.g., ENGOs, recreation associations), the general public (Section 3.0) and the professional experience of the assessment team.

A summary of mitigation and enhancement measures provided in Table 11.7-1 was principally developed in accordance with Trans Mountain standards as well as industry practices.

Potential residual effects are discussed in detail, and evaluated for significance, in Section 7.0 of Volume 5B.

TABLE 11.7-1

**POTENTIAL EFFECTS AND RECOMMENDED MITIGATION MEASURES –
 EMPLOYMENT AND ECONOMY - PROJECT CONSTRUCTION AND OPERATION**

Potential Effect	Socio-Economic Region/Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation and Enhancement Measures [SEMP Reference] ²
1. Employment and Economy Indicator – National and Provincial Economies			
1.1 Contribution to provincial and national growth during construction	New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	Provincial National	<ul style="list-style-type: none"> See recommended mitigation measures pertaining to procurement and contracting for potential effect 4.1 in this table.
1.2 Contribution to provincial and national growth during operations			
2. Employment and Economy Indicator – Regional Employment			
2.1 Employment opportunities during construction	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> Develop and implement a program to enhance awareness of pipeline and facilities construction and operations jobs and career opportunities in cooperation with business, industry, community and education and training organizations [Section 8.4.2]. Create an online employment communications tool where potential workers who are interested in employment can register to receive regular updates [Section 4.2]. Continue to communicate with Aboriginal communities to discuss issues and interests related to employment opportunities [Section 8.4.2]. Include regional employment clauses in all Project contracts [Section 8.4.2]. Give first consideration for employment opportunities to qualified regional and Aboriginal residents with appropriate skills and qualifications, where possible [Section 8.4.2]. Develop and provide typical job descriptions, including skills and qualifications required to support employment opportunities [Section 8.4.2]. Ensure Contractors communicate upcoming employment opportunities directly to Project area employment offices, women's organizations and Aboriginal communities and organizations [Section 8.4.2]. Require that General Contractors report to Trans Mountain their steps taken to attempt to hire within the Project area and nationally and report the number of hires from Project area Aboriginal residents and other regional residents [Section 8.4.2]. Develop a mentorship program for Aboriginal workers to encourage work site integration and retention Section 8.4.2]. Apply other enhancement measures in the SEMP related to employment and training

TABLE 11.7-1 Cont'd

Potential Effect	Socio-Economic Region/Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation and Enhancement Measures [SEMP Reference] ²
2.2 Employment opportunities during operations	All regions New pipeline segments Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> See recommended mitigation measures pertaining to potential effect 2.1 in this table.
3. Employment and Economy Indicator – Municipal Economies			
3.1 Increased municipal taxes	All regions New pipeline segments Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	Footprint	<ul style="list-style-type: none"> No mitigation required. Trans Mountain will pay increased municipal taxes as per standard business practice.
3.2 Personal spending by Project workers during construction	All regions, except Jasper National Park Region New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> As part of ongoing communications in advance of construction, provide updated information at the community level on anticipated Project workforce, detailed construction schedule and Worker Accommodation Strategy so that local businesses can plan accordingly [Section 8.4.1].
4. Employment and Economy Indicator – Contracting and Procurement			
4.1 Contracting and procurement opportunities	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> Provide information about procurement opportunities to potential Aboriginal, regional, provincial and Canadian suppliers using various communication means [Section 8.4.1]. Maintain an online procurement registry where interested parties can register their capabilities and express interest in providing goods or services to the Project [Section 8.4.1]. Develop and implement a process to share information at the regional level in a timely manner about general Project procurement needs and required qualifications, so businesses can prepare [Section 8.4.1]. Work with Contractors to give first consideration to qualified regional suppliers of goods and services, where practical and in conformance with procurement policies [Section 8.4.1]. Require Project General Contractors to identify, track and report Aboriginal, regional, provincial and Canadian content in their regular reporting to Trans Mountain [Section 8.4.1]. Continue to engage with Aboriginal communities regarding regional Aboriginal businesses/Contractors, including available business services and capacity [Section 8.4.1]. Establish and implement a process for the use of qualified regional Aboriginal Contractors for operations phase maintenance contracts [Section 8.4.1]. Apply all enhancement measures in the SEMP pertaining to procurement and contracting.

TABLE 11.7-1 Cont'd

Potential Effect	Socio-Economic Region/Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation and Enhancement Measures [SEMP Reference] ²
5. Employment and Economy Indicator – Training and Capacity Development			
5.1 Training opportunities	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> Initiate an Aboriginal Employment and Training Program to support increased access to Aboriginal employment opportunities on the Project [Section 8.4.2]. Continue to collaborate with regional training providers to identify ongoing opportunities for Trans Mountain to facilitate, support or participate in delivery of training for Aboriginal communities [Section 8.4.2]. Provide information in a timely manner to educators and governments about the types of Project-related jobs that will be available, and the required skills and qualifications, to assist training providers in developing and implementing appropriate training [Section 8.4.2]. Work with Contractors and labour organizations to encourage Project Contractors to provide training and apprenticeship opportunities related to the work they perform, including opportunities for on-the-job training on the Project [Section 8.4.2]. Training fund available to create increased access for Aboriginal employment opportunities in the industry; focus will be on transferrable skills and links to employment.
5.2 Skill and capacity development	All regions New pipeline segments Temporary facilities Pump stations Terminal activities Reactivated pipeline segments Westridge Marine Terminal	RSA	<ul style="list-style-type: none"> All Project-related employment, contracting and training will create opportunities for skill and capacity development transferrable to other endeavours. See recommended enhancement measures pertaining to potential effects 2.1, 4.1 and 5.1 in this table.
6. Employment and Economy Indicator – Business and Livelihood Disruption			
6.1 Disruption to business or commercial establishments	All regions, except Jasper National Park Region New pipeline segments Temporary facilities	RSA	<ul style="list-style-type: none"> Avoid disturbance of built features during final route selection, to the extent practical [Section 8.4.6] For construction in urban areas that impacts traffic routes, establish alternate access routes for commercial or residential areas where applicable and practical [Section 8.4.6]. Where minor roads are crossed that may affect established community use/access routes, complete open cut crossing within one day, to the extent practical [Section 8.4.6]. Provide compensation, considering various forms, to private land and property owners according to established industry protocols where losses or damages are proven [Section 8.4.6]. Develop and implement a communication plan for sharing information about key Project construction milestones and information with the general public in affected areas [Section 8.4.6]. Develop Traffic Control Plans for site-specific sections of roads affected by the Project [Section 8.4.3]. See all mitigation measures pertaining to sensory disturbance in Table 11.4.1-1 (potential effect 8.1) of this report.
6.2 Disruption to resource-based livelihoods	Rural Alberta Region Fraser-Fort George/Thompson-Nicola Region Fraser Valley Region Metro Vancouver Region	RSA	<ul style="list-style-type: none"> Contact the following prior to clearing and construction activities, providing maps and schedule information to enable them to select alternate areas for their activities: <ul style="list-style-type: none"> trappers of affected registered fur management areas and traplines; guide-outfitters in relevant wildlife management units; and commercial recreation tenure holders [Section 8.4.6].

TABLE 11.7-1 Cont'd

Potential Effect	Socio-Economic Region/Project Component	Spatial Boundary ¹	Key Recommendations/Mitigation and Enhancement Measures [SEMP Reference] ²
6.2 Disruption to resource-based livelihoods (cont'd)	New pipeline segments Temporary facilities	See above	<ul style="list-style-type: none"> • Provide compensation, considering various forms, to affected trappers according to established industry and provincial protocols if reduced fur harvest and lost revenue is proven [Section 8.4.6]. • Apply all mitigation pertaining to Agricultural areas in the EPPs (see Agricultural Management Plan). • Apply all mitigation measures pertaining to timber and timber salvage in the EPPs. • Coordinate pipeline construction activity to ensure access to traditional subsistence hunting and fishing areas [Section 8.4.6]; see recommended mitigation measures in Traditional Land and Resource Use Technical Report in Volume 5D. • See recommended mitigation measures pertaining to sensory disturbance in Table 11.4.1-1 (potential effect 8.1) of this report

- Notes:**
- 1 RSA = Socio-Economic RSA
 - 2 Some mitigation measures are outlined in the SEMP (Volume 6B).

No unique or distinct potential effects on employment or economy indicators were anticipated related specifically to Westridge Marine Terminal activity. Project-related activities at the Terminal would result in employment, income and procurement/contracting opportunities in the same manner as other Project-related activities. No land-based resource-based livelihood or business activities will be disturbed by the construction and operation of the Westridge Marine Terminal.

11.8 Post-Construction Monitoring

No post construction monitoring is recommended pertaining to social and cultural well-being, HORU (indicators discussed in this report), infrastructure and services, navigation and navigation safety, and employment and economy elements.

12.0 SUMMARY

This section summarizes the key findings of the Socio-Economic Technical Report, focusing on baseline conditions, potential interactions with the Project, and key mitigation measures.

12.1 Social and Cultural Well-Being

- Indicators selected for the assessment of social and cultural well-being were: population and demographics; income levels and distribution; Aboriginal culture; and community way-of-life (which includes key community events and assets, crime rates and any identifiable and social issues, and community priorities and perspectives related to the Project).
- The population of the Socio-Economic RSA is approximately 3.9 million people. Communities crossed by the Project range from small hamlets, villages and IRs; to sparsely populated rural areas; to moderately sized towns and cities; to large urban centres.
- Potential population and demographic effects related to the Project are associated only with the short-term construction phase. Given the large construction phase workforce required and the tightening labour supply in Alberta and BC, Project-related temporary construction workers are anticipated in the region during the 2016-2017 construction period. No population effects are anticipated during the operations phase, as the number of incremental operating positions is relatively small (approximately 90 new positions between Alberta and BC).
- The effect of the presence of the temporary population associated with the construction workforce will vary depending on the size of the construction hub community. Temporary workers will be imperceptible in most moderate and large urban centres (e.g., Edmonton area, Metro Vancouver, Kamloops, Abbotsford); temporary population change will be more perceptible in smaller communities serving as construction hubs (e.g., Blue River, Valemount, Clearwater). Many communities that may serve as construction hubs for the Project have experience with temporary workers related to resource development (Rural Alberta Region), seasonal agriculture workers (Fraser Valley Region), highway projects (Fraser-Fort George/Thompson-Nicola Region) or urban development (Edmonton Region, Metro Vancouver Region).
- Project-related employment has the potential to create substantial opportunities for income generation, which is tied to improved well-being. The Project may contribute to changes in income patterns in smaller communities due to the higher-than-average incomes associated with pipeline construction. Typical wages associated with many pipeline construction positions are higher than the median incomes in the six socio-economic study regions.
- Construction-related disturbances to land, water and wildlife patterns could affect traditional Aboriginal practices of hunting, trapping, gathering and fishing in identified traditional use areas, which could, in turn, have cultural and livelihood implications for Aboriginal communities. On the other hand, employment and income opportunities for Aboriginal people may enhance the ability of some Aboriginal people to support equipment needed for traditional harvesting practices. Project-supported Traditional Land Use studies will generate and document information that may support broader cultural objectives within participating Aboriginal communities.
- There are several areas along the route where community use areas (i.e., schools, parks, recreation areas etc.) and/or community events may interact with the Project and will be disturbed during specific periods of construction.
- Socio-cultural issues and interests that were expressed during Project engagement included (with variation between socio-economic regions): opportunities for local businesses, workers, and contractors; economic spin-offs related to temporary Project workforce residing in regional communities; opportunities to use the right-of-way for recreational purposes (e.g., walking, biking, horseback riding, snowmobiling); the management of various recreational users of the right-of-way; the potential for crowding in housing, service pressures, and social issues related to temporary

workers during construction; construction-related noise and traffic; and protection of land, vegetation, watercourses and wildlife used for traditional Aboriginal livelihood and cultural purposes.

- Key mitigation measures include: procurement and employment/training mitigation measures that will enhance the local/regional participation in the Project thereby reducing the number of temporary in-migrants; developing a Worker Accommodation Strategy that considers the capacity of construction hub communities; avoiding key natural and built features during right-of-way finalization; developing a Code of Conduct to guide appropriate worker/community interactions; and developing an issues-tracking process to monitoring socio-economic issues and opportunities that may emerge during construction and reclamation.

12.2 Human Occupancy and Resource Use

- The Project traverses a diverse land base with land uses that differ based on geographic location, topography and settlement history. Of the land within the proposed pipeline corridor, approximately 75.3% is privately owned, 24.4% is Crown land, and 0.3% is Aboriginal (IRs).
- Indicators selected for the assessment of HORU were: parks and protected areas; residential use; IRs, Métis settlements and asserted traditional territories; agricultural use; outdoor recreation use; other land and resource use (*i.e.*, non-traditional hunting, trapping and fishing; managed forest areas; minerals aggregates and oil and gas resources; industrial and commercial use); water supply and use; aesthetic attributes; and marine commercial, recreational and tourism use.
- Most potential effects on HORU are related to short-term disturbance during construction and site-specific maintenance, such as: physical disturbance of land/resources, short-term changes in access and use patterns and sensory disturbance related to the presence of construction activity. Given that the proposed pipeline corridor follows the existing TMPL right-of-way or other linear disturbances for a majority of its length (approximately 73% of the proposed pipeline corridor is on or adjacent to the existing TMPL right-of-way, 17% follows other existing rights-of-way and 10% is new corridor), long-term changes in land use and access will be minimal. Longer-term changes in viewshed may occur related to areas of new corridor and any new or notably altered above-ground facilities; however the only new facility proposed is the Black Pines Pump Station in a sparsely populated rural area. Expansion of the Westridge Marine Terminal will be visible from various standpoints on the north and south shore of the Burrard Inlet in the Metro Vancouver region; the expanded dock complex and the increased presence of moored tankers may contribute to alteration of views and sensory disturbance during the operations phase, as well as to alternation in marine access and use patterns in parts of the Burrard Inlet due to construction and operations at the terminal. The presence of the new pipeline may have effects on proximate subsurface activities (*i.e.*, municipal water/sewer lines, mineral/aggregate resources), due to activity restrictions in the vicinity of the NEB-regulated pipelines as per the NEB *Pipeline Crossing Regulations*.
- There are a number of parks and protected areas with known human uses crossed by the proposed pipeline corridor, including: North Thompson River Provincial Park; Lac du Bois Grasslands Protected Area; Fraser Valley Region Coquihalla Summit Recreation Area; Cheam Lake Wetlands Regional Park; Surrey Bend Regional Park (approximately); F.H. Barber Provincial Park; Fraser River (Canadian Heritage River); and Burnaby Mountain Conservation Area. There are also numerous municipal parks crossed by the proposed pipeline corridor, and multiple parks and protected areas in the HORU LSA and RSA.
- There are 10 IRs crossed by the proposed pipeline corridor. Sixty-two Aboriginal communities have been identified as potentially affected by or as having interests in the Project.
- A key routing principle for the Project is to avoid residential disturbance to the greatest degree possible. However, urban development over the last 60 years has limited routing options in some locations. Consequently, there are a number of residential areas crossed by the proposed pipeline corridor (as defined by residential zoning in land use plans) including specific areas in: Edson,

RDFGG, Hope, Chilliwack, Abbotsford, Township of Langley, Coquitlam, and Burnaby. No areas designated for residential use will be physically disturbed by construction of Project facilities (*i.e.*, tanks, pump stations). While certain terminals and pump stations are located in municipal/settled areas (*e.g.*, Edmonton Terminal, Blue River Pump Station, Kamloops Pump Station, Sumas Terminal, Burnaby Terminal and Westridge Marine Terminal) and in some instances relatively near residences, activity at these facilities will occur largely within the existing industrial facility boundaries not causing physical disturbance to areas designated for residential use.

- Outdoor water and land based recreation areas - such as trails and trailheads, waterways, parks and protected areas – are crossed by the proposed pipeline corridor in many areas and are found throughout the HORU RSA.
- Non-traditional hunting, trapping and fishing occurs in various areas along the proposed pipeline corridor and HORU RSA. Trapping occurs in the Rural Alberta, Fraser-Fort George/Thompson-Nicola and Fraser Valley regions. The proposed pipeline corridor crosses 49 trapping tenures, and 8 trapping tenures are crossed by the new lands associated with the new and expanded pump stations and associated power lines. Three outfitting tenures are crossed by the proposed pipeline corridor in the Fraser-Fort George/Thompson-Nicola and Fraser Valley regions. Non-traditional non-recreational hunting and fishing occurs throughout the HORU RSA. In the HORU RSA, outfitting primarily occurs on in the Fraser-Fort George/Thompson-Nicola Region.
- The proposed pipeline corridor crosses commercial and industrial land (as defined by zoning in land use plans) in specific areas of: Strathcona County, Edmonton, Parkland County, Spruce Grove, Edson, Blue River, Kamloops, Merritt (airport), Hope, Surrey, and Coquitlam.
- Land is used for mineral, aggregate, and oil and gas resources development in certain areas along the proposed pipeline corridor, specifically in the Rural Alberta and Fraser-Fort George/Thompson-Nicola regions.
- There is extensive marine commercial, recreational and tourism use in the Burrard Inlet, which is the location of the Westridge Marine Terminal. Commercial vessel traffic in Burrard Inlet related to PMV is comprised of vessels accessing the various marine terminals, including: cargo ships, oil tankers, cruise ships, and container ships. Commercial fishers in Burrard Inlet mainly harvest Dungeness crab, prawn and shrimp. Marine recreation in Burrard Inlet is both intense and diverse, including fishing, boating, kayaking, paddle boarding, windsurfing and kite boarding, swimming, and scuba diving. Recreational users also access major destinations through Burrard Inlet, notably Indian Arm where provincial and regional parks cover much of the shoreline.
- Key recommended mitigation measures to minimize effects on non-traditional land and resource use include: using previously disturbed areas; avoiding valued built and natural features to the greatest extent possible during right-of-way finalisation; narrowing the right-of-way in select locations; providing provincial and federal regulatory authorities, municipal / regional governments; Aboriginal communities; affected landowners, occupants and Crown tenure holders and recreational organizations with final routing information, including maps, as well as construction schedule; installing signs during construction in key use areas (*e.g.*, roads, trails, recreation areas, navigable watercourses, etc.); developing a communication plan for sharing information about key Project construction milestones and information with the general public in affected areas; providing compensation, considering various forms, to private land and property owners and select tenure holders according to established industry protocols where losses or damages are proven; and mitigation measures related to noise reduction, air emissions reduction, dust control, lighting reduction, odour abatement, visual buffering, and traffic management.

12.3 Infrastructure and Services

- Indicators selected for the assessment of infrastructure and services were: transportation infrastructure; linear infrastructure and power supply; waste and water infrastructure; housing; educational services; emergency, protective services and social services; and recreational amenities.
- The construction of the Project could affect infrastructure and services through direct disturbance to physical infrastructure that exists in the right-of-way or through increased use of certain community infrastructure and services related to direct or indirect Project needs.
- During construction, there will be an increase in traffic on highways and access roads due to Project-related vehicles used for the movement of equipment, materials and workers. It is anticipated that many major equipment deliveries will come to the region via rail or ship to temporary stockpile sites along the proposed pipeline corridor and facility locations; this will limit the distances travelled by heavy loads on regional highways. Major highways that are likely to be used include Highways 16 (Yellowhead), 5 (Coquihalla) and 1 (Trans-Canada), as well as 7 (Lougheed). These highways are major access routes for communities within the region. Existing Annual Average Daily Traffic (AADT) varies in the Project regions from approximately 2,500 vehicles on Highway 16 north of Valemount to over 100,000 vehicles at the entry of the Port Mann Bridge in the City of Coquitlam. Recommended mitigation measures related to traffic include: developing detailed traffic estimates as construction and project planning continues; providing daily shuttle bus services from staging areas to work sites; developing Traffic Control Plans for site-specific sections of roads affected by the Project; developing mandatory minimum driving standards for Contractors. No traffic effects are anticipated during operations incremental to current operations.
- The proposed pipeline corridor crosses various road types, including national, provincial and municipal highways, municipal roads and other access roads. Examples of highway crossings include: Highway 16 in Alberta and BC; Highway 5 in BC; Highway 5A in Merritt; Highway 1 in the Fraser Valley and Metro Vancouver regions; Highway 11 in Abbotsford; and Highway 7 (Lougheed Highway) in the Metro Vancouver Region. Key road crossings include: Baseline Road in Strathcona County; Range Road 41 north of the Village of Wabamun; Westsyde Road, Tranquille Road, Ord Road and Mission Flats Road in the City of Kamloops; Vedder Road in the City of Chilliwack; Golden Ears Way in the Township of Langley; the South Fraser Perimeter Road in the City of Surrey; Brunette Avenue in the City of Coquitlam; and Burnaby Mountain Parkway and Barnet Road in the City of Burnaby. The Project plans to bore under paved and high use roads where practical, which will limit road disturbance. Where minor roads are crossed that may affect established community use/access routes, the Project anticipates completing open cut crossing within one day, to the extent practical. Other key mitigation recommendations include: establishing alternate access routes for affected commercial or residential areas where applicable and practical and developing a communication plan for sharing information about key Project construction milestones and information with the general public in affected areas.
- In certain areas of the Project, the proposed pipeline corridor crosses existing sub-surface linear infrastructure (e.g., water and sewer lines) operated by municipalities, as well as transmission lines. Utility crossing agreements will be entered, as required, as the Project progresses.
- While the Project will require an increase in power over current day operations, the power needs of the Project and any other industry are accounted for in the long-term load planning of the BC and Alberta electrical systems. Trans Mountain has met with BC Hydro and the Alberta Electric System Operator to discuss the Project's power needs and is working toward ensuring any required upgrades in the transmission and distribution networks are developed at no cost to the rate payer. Ensuring the provincial electrical systems meet the needs of industrial and residential customers is in the purview of the provincial electric system operators of BC and Alberta.
- A range of waste and water infrastructure exists in communities along the proposed pipeline corridor. Some communities have identified current capacity constraints with their water and systems. The

Project will require water directly for construction-related activities such as hydrostatic testing and dust suppression. There will also be an increased demand for water related to the presence of temporary workers in construction hubs. Water capacity issues will be considered during worker accommodation planning, and Trans Mountain Contractors will enter into water use agreements with the applicable authorities as the Project develops. It is anticipated that Trans Mountain will use the waste facilities where it has use agreements in place), some of which are within the Socio-Economic RSA and some of which are in other parts of BC and Alberta.

- Throughout the Socio-Economic RSA, the size of the private, rental and temporary/commercial housing market varies depending on the size of the community. There is strong temporary/commercial housing capacity (*i.e.*, hotels, motels, campgrounds) in many areas along the proposed pipeline corridor, particularly in larger centres. There are times of year, however, where hotel accommodation may be less available due to tourism (*e.g.*, Valemount, Blue River, Fraser Valley Region) and presence of other temporary worker (*e.g.*, summer agricultural workers in the Fraser Valley Region). A key mitigation measure for managing effects on housing is developing a Worker Accommodation Strategy that considers the housing capacity and desires of municipalities, and a range of worker accommodation options (temporary camps, block-booking of hotels/motels, and extended-stay recreational vehicle spaces). No housing effects are anticipated during operations.
- There are numerous elementary, middle and secondary schools, in both public and private school systems, in the communities and socio-economic regions across the Socio-Economic RSA. Due to short-term nature of pipeline construction work, temporary workers are not anticipated to bring their families and no effect on school systems is anticipated. There are a range of post-secondary and training institutions across the Socio-Economic RSA. Trans Mountain has engaged with numerous post-secondary institutions, as well as training, industry, and community organizations to-date in the context of developing its employment and training approach related to the Project.
- There are numerous emergency, protective and social services located in communities along the proposed pipeline corridor and across the Socio-Economic RSA. This includes policing, firefighting, community and family support services, employment services, and other social services. Emergency and protective services may be affected due to accidental construction related incidents, and may also be indirectly affected due to construction-related traffic and the presence of workers. Local social service agencies and organizations may be affected if there is a response need associated with temporary workers. Construction-phase ERPs will be developed for the Project as a whole and for each contractor. Trans Mountain and its contractors will consult with emergency response agencies and municipal emergency planners regarding ERPs, as required, as well as with health and social service agencies, to ensure understanding of potential Project-related activities, workforce, schedule and service needs
- Trans Mountain has established emergency response plans and programs related to the existing TMPL and facilities. These plans and programs are continually reviewed and updated. During operations, the response management system will not require change to accommodate the expanded operating system. Trans Mountain anticipates increasing the amount of available emergency equipment (*e.g.*, spill, fire, water/foam systems) to reflect the expansion of facilities. Local responders will continue to play a role in Trans Mountain's emergency response regime, as they do currently.
- Communities along the proposed pipeline corridor have range of recreational infrastructure and services typically commensurate with their size. The presence of temporary Project workers, indirect or induced workers, in construction hub communities may lead to increases in use of local recreational amenities. This was, however, not noted as an issue of concern during Project-related engagement. Recommended mitigation measures include providing fitness/leisure areas in construction camps and developing a Code of Conduct for workers that provides guidance and policies on appropriate and inappropriate worker behaviour and community interactions, including the use of recreational facilities and areas.

12.4 Navigation and Navigation Safety

- The construction of the pipeline and certain facilities will require crossing of navigable watercourses. A list of watercourses and wetlands crossed by the proposed pipeline corridor, including their classification of navigability, is provided in the Pipeline EPP (see Volume 6B).
- Key navigable watercourses crossed by the proposed pipeline corridor that have known traditional and non-traditional human uses and that were identified as valued watercourse resources during Project engagement include: (in Alberta) the North Saskatchewan River, Pembina River, McLeod River, Maskuta Creek; and (in BC) the Fraser River, Raft River, Thompson River, Coldwater River, Nicola River, Coquihalla River, Chilliwack/Vedder River, and the Sumas River. A range of commercial activities (e.g., rafting, kayak tours, fishing) and non-commercial uses (fishing, boating, rafting, kayaking, traditional use) occur at different locations. Vessels may include: rafts, kayaks, fishing boats, rowboats, tubes, and on areas of the Fraser River, larger commercial vessels such as cargo ships, tugs and barges.
- Impediments to watercourse users on navigable watercourses may occur during pipeline construction and site-specific maintenance. During pipeline construction, the navigability of some watercourses may be affected if open water conditions occur during a trenched crossing or installation of a temporary vehicle crossing as part of construction or site-specific maintenance activities (e.g., integrity dig).
- During the construction phase, there may be an increase in marine vessel traffic around Westridge Marine Terminal associated with construction tugs and barges as well as marine construction derricks, which may reduce the available marine area for passage of other marine users. Marine users may also inadvertently enter the construction zone.
- Recommended mitigation measures to reduce risks to navigation and navigation safety during pipeline construction include: ensuring temporary vehicle crossing structures do not interfere with or impede flow or navigation at any location; limiting instream construction to the shortest duration; placing warning signs up and downstream of all navigable crossing; and contacting appropriate regulatory authorities and municipal tourism offices prior to construction activities and provide maps and schedules of the proposed construction activities to enable them relay information about possible recreational use area closures.
- Related to the construction at the Westridge Marine Terminal and navigation in the Burrard Inlet, key mitigation measures include: communicating with marine and local fishing industry organizations, Aboriginal groups, marine recreation organizations and other affected stakeholders to provide Project information related to Project activities; notification to the shipping industry in order to advise commercial and recreational marine operators of the Project schedule and construction activities; ensuring barges used for heavy equipment access are placed (anchored or spudded down) in appropriate areas with minimal impacts; and placing warning signs offshore and onshore, near construction activities.

12.5 Employment and Economy

- The construction and operation of the Project will create substantial economic benefits and opportunities locally and regionally. Numerous direct, indirect and induced employment and procurement opportunities will be created related to Project construction. There will also be direct, indirect, and induced employment effects and procurement opportunities during operations.
- As of 2011, there were approximately 2.2 million workers in the Socio-Economic RSA labour force, with notable distinctions amongst socio-economic regions. The labour force ranged from a low of approximately 2,500 workers in the Jasper National Park Region to a high of almost 1.3 million workers in the Metro Vancouver Region. The unemployment rate for the Socio-Economic RSA as a whole was 6.8%, and approximately 7.8% of the labour force was experienced in the construction industry.

- Both Alberta and BC are in a period of economic growth resulting in growing employment and a tightening in labour supply. BC as whole is experiencing net interprovincial out migration of people, many of which are going to Alberta. This trend of migration from Alberta to BC is reflective of the relative strength of Alberta's labour market compared to BC, as well as higher incomes in Alberta compared to BC.
- In terms skill capacity of the labour force, across the Socio-Economic RSA in 2011, approximately 27.2% of the adult population (aged 15 or older) had high school certificate or degree as their highest level educational attainment. Approximately 56.6% of the adult population had a post-secondary certificate as their highest level of educational attainment. Approximately 9.5% of the population had an apprenticeship or trades certificate or diploma as the highest level of educational attainment.
- There are notable differences in educational attainment between socio-economic regions. In 2011, the Rural Alberta Region had the highest proportion of the adult population with an apprenticeship or trades certificate or diploma as their highest level of educational attainment (16.1%), while the Metro Vancouver Region had the lowest proportion (8.1%). The population on IRs tended to show lower levels of educational attainment within their socio-economic regions, particularly in Alberta.
- It is estimated that the Project will require a construction workforce to provide over 1,324,000 worker-days in the 2016 to 2017 construction period, or over 60,100 full-time equivalent worker months. At peak construction, the Project will require over 4,475 workers across Alberta and BC.
- The regional labour force has capacity to meet some, but not all, of the workforce needs of the Project. In the context of the estimated direct construction workforce required for the Project, labour force analysis indicates there will be different levels of availability of regional workers across the Socio-Economic RSA. The levels of regional participation in construction workforce opportunities is estimated to range from 5% in smaller communities with a small labour pool (such as Valemount) to 30% in larger communities that have a bigger labour pool (such as Edmonton and Metro Vancouver). This considers unemployment rates, participation in the construction industry, as well as other reasonably foreseeable developments that may occur during the 2016-2017 timeframe, thus competing for available labour (many of which occur in the Metro Vancouver and Edmonton Regions).
- There is limited available information inventorying regional businesses and their capacity. Trans Mountain has engaged, and will continue to engage, with chambers of commerce, economic development and other key business organizations in key Socio economic RSA communities to discuss the range of service needs related to the Project and associated regional business opportunities, and will be developing an on line procurement information sharing tool for interested businesses and service providers.
- Generally, it is anticipated that regions where there is a higher ratio of the workforce employed in industries that typically support primary sectors (supporting industries), in comparison to the number of people employed in basic industries such as construction and manufacturing, will have a greater likelihood of participating in Project opportunities. Higher supporting industry to basic industry ratios typically indicate a more diversified regional economy that can offer a wider range of services to the construction industry. Based on this, the Metro Vancouver Region is anticipated to have the greatest capacity to provide required goods and services during Project construction; the Edmonton Region has the second highest capacity.
- During both construction and operations, Project related training initiatives will provide opportunities for Aboriginal people to enhance skills that will be transferrable to other projects and industries. Further, employment and contract experience related to the Project will contribute to increases in the general experience and capacity level of the local and regional workforce and business community that have been involved with the Project.

- Recommended mitigation measures that will enhance the economic benefits of the Project include: providing information about procurement opportunities to potential Aboriginal, regional, provincial and Canadian suppliers using various communication means; maintaining an online procurement registry where interested parties can register their capabilities and express interest in providing goods or services to the Project; tracking Aboriginal, regional, provincial and Canadian contracts granted; including regional employment clauses in all Project contracts, outlining expectations and requirements to report on regional hiring; implementing a communications plan to share information about types of work opportunities related to the Project; and giving first consideration for employment opportunities to qualified regional and Aboriginal residents with appropriate skills and qualifications, where possible; and continue to communicate with Aboriginal communities to discuss issues and interests related to employment opportunities.

The potential residual socio-economic effects on social and cultural well-being, HORU, infrastructure and services, navigation and navigation safety, and employment and economy indicators are identified, discussed and evaluated for significance in Section 7.0 of Volume 5B, which should be read in conjunction with this technical report.

13.0 REFERENCES

13.1 Personal Communications

Vista Strategy Corp. and TERA would like to thank those people identified in Personal Communications for their assistance in supplying information and comments incorporated into this report.

Allen, D. Senior Manager, Canadian National Railway.

Atfield, S. Manager. West Central Alberta Real Estate Board. Hinton, Alberta.

Atkins, B. Lower Mainland District Manager, Transportation, BC Ministry of Transportation and Infrastructure. Coquitlam, British Columbia.

Ballem, P. City of Vancouver Manager. City of Vancouver, British Columbia.

Baron, C. Drainage and Environment Manager, City of Surrey. Surrey, British Columbia.

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13.3 Figure and Mapping References

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APPENDIX A
SOCIAL AND CULTURAL WELL-BEING TABLES

TABLE A-1

SELECTED POPULATION CHARACTERISTICS OF COMMUNITIES IN THE SOCIO-ECONOMIC REGIONAL STUDY AREA IN ALBERTA (2011)

Location	2006 Population (No.)	2011 Population (No.)	Population Change 2006 to 2011 (%)	Population 0-14 (%)	Population 15-64 (%)	Median Age	Male (%)	Female (%)	Total Private Dwellings (No.)	Private Dwellings Occupied by Usual Residents (No.)	Aboriginal Identity (%) ¹	First Nation Single Identity (%) ¹	Métis Single Identity (%) ¹	Private Dwellings Occupied by Residents on a Permanent Basis (%)
Alberta	3,290,350	3,645,260	10.8	18.8	70.1	36.5	50.1	49.9	1,505,007	1,390,275	6.2	3.3	2.7	92.4
EDMONTON REGION														
Municipal Areas														
City of Edmonton*	730,370	812,195	11.2	16.7	77.7	36.0	49.8	50.2	348,672	324,756	5.3	2.4	2.7	93.1
City of Spruce Grove*	19,525	26,175	34.1	21.6	76.8	33.7	50.1	49.9	10,105	9,619	6.2	2.7	3.0	95.2
Town of Stony Plain*	12,365	15,050	21.7	19.0	73.8	37.7	48.7	51.3	6,204	5,820	6.3	3.1	3.1	93.8
Village of Wabamun*	601	661	10.0	20.4	65.1	43.3	53.0	47.7	295	265	Data for this area has been suppressed			89.8
City of Fort Saskatchewan	14,960	19,050	27.3	19.3	77.1	35.4	50.4	49.6	8,109	7,333	5.9	0.9	4.7	90.4
Village of Spring Lake	501	533	6.4	15.9	76.9	42.2	50.7	49.7	238	208	13.3	6.7	6.7	87.4
Town of Mayerthorpe	1,474	1,398	-5.2	17.2	68.7	43.9	48.6	51.1	629	589	Data for this area has been suppressed			93.6
Town of Onoway	875	1,039	18.7	21.2	70.3	38.7	50.0	50.0	403	375	6.4	3.0	3.5	93.1
Village of Alberta Beach	884	865	-2.1	11.0	71.7	50.5	52.0	47.4	747	425	Data for this area has been suppressed			56.9
Town of Morinville	6,775	8,569	26.5	22.0	77.3	32.8	49.8	50.3	3,261	3,078	6.1	1.8	4.3	94.4
Town of Bon Accord	1,534	1,488	-3.0	22.5	79.3	33.8	50.4	49.7	569	541	8.2	3.1	4.5	95.1
Town of Gibbons	2,642	3,030	14.7	23.8	76.2	32.9	50.8	49.2	1,111	1,075	6.4	1.5	4.7	96.8
Town of Legal	1,192	1,225	2.8	23.7	72.7	34.4	50.6	49.0	464	439	Data for this area has been suppressed			94.6
Town of Redwater	2,202	1,915	-13.0	16.7	74.4	42.2	49.9	50.1	844	776	Data for this area has been suppressed			91.9
City of St. Albert	57,760	61,470	6.4	18.3	76.5	40.2	48.9	51.1	22,990	22,513	3.6	0.9	2.7	97.9
Town of Drayton Valley	6,893	7,049	2.3	21.6	75.5	32.7	49.8	50.1	2,899	2,740	3.7	0.8	2.4	94.5
Village of Breton	550	496	-9.8	18.1	67.5	41.6	46.4	53.4	218	208	9.5	0.0	3.2	95.4
City of Leduc	16,970	24,275	43.0	20.6	74.7	34.0	49.8	50.2	9,789	9,290	4.7	1.8	2.7	94.9
Town of Beaumont	8,960	13,285	48.3	25.6	77.5	32.3	50.1	49.9	4,566	4,369	4.3	0.9	3.3	95.7
Town of Calmar	1,959	1,970	0.6	20.3	77.2	36.8	52.0	48.0	798	760	13.0	2.7	9.2	95.2
Town of Devon	6,265	6,510	3.9	21.9	74.6	35.2	50.3	49.7	2,471	2,387	7.0	1.6	5.2	96.6
Village of Thorsby	945	797	-15.7	22.0	64.0	38.0	51.4	48.3	373	334	Data for this area has been suppressed			89.5
Village of Warburg	621	789	27.1	18.4	65.9	41.8	50.1	49.4	337	308	Data for this area has been suppressed			91.4
Sub-Total Municipal Areas	896,834	1,009,837	12.6	17.4	77.3	36.8	49.8	50.2	426,092	398,208	5.2	2.2	2.8	93.5
Rural Areas														

TABLE A-1 Cont'd

Location	2006 Population (No.)	2011 Population (No.)	Population Change 2006 to 2011 (%)	Population 0-14 (%)	Population 15-64 (%)	Median Age	Male (%)	Female (%)	Total Private Dwellings (No.)	Private Dwellings Occupied by Usual Residents (No.)	Aboriginal Identity (%) ¹	First Nation Single Identity (%) ¹	Métis Single Identity (%) ¹	Private Dwellings Occupied by Residents on a Permanent Basis (%)
Strathcona County*	82,510	92,490	12.1	19.4	77.1	39.1	49.7	50.3	34,136	33,129	3.8	1.3	2.2	97.1
Parkland County*	29,235	30,570	4.6	19.2	77.1	42.2	51.6	48.4	12,150	10,931	6.2	1.4	4.4	90.0
Summer Village of Betula Beach	15	10	-33.3	0.0	0.0	n/a	0.0	0.0	40	6	Data for this area has been suppressed			15.0
Summer Village of Kapasiwin	39	10	-74.4	0.0	0.0	n/a	0.0	0.0	45	7	Data for this area has been suppressed			15.6
Summer Village of Lakeview	36	26	-27.8	0.0	0.0	n/a	0.0	0.0	36	13	Data for this area has been suppressed			36.1
Summer Village of Point Alison	15	15	0.0	0.0	0.0	n/a	0.0	0.0	31	8	Data for this area has been suppressed			25.8
Summer Village of Seba Beach	203	143	-29.6	10.5	66.4	55.9	45.5	52.4	338	66	0.0	0.0	0.0	19.5
Lac Ste Anne County	9,880	10,260	3.8	17.6	74.0	44.9	52.0	48.0	4,959	4,092	9.3	1.3	7.3	82.5
Summer Village of Birch Cove	38	45	18.4	33.3	66.7	47.5	55.6	33.3	60	20	Data for this area has been suppressed			33.3
Summer Village of Castle Island	22	19	-13.6	0.0	0.0	n/a	0.0	0.0	20	11	Data for this area has been suppressed			55.0
Summer Village of Nakamun Park	88	36	-59.1	0.0	0.0	n/a	0.0	0.0	138	18	Data for this area has been suppressed			13.0
Summer Village of Ross Haven	198	137	-30.8	21.9	62.0	51.3	47.4	51.1	216	61	0.0	0.0	0.0	28.2
Summer Village of Silver Sands	173	85	-50.9	5.9	52.9	54.8	52.9	47.1	57	42	0.0	0.0	0.0	73.7
Summer Village of South View	115	35	-69.6	0.0	0.0	n/a	0.0	0.0	20	16	Data for this area has been suppressed			80.0
Summer Village of Sunrise Beach	170	149	-12.4	6.7	73.8	51.3	50.3	50.3	151	76	Data for this area has been suppressed			50.3
Summer Village of Sunset Point	242	221	-8.7	9.0	81.4	51.8	54.3	47.5	244	93	0.0	0.0	0.0	38.1
Summer Village of Val Quentlin	181	157	-13.3	9.6	70.1	53.8	51.0	47.8	179	77	0.0	0.0	0.0	43.0
Summer Village of West Cove	169	121	-28.4	4.1	78.5	49.4	49.6	49.6	161	55	0.0	0.0	0.0	34.2
Summer Village of Yellowstone	170	124	-27.1	16.1	52.4	54.2	52.4	48.4	143	55	Data for this area has been suppressed			38.5
Sturgeon County	18,565	19,580	5.5	20.7	77.5	38.4	52.2	47.8	6,915	6,546	5.7	1.7	3.5	94.7
Brazeau County	7,040	7,195	2.2	19.7	78.0	39.4	52.0	48.0	2,852	2,693	7.9	1.3	5.8	94.4
Leduc County	13,135	13,540	3.1	18.5	76.7	41.9	51.9	48.1	5,494	4,963	3.3	1.1	1.5	90.3
Summer Village of Golden Days	207	141	-31.9	0.0	78.0	57.5	53.2	42.6	284	74	0.0	0.0	0.0	26.1
Summer Village of Itaska Beach	35	20	-42.9	0.0	0.0	n/a	0.0	0.0	79	12	Data for this area has been suppressed			15.2
Summer Village of Sundance Beach	102	82	-19.6	12.2	61.0	54.0	48.8	48.8	128	35	0.0	0.0	0.0	27.3
Sub-Total Rural Areas	162,570	175,214	7.8	19.3	76.8	51.3	50.7	49.2	68,876	63,099	4.9	1.3	3.1	91.6

TABLE A-1 Cont'd

Location	2006 Population (No.)	2011 Population (No.)	Population Change 2006 to 2011 (%)	Population 0-14 (%)	Population 15-64 (%)	Median Age	Male (%)	Female (%)	Total Private Dwellings (No.)	Private Dwellings Occupied by Usual Residents (No.)	Aboriginal Identity (%) ¹	First Nation Single Identity (%) ¹	Métis Single Identity (%) ¹	Private Dwellings Occupied by Residents on a Permanent Basis (%)
Indian Reserves														
Stony Plain 135	1,418	987	-30.4	32.9	71.4	25.4	49.1	51.2	378	225	97.0	94.9	2.0	59.5
Alexander 134	962	1,027	6.8	32.6	75.9	21.8	51.1	48.7	282	247	97.1	94.6	2.0	87.6
Wabamun 133b	20	17	-15.0	n/a ²	n/a ²	n/a ²	n/a ²	n/a ²	5	5	Data for this area has been suppressed			100.0
Wabamun 133a	1,088	1,069	-1.7	40.7	67.8	19.2	52.9	47.2	226	204	98.6	96.8	1.8	90.3
Stony Plain 135a	Statistics Canada does not provide information for this community.													
Alexis 133	734	817	11.3	33.0	78.9	21.7	55.1	45.3	204	191	99.4	99.4	0.0	93.6
Sub-Total Indian Reserves	4,222	3,917	-7.2	34.8	72.9	21.7	51.7	48.0	1,095	872	97.9	96.3	1.5	79.6
Edmonton Region Total	1,063,626	1,188,968	11.8	17.7	77.3	39.8	49.9	50.0	496,063	462,179	5.5	2.4	2.8	93.2
RURAL ALBERTA REGION														
Municipal Areas														
Town of Edson*	8,100	8,475	4.6	19.5	78.2	35.1	50.9	49.1	3,701	3,386	7.8	3.6	3.7	91.5
Town of Hinton*	9,735	9,640	-1.0	19.8	78.2	36.4	51.7	48.4	4,143	3,781	11.4	1.6	9.7	91.3
Sub-Total Municipal Areas	17,836	18,115	1.6	19.6	78.2	35.8	51.3	48.7	7,844	7,167	9.7	2.5	6.9	91.4
Rural Areas														
Yellowhead County*	10,045	10,470	4.2	18.5	74.3	43.5	52.1	47.9	4,708	4,083	8.1	2.2	5.6	86.7
Sub-Total Rural Areas	10,045	10,469	4.2	18.5	74.3	43.5	52.1	48.0	4,708	4,083	8.1	2.2	5.6	86.7
Indian Reserves														
O'Chiese 203	450	751	66.9	41.3	66.6	19.5	49.3	51.3	241	195	99.3	99.3	0.0	80.9
Alexis Elk River 233	Statistics Canada does not provide information for this community.													
Alexis Cardinal River 234	Statistics Canada does not provide information for this community.													
Sub-Total Indian Reserves	450	751	66.9	41.3	66.6	19.5	49.3	51.3	241	195	99.3	99.3	0.0	80.9
Rural Alberta Region Total	28,331	29,335	3.5	19.8	76.5	35.8	51.5	48.5	12,793	11,445	11.5	4.9	6.3	89.5
JASPER NATIONAL PARK REGION														
Municipal Areas														
Municipality of Jasper*	4,265	4,051	-5.0	13.6	84.7	34.8	51.6	48.5	1,615	1,399	2.2	0.6	1.2	86.6
Sub-Total Municipal Areas	4,265	4,051	-5.0	13.6	84.7	34.8	51.6	48.5	1,615	1,399	2.2	0.6	1.2	86.6
Rural Areas														
ID No 12*	24	34	41.7	n/a ²	n/a ²	n/a ²	n/a ²	n/a ²	0	0	Data for this area has been suppressed			0
Sub-Total Rural Areas	24	34	41.7	n/a²	n/a²	n/a²	n/a²	n/a²	0	0	n/a	n/a	n/a	0
Jasper National Park Region Total	4,289	4,085	-4.8	13.5	84.0	34.8	51.2	48.1	1,615	1,399	2.2	0.6	1.2	86.6

Sources: Statistics Canada 2012, 2013a

Notes: * Denotes incorporated communities, counties and Indian Reserves (IRs) crossed by the proposed pipeline corridor, a pump station or a reactivated pipeline segment.

- 1 Information provided on Aboriginal identity is based on data provided in the National Household Survey (NHS), and percentages were calculated based on the population totals provided in the NHS. Community population totals provided by the NHS may differ from those provided by the Census of Canada (see Section 3.7 Data Context and Limitations).
- 2 Data for this area has been suppressed and/or rounded to zero.

TABLE A-2

SELECTED POPULATION CHARACTERISTICS OF COMMUNITIES IN THE SOCIO-ECONOMIC REGIONAL STUDY AREA IN BC (2011)

Location	2006 Population (No.)	2011 Population (No.)	Population Change 2006 to 2011 (%)	Population 0-14 (%)	Population 15-64 (%)	Median Age	Male (%)	Female (%)	Total Private Dwellings (No.)	Private Dwellings Occupied by Usual Residents (No.)	Aboriginal Identity (%) ²	First Nation Single Identity (%) ²	Métis Single Identity (%) ²	Private Dwellings Occupied by Residents on a Permanent Basis (%)
British Columbia	4,113,485	4,400,055	7.0	15.4	69.0	41.9	49.0	51.0	1.1	1.2	5.4	1.3	1.4	90
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION														
Municipal Areas														
Village of Valemout* ¹	1,018	1,020	0.2	16.2	74.0	44.3	48.0	51.5	592	474	16.0	7.2	9.3	80.1
District of Clearwater*	2,225	2,331	4.8	19.3	70.8	45.6	49.8	50.2	1,068	987	8.3	6.3	1.2	92.4
City of Kamloops*	80,376	85,678	6.6	15.6	75.4	41.5	49.0	51.0	36,949	35,022	7.5	4.1	3.0	94.8
City of Merritt*	6,998	7,113	1.6	17.2	70.9	43.9	49.3	50.8	3,115	2,903	10.9	7.9	2.8	93.2
Village of McBride	660	586	-11.2	18.8	70.0	44.3	48.6	51.2	312	256	7.9	0.0	6.1	82.1
District of Barriere*	1,432	1,773	23.8	13.8	64.9	52.1	49.9	50.2	876	806	Data for this area has been suppressed			92.0
Municipality of Sun Peaks	426	371	-12.9	10.8	84.9	39.7	52.6	47.2	1,091	176	11.3	9.9	0.0	16.1
Village of Chase	2,409	2,495	3.6	13.6	60.1	53.8	48.3	51.9	1,236	1,128	11.5	6.0	5.3	91.3
District of Logan Lake	2,162	2,073	-4.1	12.3	65.8	54.4	50.4	49.7	1,079	964	6.1	0.5	4.6	89.3
Town of Princeton	2,780	2,724	-2.0	12.8	64.1	52.5	49.7	50.3	1,504	1,304	7.9	2.3	3.4	86.7
Sub-Total Municipal Areas	100,486	106,164	5.7	15.6	74.0	45.0	49.1	51.0	47,822	44,020	7.9	4.4	3.1	92.0
Rural Areas														
Electoral Area H, Regional District of Fraser-Fort George*	1,877	1,665	-11.3	14.1	74.5	49.6	51.4	48.6	903	686	7.9	4.5	3.6	76.0
Electoral Area A, Thompson-Nicola Regional District*	1,672	1,536	-8.1	12.4	71.9	51.5	52.4	47.5	820	706	9.9	2.8	6.4	86.1
Electoral Area B, Thompson-Nicola Regional District*	269	283	5.2	12.4	81.3	47.4	53.0	47.7	188	140	Data for this area has been suppressed			74.5
Electoral Area O, Thompson-Nicola Regional District*	1,546	1,335	-13.6	13.5	70.4	52.4	52.1	47.9	924	605	Data for this area has been suppressed			65.5
Electoral Area P, Thompson-Nicola Regional District*	3,655	3,620	-1.0	14.0	74.3	48.7	50.8	49.2	1,876	1,525	11.4	7.3	4.1	81.3
Electoral Area J, Thompson-Nicola Regional District*	1,609	1,560	-3.0	14.7	75.0	47.8	49.7	50.6	924	655	5.2	0.7	3.3	70.9
Electoral Area M, Thompson-Nicola Regional District*	1,797	1,823	1.4	11.8	74.9	50.4	51.8	48.3	1,057	791	21.3	14.4	6.1	74.8
Electoral Area N, Thompson-Nicola Regional District*	839	749	-10.7	12.0	75.4	51.5	51.4	48.7	422	316	Data for this area has been suppressed			74.9
Electoral Area L, Thompson-Nicola Regional District	2,981	3,049	2.3	12.6	74.9	50.2	50.2	49.9	1,469	1,299	Data for this area has been suppressed			88.4

TABLE A-2 Cont'd

Location	2006 Population (No.)	2011 Population (No.)	Population Change 2006 to 2011 (%)	Population 0-14 (%)	Population 15-64 (%)	Median Age	Male (%)	Female (%)	Total Private Dwellings (No.)	Private Dwellings Occupied by Usual Residents (No.)	Aboriginal Identity (%) ²	First Nation Single Identity (%) ²	Métis Single Identity (%) ²	Private Dwellings Occupied by Residents on a Permanent Basis (%)
Electoral Area H, Regional District of Okanagan-Similkameen	2,105	1,768	-16.0	7.6	71.3	56.0	51.2	48.6	1,860	844	Data for this area has been suppressed			45.4
Sub-Total Rural Areas	18,350	17,388	-5.2	12.7	73.9	50.3	51.1	48.9	10,443	7,567	11.4	6.5	4.6	72.5
Indian Reserves														
Kamloops 4	Statistics Canada does not provide information for this community													
Whispering Pines 4	64	60	-6.3	17	83.3	31.0	50.0	41.7	20	19	91.7	91.7	0.0	95.0
Zoht 5*	Statistics Canada does not provide information for this community													
Zoht 4*	25	25	0.0	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	14	14	Data for this area has been suppressed			100.0
Joeyaksa 2*	Statistics Canada does not provide information for this community													
Coldwater 1	254	349	37.4	21.5	80.2	31.2	50.1	51.6	114	112	95.7	95.7	0.0	98.2
Boulder Creek 5	Statistics Canada does not provide information for this community													
Nekalliston 2	Data for this area has been suppressed for data quality or confidentiality reasons.													
North Thompson 1	236	252	6.8	23.8	77.4	40.3	49.6	51.6	107	95	91.8	89.8	0.0	88.8
Louis Creek 4	18	15	-16.7	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	8	8	Data for this area has been suppressed			100.0
Sqaam 2	5	10	100.0	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	32	4	Data for this area has been suppressed			12.5
Hustalen 1	73	26	-64.4	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	45	15	Data for this area has been suppressed			33.3
Marshy Lake 1	Statistics Canada does not provide information for this community													
Toops 3	Statistics Canada does not provide information for this community													
Hihium Lake 6a	Statistics Canada does not provide information for this community													
Hihium Lake 6b	Statistics Canada does not provide information for this community													
Quaaout 1	186	234	25.8	23.5	74.8	41.2	55.6	42.7	222	99	72.3	72.3	0.0	44.6
Kamloops 5	Statistics Canada does not provide information for this community													
Sahhalkum 4	310	320	3.2	29.7	75.0	33.9	51.6	48.4	117	103	93.8	92.3	0.0	88.0
Meadow Creek 3	Data for this area has been suppressed for data quality or confidentiality reasons.													
Neskonlith 2	121	147	21.5	30.6	81.6	35.8	54.4	47.6	48	48	Data for this area has been suppressed			100.0
Neskonlith 1	85	90	5.9	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	38	31	93.6	89.4	4.3	81.6
Skeetchestn	258	253	-1.9	21.7	75.1	38.0	49.4	49.4	120	102	90.0	88.0	4.0	85.0
Kamloops 1	1,786	2,577	44.3	13.0	77.0	45.4	48.9	51.2	1,262	1,136	29.5	28.1	0.8	90.0
Kamloops 2	Statistics Canada does not provide information for this community													
Kamloops 3	Statistics Canada does not provide information for this community													
Pipseul 3	Statistics Canada does not provide information for this community													

TABLE A-2 Cont'd

Location	2006 Population (No.)	2011 Population (No.)	Population Change 2006 to 2011 (%)	Population 0-14 (%)	Population 15-64 (%)	Median Age	Male (%)	Female (%)	Total Private Dwellings (No.)	Private Dwellings Occupied by Usual Residents (No.)	Aboriginal Identity (%) ²	First Nation Single Identity (%) ²	Métis Single Identity (%) ²	Private Dwellings Occupied by Residents on a Permanent Basis (%)
Salmon Lake 7	Statistics Canada does not provide information for this community													
Douglas Lake 3	204	158	-22.5	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	63	63	100.0	96.9	0.0	100.0
Chapperon Lake 5	Statistics Canada does not provide information for this community													
Chapperon Creek 6	Statistics Canada does not provide information for this community													
Nicola Lake 1	153	144	-5.9	20.8	72.9	39.8	48.6	52.1	60	58	103.6	96.4	0.0	96.7
Zoht 14	Statistics Canada does not provide information for this community													
Nicola Mameet 1	483	603	24.8	26.5	72.1	30.4	52.2	48.1	208	201	94.9	93.2	0.0	96.6
Hamilton Creek 2	Data for this area has been suppressed for data quality or confidentiality reasons.													
Spahomin Creek 8	Statistics Canada does not provide information for this community													
Spahomin Creek 4	Statistics Canada does not provide information for this community													
Hamilton Creek 7	Data for this area has been suppressed for data quality or confidentiality reasons.													
Antiko 21	Statistics Canada does not provide information for this community													
Nooaitch Grass 9	Statistics Canada does not provide information for this community													
Logan's 6	Statistics Canada does not provide information for this community													
Nooaitch 10	120	127	5.8	15.7	70.9	36.2	55.1	43.3	47	43	Data for this area has been suppressed		91.5	
Speous 8	Statistics Canada does not provide information for this community													
Gwen Lake 3	Statistics Canada does not provide information for this community													
Paul's Basin 2	34	36	5.9	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	11	9	100.0	114.3	0.0	81.8
One Mile 6	Statistics Canada does not provide information for this community													
Nine Mile Creek 4	Statistics Canada does not provide information for this community													
Lulu 5	Data for this area has been suppressed for data quality or confidentiality reasons.													
Wolf Creek 3	Statistics Canada does not provide information for this community													
Sub-Total Indian Reserves	4,415	5,426	22.9	17.3	71.2	36.2	46.9	46.5	2,536	2,160	61.6	60.1	0.8	85.2
Fraser-Fort George/Thompson-Nicola Region Total	123,251	128,978	4.6	15.2	73.9	45.4	49.2	50.5	60,801	53,747	10.6	7.0	3.1	88.4
FRASER VALLEY REGION														
Municipal Areas														
District of Hope*	6,185	5,969	-3.5	13.6	68.4	44.3	49.8	50.1	2,929	2,632	8.0	6.7	1.2	89.9
City of Chilliwack*	69,217	77,936	12.6	19.4	71.6	39.8	48.8	51.2	32,059	30,432	7.8	4.7	2.6	94.9
City of Abbotsford*	124,258	133,497	7.4	19.0	73.4	37.9	49.3	50.7	49,917	46,452	3.4	1.7	1.6	93.1
District of Kent	5,208	5,664	8.8	14.9	70.2	45.3	55.6	44.3	2,192	2,054	7.7	2.5	5.0	93.7
Village of Harrison Hot Springs	1,573	1,468	-6.7	11.6	64.0	54.0	49.4	50.7	908	666	3.7	1.7	2.0	73.3
District of Mission	34,505	36,426	5.6	19.0	76.4	39.3	50.3	49.7	13,820	12,787	6.4	2.9	3.2	92.5
Sub-Total Municipal Areas	240,476	260,960	8.5	18.8	73.0	42.6	49.5	50.5	101,825	95,023	5.3	2.9	2.2	93.3
Rural Areas														

TABLE A-2 Cont'd

Location	2006 Population (No.)	2011 Population (No.)	Population Change 2006 to 2011 (%)	Population 0-14 (%)	Population 15-64 (%)	Median Age	Male (%)	Female (%)	Total Private Dwellings (No.)	Private Dwellings Occupied by Usual Residents (No.)	Aboriginal Identity (%) ²	First Nation Single Identity (%) ²	Métis Single Identity (%) ²	Private Dwellings Occupied by Residents on a Permanent Basis (%)
Electoral Area B, Fraser Valley Regional District*	796	721	-9.4	13.2	68.0	52.7	52.7	47.2	641	335	Data for this area has been suppressed			52.3
Electoral Area D, Fraser Valley Regional District*	1,296	1,346	3.9	21.2	70.2	41.2	50.5	49.8	494	469	3.1	2.3	0.0	94.9
Electoral Area E, Fraser Valley Regional District*	3,481	3,358	-3.5	11.3	74.9	50.6	51.8	48.1	2,084	1,424	4.9	2.7	2.0	68.3
Electoral Area G, Fraser Valley Regional District	1,914	1,764	-7.8	17.0	77.1	43.4	51.0	48.8	1,015	700	Data for this area has been suppressed			69.0
Sub-Total Rural Areas	7,487	7,189	-4.0	14.7	73.9	47.0	51.5	48.5	4,234	2,928	4.4	2.6	1.5	69.2
Indian Reserves														
Ohamil 1*	89	77	-13.5	39.0	71.4	21.8	45.5	51.9	21	21	87.5	87.5	0.0	100.0
Peters 1*	43	27	-37.2	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	11	8	Data for this area has been suppressed			72.7
Peters 1A*	Statistics Canada does not provide information for this community													
Popkum 1*	15	5	-66.7	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	2	2	Data for this area has been suppressed			100.0
Grass 15*	Statistics Canada does not provide information for this community													
Tzeachten 13*	1,188	1,467	23.5	8.5	45.0	64.7	47.7	52.5	744	711	18.8	14.5	3.6	95.6
Matsqui Main 2*	75	81	8.0	30.9	67.9	28.2	55.6	49.4	23	22	93.8	87.5	0.0	95.7
Teequaloose 3	Statistics Canada does not provide information for this community													
Skuet	Statistics Canada does not provide information for this community													
Papsilqua 2b	Statistics Canada does not provide information for this community													
Papsilqua 2	Statistics Canada does not provide information for this community													
Papsilqua 2a	Statistics Canada does not provide information for this community													
Spuzzum 1	20	32	60.0	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	17	16	Statistics Canada does not provide information for this community			94.1
Spuzzum 1a	Statistics Canada does not provide information for this community													
Spuzzum 7	Statistics Canada does not provide information for this community													
Stout 8	Data for this area has been suppressed for data quality or confidentiality reasons.													
Saddle Rock 9	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	Data for this area has been suppressed			n/a ³
4 1/2 Mile 2	Data for this area has been suppressed for data quality or confidentiality reasons.													
Yale 25	Data for this area has been suppressed for data quality or confidentiality reasons.													
Yale 23	Data for this area has been suppressed for data quality or confidentiality reasons.													
Yale 22	Data for this area has been suppressed for data quality or confidentiality reasons.													
Yale 21	Data for this area has been suppressed for data quality or confidentiality reasons.													
Yale 20	Data for this area has been suppressed for data quality or confidentiality reasons.													

TABLE A-2 Cont'd

Location	2006 Population (No.)	2011 Population (No.)	Population Change 2006 to 2011 (%)	Population 0-14 (%)	Population 15-64 (%)	Median Age	Male (%)	Female (%)	Total Private Dwellings (No.)	Private Dwellings Occupied by Usual Residents (No.)	Aboriginal Identity (%) ²	First Nation Single Identity (%) ²	Métis Single Identity (%) ²	Private Dwellings Occupied by Residents on a Permanent Basis (%)
Yale 19	Data for this area has been suppressed for data quality or confidentiality reasons.													
Kulthlaih 3	Statistics Canada does not provide information for this community													
Yale 18	Data for this area has been suppressed for data quality or confidentiality reasons.													
Yale Town 1	Data for this area has been suppressed for data quality or confidentiality reasons.													
Albert Flat 5	15	15	0.0	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	8	7	Data for this area has been suppressed		87.5	
Qualark 4	Statistics Canada does not provide information for this community													
Squeah 6	Data for this area has been suppressed for data quality or confidentiality reasons.													
Kaykaip 7	Statistics Canada does not provide information for this community													
Stullawheets 8	54	48	-11.1	10.4	72.9	49.2	52.1	41.7	22	22	66.7	66.7	0.0	100.0
Skawahlum 10	Statistics Canada does not provide information for this community													
Puckatholetchin 11	5	5	0.0	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	4	3	Data for this area has been suppressed		75.0	
Swahliseah 14	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	Statistics Canada does not provide information for this community		0.0	
Klaklacum 12	Statistics Canada does not provide information for this community													
Trafalgar Flat 13	Statistics Canada does not provide information for this community													
Kawkawa Lake 16	Statistics Canada does not provide information for this community													
Aywawwis 15	0	5	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	2	2	Statistics Canada does not provide information for this community		100.0	
Tunnel 6	Statistics Canada does not provide information for this community													
Hope 1	Statistics Canada does not provide information for this community													
Schkam 2	138	132	-4.3	37.9	79.5	24.0	53.0	45.5	37	35	100.0	96.2	0.0	94.6
Greenwood Island 3	Statistics Canada does not provide information for this community													
Chawathil 4	171	163	-4.7	36.8	67.5	28.2	52.1	46.0	48	46	93.9	97.0	0.0	95.8
Skawahlook 1	19	0	-100.0	0.0	0.0	0	0.0	0.0	1	1	Data for this area has been suppressed		100.0	
Ruby Creek 2	0	32	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	19	15	Statistics Canada does not provide information for this community		78.9	
Lukseetsissum 9	20	21	5.0	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	10	9	Data for this area has been suppressed		90.0	
Wahleach Island 2	Statistics Canada does not provide information for this community													
Peters 2	Statistics Canada does not provide information for this community													
Seabird Island	548	594	8.4	27.8	75.8	28.0	50.5	48.8	208	198	95.1	92.6	0.0	95.2

TABLE A-2 Cont'd

Location	2006 Population (No.)	2011 Population (No.)	Population Change 2006 to 2011 (%)	Population 0-14 (%)	Population 15-64 (%)	Median Age	Male (%)	Female (%)	Total Private Dwellings (No.)	Private Dwellings Occupied by Usual Residents (No.)	Aboriginal Identity (%) ²	First Nation Single Identity (%) ²	Métis Single Identity (%) ²	Private Dwellings Occupied by Residents on a Permanent Basis (%)
Popkum 2	Statistics Canada does not provide information for this community													
Tsealah 2	10	16	60.0	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	5	5	Data for this area has been suppressed		100.0	
Cheam 1	205	223	8.8	26.9	78.5	29.2	49.3	49.3	74	71	91.1	93.3	0.0	95.9
Schelawat 1	Data for this area has been suppressed for data quality or confidentiality reasons.													
Chehalis 6	Statistics Canada does not provide information for this community													
Chehalis 5	560	537	-4.1	27.0	78.2	29.8	50.3	49.3	157	156	99.2	99.2	0.0	99.4
Scowlitz 1	10	10	0.0	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	4	4	Data for this area has been suppressed		100.0	
Williams 2	Statistics Canada does not provide information for this community													
Skwahla 2	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	Data for this area has been suppressed		0.0	
Yakweakwoose 12	37	39	5.4	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	13	12	Data for this area has been suppressed		92.3	
Skowkale 10	423	588	39.0	16.2	63.8	47.8	50.2	50.2	245	230	26.3	25.0	0.0	93.9
Skowkale 11	215	207	-3.7	2.4	41.1	69.5	48.3	53.1	126	117	26.3	25.0	0.0	92.9
Soowahlie 14	211	187	-11.4	18.7	74.9	32.8	45.5	53.5	67	59	97.3	94.6	0.0	88.1
Skwali 3	10	10	0.0	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	4	4	Data for this area has been suppressed		100.0	
Skwah 4	230	216	-6.1	25.5	71.8	29.5	55.6	44.0	56	56	97.7	95.3	0.0	100.0
Kwawkwawapilt 6	351	342	-2.6	5.8	24.9	71.9	45.3	54.1	199	196	11.4	10.0	0.0	98.5
Squiaala 7	99	70	-29.3	28.6	71.4	28.5	57.1	42.9	26	24	93.8	93.8	0.0	92.3
Aitchelitch 9	15	18	20.0	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	5	5	Data for this area has been suppressed		100.0	
Squiaala 8	15	10	-33.3	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	7	5	Data for this area has been suppressed		71.4	
Skway 5	89	98	10.1	25.5	61.2	23.9	45.9	56.1	30	28	95.0	95.0	0.0	93.3
Holachten 8	266	316	18.8	19.0	71.2	43.5	50.6	49.1	136	132	34.9	33.3	0.0	97.1
Skumalasph 16	Statistics Canada does not provide information for this community													
Zaitscullachan 9	Statistics Canada does not provide information for this community													
Lakway Cemetery 3	Statistics Canada does not provide information for this community													
Lackaway 2	Statistics Canada does not provide information for this community													
Yaalstrick 1	Statistics Canada does not provide information for this community													
Skweahm 10	304	292	-3.9	13.7	65.1	52.0	46.2	53.1	139	135	17.2	12.1	0.0	97.1
Lakahahmen 11	214	185	-13.6	21.6	75.7	39.8	51.4	48.6	89	80	16.7	11.1	0.0	89.9
Papekwatchin 4	Statistics Canada does not provide information for this community													

TABLE A-2 Cont'd

Location	2006 Population (No.)	2011 Population (No.)	Population Change 2006 to 2011 (%)	Population 0-14 (%)	Population 15-64 (%)	Median Age	Male (%)	Female (%)	Total Private Dwellings (No.)	Private Dwellings Occupied by Usual Residents (No.)	Aboriginal Identity (%) ²	First Nation Single Identity (%) ²	Métis Single Identity (%) ²	Private Dwellings Occupied by Residents on a Permanent Basis (%)
Sumas Cemetery 12	Statistics Canada does not provide information for this community													
Aylechootlook 5	Statistics Canada does not provide information for this community													
Upper Sumas 6	182	187	2.7	18.7	82.9	30.2	53.5	45.5	61	56	89.2	86.5	0.0	91.8
Pekw'xe:Yles	Statistics Canada does not provide information for this community													
Sahhucum 1	Statistics Canada does not provide information for this community													
Three Islands 3	Statistics Canada does not provide information for this community													
Langley 4	Statistics Canada does not provide information for this community													
Langley 3	Statistics Canada does not provide information for this community													
Langley 2	Statistics Canada does not provide information for this community													
Sub-Total Indian Reserves	5,846	6,255	7.0	17.5	59.6	30.2	47.5	48.4	2,620	2,493	54.6	52.4	0.8	95.2
Fraser Valley Region Total	253,809	274,404	8.1	18.7	72.8	39.8	49.5	50.4	108,679	100,444	6.4	4.0	2.1	92.4
METRO VANCOUVER REGION														
Municipal Areas														
Township of Langley*	93,726	104,177	11.2	18.6	75.6	40.3	49.0	51.0	39,114	37,237	3.4	1.6	1.7	95.2
City of Surrey*	394,976	468,251	18.6	19.0	76.0	37.5	49.5	50.5	163,986	152,847	2.4	1.3	0.9	93.2
City of Coquitlam*	114,565	126,456	10.4	16.4	79.0	40.3	49.1	50.9	48,083	45,553	10.5	5.3	4.5	94.7
City of Burnaby*	202,799	223,218	10.1	13.9	78.1	39.8	48.9	51.1	91,383	86,839	1.5	0.9	0.5	95.0
District of Maple Ridge	68,949	76,052	10.3	18.1	77.5	40.2	49.3	50.7	29,158	28,044	3.6	2.0	1.6	96.2
City of Langley	23,606	25,081	6.2	15.8	72.8	40.4	47.8	52.2	11,810	11,315	5.1	2.8	2.2	95.8
City of Pitt Meadows	15,623	17,736	13.5	18.3	76.7	39.5	48.7	51.3	7,013	6,718	4.5	2.2	2.1	95.8
City of White Rock	18,755	19,339	3.1	9.3	65.4	53.8	45.1	54.8	10,498	9,866	2.5	0.6	1.6	94.0
City of Port Coquitlam	52,687	56,342	6.9	17.4	79.9	39.2	49.8	50.2	21,533	20,651	3.2	1.7	1.5	95.9
City of New Westminster	58,549	65,976	12.7	13.1	78.4	41.2	49.0	51.0	32,605	30,586	3.4	2.0	1.2	93.8
Corporation of Delta	96,635	99,863	3.3	17.1	75.0	42.8	49.1	50.9	35,781	34,755	2.3	1.3	0.9	97.1
Tsawwassen First Nation	762	720	-5.5	11.8	75.7	49.7	52.1	47.9	319	303	31.3	28.5	0.0	95.0
City of Richmond	174,461	190,473	9.2	14.4	78.6	42.1	47.9	52.1	71,170	67,976	1.0	0.7	0.3	95.5
City of Port Moody	27,512	32,975	19.9	18.5	79.1	38.4	49.3	50.6	12,989	12,628	2.6	1.4	1.0	97.2
Village of Anmore	1,785	2,092	17.2	19.8	82.2	40.9	49.5	50.7	706	628	0.0	0.0	0.0	89.0
Village of Belcarra	676	644	-4.7	11.6	71.4	52.1	48.1	52.0	292	268	6.2	2.3	3.1	91.8
District of North Vancouver	82,562	84,412	2.2	17.1	74.9	43.4	48.5	51.5	31,741	30,553	1.3	0.7	0.5	96.3
City of Vancouver	578,041	603,502	4.4	11.8	79.4	39.7	48.9	51.1	286,742	264,573	2.0	1.3	0.6	92.3
City of North Vancouver	45,165	48,196	6.7	13.5	77.4	41.2	47.5	52.5	24,206	22,789	2.3	1.3	0.9	94.1
District of West Vancouver	42,131	42,694	1.3	13.8	67.9	49.9	46.8	53.3	18,670	17,074	0.6	0.4	0.2	91.5
Village of Lions Bay	1,328	1,318	-0.8	14.4	74.0	48.7	50.1	49.7	556	507	1.1	0.0	0.0	91.2

TABLE A-2 Cont'd

Location	2006 Population (No.)	2011 Population (No.)	Population Change 2006 to 2011 (%)	Population 0-14 (%)	Population 15-64 (%)	Median Age	Male (%)	Female (%)	Total Private Dwellings (No.)	Private Dwellings Occupied by Usual Residents (No.)	Aboriginal Identity (%) ²	First Nation Single Identity (%) ²	Métis Single Identity (%) ²	Private Dwellings Occupied by Residents on a Permanent Basis (%)
Bowen Island, Island Municipality	3,362	3,402	1.2	18.2	72.3	46.6	48.2	51.7	1,760	1,345	Data for this area has been suppressed			76.4
Sub-Total Municipal Areas	2,098,655	2,292,919	9.3	15.3	77.4	41.1	48.9	51.1	940,115	883,055	2.3	1.3	0.9	93.9
Rural Areas														
Electoral Area A, Metro Vancouver	11,050	13,035	18.0	16.8	82.9	32.6	48.1	51.9	6,063	5,041	7.3	0.0	0.0	83.1
Sub-Total Rural Areas	11,050	13,035	18.0	16.8	82.9	32.6	48.1	51.9	6,063	5,041	7.3	0.0	0.0	83.1
Indian Reserves														
Whonnock 1	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	Data for this area has been suppressed			0.0
Matsqui 4	426	498	16.9	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	284	280	0.0	0.0	0.0	98.6
Langley 5	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	Data for this area has been suppressed			0.0
McMillan Island 6	63	68	7.9	14.7	88.2	41.0	58.8	36.8	26	23	84.6	84.6	0.0	88.5
Pitt Lake 4	Statistics Canada does not provide information for this community													
Katzie 2	37	0	-100.0	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	1	1	Data for this area has been suppressed			100.0
Graveyard 5	Statistics Canada does not provide information for this community													
Katzie 1	246	229	-6.9	26.2	78.6	28.2	48.0	52.4	67	65	Data for this area has been suppressed			97.0
Barnston Island 3	49	0	-100.0	0.0	0.0	0	0.0	0.0	1	1	Data for this area has been suppressed			100.0
Coquitlam 1	24	39	62.5	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	13	13	Data for this area has been suppressed			100.0
Coquitlam 2	5	5	0.0	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	1	1	Data for this area has been suppressed			100.0
Semiahmoo	109	108	-0.9	4.6	74.1	54.0	50.9	50.9	75	63	42.9	38.1	0.0	84.0
Inlailawatash 4A	Statistics Canada does not provide information for this community													
Burrard Inlet 3	1,405	1,472	4.8	11.9	82.2	41.1	44.2	55.7	780	729	21.4	20.7	0.0	93.5
Seymour Creek 2	75	107	42.7	18.7	102.8	28.0	51.4	46.7	33	31	88.9	88.9	0.0	93.9
Mission 1	569	574	0.9	18.3	82.8	35.5	52.3	47.9	173	171	91.9	90.2	0.0	98.8
Capilano 5	2,492	2,700	8.3	11.5	78.0	43.1	47.2	52.8	1,375	1,316	31.5	31.0	0.0	95.7
Kitsilano 6	Statistics Canada does not provide information for this community													
Musqueam 2	1,371	1,569	14.4	17.5	75.5	41.6	48.4	51.6	556	544	48.1	47.2	0.0	97.8
Sea Island 3	Statistics Canada does not provide information for this community													
Musqueam 4	5	5	0.0	n/a ³	n/a ³	n/a ³	n/a ³	n/a ³	2	2	Statistics Canada does not provide information for this community			100.0

TABLE A-2 Cont'd

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Sub-Total Indian Reserves	6,876	7,374	7.2	13.0	73.3	41.1	44.0	48.5	3,387	3,240	38.2	37.4	0.0	95.7
Metro Vancouver Region Total	2,116,581	2,313,328	9.3	15.3	77.4	41.0	48.9	51.1	949,565	891,336	2.4	1.4	0.9	93.9

Sources: Statistics Canada 2012, 2013a

- Notes: * Denotes incorporated communities, counties and IRs crossed by the proposed pipeline corridor, a pump station or a reactivated pipeline segment.
- 1 The Village of Valemount is not located in the proposed pipeline corridor, however, it lies in close proximity (400 m) and is anticipated to be a hub for construction activities, and, therefore is considered a corridor community.
 - 2 Information provided on Aboriginal identity is based on data provided in the NHS, and percentages were calculated based on the population totals provided in the NHS. Community population totals provided by the NHS may differ from those provided by the Census of Canada (see Section 3.7 Data Context and Limitations).
 - 3 Data for this area has been suppressed and/or rounded to zero.

TABLE A-3

**SELECTED POPULATION MOBILITY CHARACTERISTICS OF
COMMUNITIES IN THE SOCIO-ECONOMIC REGIONAL STUDY AREA IN ALBERTA (2011)**

Location	2011 (Two Years Previous)									2006 (Five Years Previous)								
	Total - Mobility Status 1 Year Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	Total - Mobility Status 5 Years Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴
EDMONTON REGION																		
Municipal Areas																		
City of Edmonton*	784,770	83.2	16.8	12.0	4.8	3.5	2.0	1.5	1.4	745,005	52.5	47.5	28.5	19.1	12.2	5.5	6.7	6.9
City of Spruce Grove*	25,570	84.1	15.9	6.7	9.2	8.7	7.3	1.4	0.4	23,850	45.3	54.7	19.9	34.8	32.5	26.2	6.3	2.3
Town of Stony Plain*	14,485	84.9	15.1	6.8	8.3	8.1	7.0	1.0	0.2	13,695	50.6	49.3	16.1	33.2	30.9	23.7	7.2	2.3
Village of Wabamun*	Data for this area has been suppressed for data quality or confidentiality reasons.																	
City of Fort Saskatchewan	18,570	81.8	18.2	9.0	9.3	8.8	7.6	1.2	0.5	17,440	50.1	49.9	19.0	30.8	28.8	21.6	7.3	2.0
Village of Spring Lake	515	94.2	6.8	0.0	0.0	0.0	0.0	0.0	0.0	485	76.3	23.7	0.0	22.7	14.4	13.4	0.0	7.2
Town of Mayerthorpe	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Town of Onoway	1,010	81.7	18.3	5.4	12.9	12.9	12.4	0.0	0.0	995	61.3	38.7	5.0	33.2	32.7	21.1	11.1	0.0
Village of Alberta Beach	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Town of Morinville	8,340	84.5	15.4	6.5	8.9	8.6	6.5	2.2	0.3	7,705	50.5	49.5	18.4	31.1	30.2	21.1	9.1	0.8
Town of Bon Accord	1,455	79.7	19.9	3.1	17.2	17.2	15.8	0.0	0.0	1,360	55.9	44.1	8.1	36.0	35.7	25.0	10.7	0.0
Town of Gibbons	2,920	88.2	12.0	2.2	9.8	9.6	9.2	0.3	0.0	2,740	52.2	47.8	11.3	36.5	35.4	28.8	6.6	1.1
Town of Legal	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Town of Redwater	Data for this area has been suppressed for data quality or confidentiality reasons.																	
City of St. Albert	59,925	88.7	11.3	5.9	5.4	4.9	3.6	1.3	0.5	57,070	63.2	36.8	17.2	19.7	17.4	11.8	5.6	2.3
Town of Drayton Valley	6,930	82.7	17.3	8.3	9.1	9.0	6.8	2.2%	0.0	6,370	46.2	53.8	28.6	25.1	23.2	15.7	7.4	2.1
Village of Breton	470	85.1	14.9	0.0	5.3	5.3	0.0	5.3%	0.0%	420	59.5	40.5%	16.7	23.8	23.8	19.0	4.8	0.0
City of Leduc	23,675	80.2	19.8	7.6	12.2	11.8	9.2	2.6%	0.5%	22,105	46.1	53.9%	17.5	36.5	33.1	25.4	7.7	3.4
Town of Beaumont	13,085	84.8	15.2	4.4	10.7	10.1	9.0	1.1%	0.6%	11,985	49.6	50.5	10.9	39.5	37.9	31.8	6.1	1.6
Town of Calmar	1,970	85.8	14.0	1.8	11.9	11.9	9.4	2.5%	0.0%	1,855	58.0	42.0	5.7	36.4	36.4	23.5	12.9	0.0
Town of Devon	6,305	86.4	13.6	5.4	8.2	8.0	7.7	0.4%	0.0%	5,920	57.1	42.8	16.9	25.9	24.5	18.2	6.3	1.4
Village of Thorsby	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Village of Warburg	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Sub-Total Municipal Areas	969,995	83.6	16.4	10.9	5.5	4.3	2.8	1.5	1.2	919,000	52.7	47.3	26.3	20.9	15.0	8.3	6.7	6.0

TABLE A-3 Cont'd

Location	Total - Mobility Status 1 Year Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	Total - Mobility Status 5 Years Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴
Rural Areas																		
Strathcona County*	90,530	89.5	10.5	5.2	5.3	4.7	3.7	0.9	0.6	85,920	64.1	35.9	18.3	17.7	15.5	12.6	2.8	2.2
Parkland County*	30,080	92.3	7.7	2.1	5.6	5.5	4.6	0.9	0.1	28,780	71.5	28.5	7.9	20.6	19.4	16.6	2.8	1.2
Summer Village of Betula Beach	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Summer Village of Kapsiwin	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Summer Village of Lakeview	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Summer Village of Point Alison	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Summer Village of Seba Beach	145	100.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	140	85.7	17.9	0.0	17.9	17.9	17.9	0.0	0.0
Lac Ste Anne County	10,285	93.	6.9	1.1	5.7	5.7	4.9	0.9	0.0	9,865	75.7	24.3	5.7	18.6	17.8	15.8	2.1	0.7
Summer Village of Birch Cove	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Summer Village of Castle Island	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Summer Village of Nakamun Park	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Summer Village of Ross Haven	180	94.4	5.6	0.0	5.6	5.6	5.6	0.0	0.0	140	46.4	57.1	0.0	57.1	57.1	57.1	0.0	0.0
Summer Village of Silver Sands	70	92.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45	33.3	66.7	0.0	66.7	66.7	66.7	0.0	0.0
Summer Village of South View	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Summer Village of Sunrise Beach	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Summer Village of Sunset Point	120	95.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	120	79.2	16.7	0.0	16.7	8.3	8.3	0.0	0.0
Summer Village of Val Quentin	90	94.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90	88.9	16.7	0.0	16.7	11.1	0.0	0.0	0.0
Summer Village of West Cove	75	66.7	33.3	0.0	33.3	33.3	33.3	0.0	0.0	75	40.0	60.0	0.0	60.0	60.0	66.7	0.0	0.0
Summer Village of Yellowstone	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Sturgeon County	18,980	91.2	8.8	1.7	7.1	7.1	3.9	3.2	0.1	18,090	68.4	31.6	10.1	21.4	21.0	14.3	6.7	0.4

TABLE A-3 Cont'd

Location	Total - Mobility Status 1 Year Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	Total - Mobility Status 5 Years Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴
Brazeau County	7,080	91.0	8.9	4.4	4.5	4.4	3.2	1.3	0.0	6,755	62.0	38.0	15.4	22.6	21.8	17.8	4.1	0.8
Leduc County	13,475	91.1	8.9	2.3	6.6	6.5	5.6	0.9	0.1	12,830	71.5	28.5	8.8	19.7	18.6	15.6	3.0	1.1
Summer Village of Golden Days	85	94.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	80	75.0	37.5	0.0	31.3	31.3	37.5	0.0	0.0
Summer Village of Itaska Beach	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Summer Village of Sundance Beach	35	114.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	62.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-Total Rural Areas	171,230	90.6	9.4	3.8	5.6	5.3	4.1	1.2	0.3	162,970	67.1	32.9	13.8	19.1	17.5	14.2	3.3	1.6
Indian Reserves																		
Stony Plain 135	970	91.8	8.2	4.1	3.1	3.1	3.6	0.0	0.0	885	76.8	22.6	14.1	8.5	8.5	7.9	1.1	0.0
Alexander 134	1,000	90.0	9.5	5.0	5.0	5.0	4.5	0.0	0.0	920	69.0	30.4	16.8	14.1	13.6	12.5	1.1	0.0
Wabamun 133b	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Wabamun 133a	1,045	94.3	5.7	2.9	2.4	2.4	2.4	0.0	0.0	920	77.7	22.8	12.5	9.8	9.8	9.8	0.0	0.0
Stony Plain 135a	Statistics Canada does not provide information for this community.																	
Alexis 133	785	93.0	6.4	2.5	3.8	3.8	3.2	0.0	0.0	715	81.1	19.6	11.9	7.7	7.7	7.0	0.0	0.0
Sub-Total Indian Reserves	3,800	92.2	7.5	3.7	3.6	3.6	3.4	0.0	0.0	3,440	75.9	24.1	14.0	10.2	10.0	9.4	0.6	0.0
Edmonton Region Total	1,145,025	84.6	15.4	9.8	5.5	4.5	3.0	1.4	1.0	1,085,410	54.9	45.1	24.4	20.6	15.3	9.2	6.1	5.
RURAL ALBERTA REGION																		
Municipal Areas																		
Town of Edson*	8,220	84.3	15.6	8.0	7.6	6.9	5.5	1.5	0.6	7,745	51.3	48.7	23.6	25.2	22.6	14.7	7.8	2.6
Town of Hinton*	9,420	83.7	16.3	9.7	6.7	6.7	3.6	3.0	0.0	8,900	53.5	46.4	23.2	23.3	20.2	11.1	9.1	3.1
Sub-Total Municipal Areas	17,640	84.0	16.0	8.9	7.1	6.8	4.5	2.3	0.3	16,645	52.5	47.5	23.4	24.2	21.3	12.8	8.5	2.9
Rural Areas																		
Yellowhead County*	10,235	91.6	8.4	5.3	3.1	3.0	2.5	0.5	0.0	9,720	69.0	30.9	16.2	14.8	14.4	12.1	2.3	0.4
Sub-Total Rural Areas	10,235	91.6	8.4	5.3	3.1	3.0	2.5	0.5	0.0	9,720	69.0	30.9	16.2	14.8	14.4	12.1	2.3	0.4
Indian Reserves																		
O'Chiese 203	715	91	9.8	9.1	0.0	0.0	0.0	0.0	0.0	610	61.5	38.5	35.2	3.3	3.3	2.5	0.0	0.0
Alexis Elk River 233	Statistics Canada does not provide information for this community.																	
Alexis Cardinal River 234	Statistics Canada does not provide information for this community.																	
Sub-Total Indian Reserves	715	91	9.8	9.1	0.0	0.0	0.0	0.0	0.0	610	61.5%	38.	35.2	3.3	3.3	2.5	0.0	0.0

TABLE A-3 Cont'd

Location	Total - Mobility Status 1 Year Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	Total - Mobility Status 5 Years Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴
Rural Alberta Region Total	28,590	87	13.1	7.6	5.5	5.3	3.7	1.6	0.2	26,975	58.6	41.3	21.1	20.3	18.4	12.3	6.1	1.9
JASPER NATIONAL PARK REGION																		
Municipal Areas																		
Municipality of Jasper*	3,440	82	18.6	13.1	5.5	5.1	1.7	3.3	0.4	3,295	53.4	46.4	29.1	17.3	13.7	6.8	6.8	3.6
Sub-Total Municipal Areas	3,440	82	18.6	13.1	5.5	5.1	1.7	3.3	0.4	3,295	53.4	46.4	29.1	17.3	13.7	6.8	6.8	3.6
Rural Areas																		
ID No 12*	Statistics Canada does not provide information for this community.																	
Sub-Total Rural Areas	n/a																	
Jasper National Park Region Total	3,440	82	18.6	13.1	5.5	5.1	1.7	3.3	0.4	3,295	53.4	46.4	29.1	17.3	13.7	6.8	6.8	3.6

Sources: Statistics Canada 2013a

Notes: Percent across each row do not sum to 100%. The sum of movers and non-movers is 100%. Other sub-categories are presented as a percentage of the total mobility population opposed to as a percentage of the category of which they are a subset.

* Denotes incorporated communities, counties and IRs crossed by the proposed pipeline corridor, a pump station or a reactivated pipeline segment.

1 Non-movers: persons in private households who have not moved from one residence to another between the reference dates (e.g., during the 2-year or 5-year period).

2 Movers: persons in private households who have moved from one residence to another within the previous year. Movers include non-migrants and migrants.

3 Non-migrants: persons in private households who moved but remained in the same city, town, township or IR.

4 Migrants: persons who have moved to the community between the reference dates. This includes internal migrants (who moved to a different city, town, township village or IR within Canada between the reference dates), as well as external migrants (who lived outside Canada at the earlier reference date). Internal migrants can be intraprovincial (moving within the same province) or interprovincial (moving between provinces).

TABLE A-4

SELECTED POPULATION MOBILITY CHARACTERISTICS OF COMMUNITIES IN THE SOCIO-ECONOMIC REGIONAL STUDY AREA IN BC (2011)

Location	Total - Mobility Status 1 Year Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	Total - Mobility Status 5 Years Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	
2011 (Two Years Previous)										2006 (Five Years Previous)									
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION																			
Municipal Areas																			
Village of Valemount* ⁵	940	85.1	15.4	10.6	5.3	5.3	3.2	0.0	0.0	900	60.6	40.0	14.4	25.0	22.2	13.9	7.8	2.8	
District of Clearwater*	2,455	79.8	20.2	11.2	9.0	9.0	8.8	0.0	0.0	2,370	54.9	45.4	19.6	25.7	24.1	16.7	7.6	1.7	
City of Kamloops*	82,950	84.5	15.5	10.7	4.9	4.4	3.3	1.0	0.5	79,430	55.5	44.5	25.4	19.0	17.1	11.9	5.2	2.0	
City of Merritt*	6,815	89.5	10.5	6.3	4.2	4.1	3.8	0.4	0.0	6,510	52.2	47.8	21.7	26.1	25.7	20.6	5.0	0.5	
Village of McBride	560	75.9	24.1	12.5	12.5	12.5	0.0	0.0	0.0	545	54.1	45.9	32.1	13.8	13.8	2.8	11.0	0.0	
District of Barriere*	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Municipality of Sun Peaks	345	60.9	39.1	23.2	15.9	7.2	4.3	0.0	0.0	330	39.4	59.1	16.7	43.9	27.3	10.6	18.2	16.7	
Village of Chase	2,350	87.7	12.3	6.8	5.5	5.5	5.5	0.0	0.0	2,250	63.3	36.4	14.2	22.2	22.0	18.7	3.1	0.4	
District of Logan Lake	2,065	92.3	7.5	1.7	5.8	5.8	5.6	0.0	0.0	1,990	63.8	35.9	12.3	23.9	23.9	19.6	4.0	0.0	
Town of Princeton	2,640	89.4	10.8	1.7	8.9	8.7	7.4	1.3	0.0	2,585	69.6	30.4	13.3	17.0	15.9	12.2	3.7	0.0	
Sub-Total Municipal Areas	101,120	84.9	15.1	9.9	5.1	4.7	3.7	0.9	0.4	96,910	56.0	44.0	24.1	19.9	18.1	12.9	5.2	1.8	

TABLE A-4 Cont'd

Location	Total - Mobility Status 1 Year Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	Total - Mobility Status 5 Years Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴
Rural Areas																		
Electoral Area H, Regional District of Fraser-Fort George*	1,645	83.9	16.4	7.6	8.8	8.2	7.3	0.0	0.0	1,610	69.6	30.1	11.8	18.3	16.8	9.0	7.8	1.9
Electoral Area A, Thompson-Nicola Regional District*	1,405	94.7	5.0	2.1	3.2	3.6	2.5	0.0	0.0	1,380	73.2	26.8	9.4	17.0	16.3	13.4	2.9	0.0
Electoral Area B, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Electoral Area O, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Electoral Area P, Thompson-Nicola Regional District*	3,605	86.4	13.6	3.7	9.7	9.7	9.0	0.4	0.0	3,515	63.2	36.8	8.7	28.3	27.7	25.7	2.1	0.6
Electoral Area J, Thompson-Nicola Regional District*	1,520	91.4	8.2	1.6	6.9	6.9	5.9	0.0	0.0	1,485	72.1	28.3	10.8	17.2	17.2	11.4	5.4	0.0
Electoral Area M, Thompson-Nicola Regional District*	1,780	87.1	12.9	7.9	5.3	5.1	4.8	0.0	0.0	1,730	64.7	35.3	19.7	15.6	15.6	13.3	2.0	0.0
Electoral Area N, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Electoral Area L, Thompson-Nicola Regional District	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Electoral Area H, Regional District of Okanagan-Similkameen	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Sub-Total Rural Areas	9,955	88.0	11.9	4.6	7.4	7.3	6.6	0.2	0.0	9,720	67.3	32.7	11.6	21.1	20.5	16.8	3.7	0.5
Indian Reserves																		
Kamloops 4	Statistics Canada does not provide information for this community.																	
Whispering Pines 4	115	52.2	47.8	0.0	0.0	0.0	0.0	0.0	0.0	95	57.9	42.1	21.1	0.0	10.5	10.5	10.5	0.0
Zoht 5*	Statistics Canada does not provide information for this community.																	
Zoht 4*	Data for this area has been suppressed for data quality or confidentiality reasons.																	

TABLE A-4 Cont'd

Location	Total - Mobility Status 1 Year Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	Total - Mobility Status 5 Years Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	
Joeyaksa 2*	Statistics Canada does not provide information for this community.																		
Coldwater 1	345	89.9	8.7	4.3	2.9	2.9	2.9	0.0	0.0	330	77.3	24.2	6.1	16.7	16.7	15.2	0.0	3.0	
Boulder Creek 5	Statistics Canada does not provide information for this community.																		
Boulder Creek 5	Statistics Canada does not provide information for this community.																		
Nekalliston 2	Data for this area has been suppressed for data quality or confidentiality reasons.																		
North Thompson 1	245	93.9	6.1	4.1	4.1	4.1	4.1	0.0	0.0	230	76.1	23.9	4.3	21.7	21.7	13.0	6.5	0.0	
Louis Creek 4	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Squaam 2	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Hustalen 1	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Marshy Lake 1	Statistics Canada does not provide information for this community.																		
Toops 3	Statistics Canada does not provide information for this community.																		
Hihium Lake 6a	Statistics Canada does not provide information for this community.																		
Hihium Lake 6b	Statistics Canada does not provide information for this community.																		
Quaaout 1	230	91.3	8.7	4.3	6.5	6.5	0.0	0.0	0.0	220	52.3	47.7	22.7	25.0	27.3	18.2	9.1	0.0	
Kamloops 5	Statistics Canada does not provide information for this community.																		
Sahhalkum 4	325	96.9	3.1	0.0	3.1	0.0	0.0	0.0	0.0	305	86.9	11.5	8.2	4.9	3.3	4.9	0.0	0.0	
Meadow Creek 3	Statistics Canada does not provide information for this community.																		
Neskonlith ⁶	230	80.4	21.7	6.5	15.2	13.0	13.0	0.0	0.0	210	66.7	33.3	4.8	26.2	28.6	23.8	0.0	0.0	
Skeetchestn	250	92.0	8.0	4.0	6.0	6.0	6.0	0.0	0.0	240	77.1	25.0	0.0	20.8	20.8	18.8	0.0	0.0	
Kamloops 1	2,510	79.7	20.1	13.9	6.4	4.6	3.6	0.0	1.6	2,390	43.9	56.3	34.5	21.8	18.6	14.2	4.4	3.1	
Kamloops 2	Statistics Canada does not provide information for this community.																		
Kamloops 3	Statistics Canada does not provide information for this community.																		
Pipseul 3	Statistics Canada does not provide information for this community.																		
Salmon Lake 7	Statistics Canada does not provide information for this community.																		
Douglas Lake 3	160	84.4	12.5	0.0	12.5	9.4	12.5	0.0	0.0	150	80.0	20.0	10.0	6.7	10.0	6.7	0.0	0.0	
Chapperon Lake 5	Statistics Canada does not provide information for this community.																		
Chapperon Creek 6	Statistics Canada does not provide information for this community.																		
Nicola Lake 1	140	89.3	7.1	0.0	7.1	7.1	7.1	0.0	0.0	140	78.6	21.4	0.0	10.7	10.7	14.3	0.0	0.0	
Zoht 14	Statistics Canada does not provide information for this community.																		
Nicola Mameet 1	565	86.7	14.2	9.7	5.3	5.3	4.4	0.0	0.0	515	59.2	40.8	27.2	14.6	13.6	10.7	1.9	0.0	
Hamilton Creek 2	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Spahomin Creek 8	Statistics Canada does not provide information for this community.																		
Spahomin Creek 4	Statistics Canada does not provide information for this community.																		
Hamilton Creek 7	Statistics Canada does not provide information for this community.																		

TABLE A-4 Cont'd

Location	Total - Mobility Status 1 Year Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	Total - Mobility Status 5 Years Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	
Antko 21	Statistics Canada does not provide information for this community.																		
Nooaitch Grass 9	Statistics Canada does not provide information for this community.																		
Logan's 6	Statistics Canada does not provide information for this community.																		
Nooaitch 10	125	92.0	8.0	0.0	8.0	8.0	8.0	0.0	0.0	120	70.8	29.2	8.3	25.0	20.8	25.0	0.0	0.0	
Speous 8	Statistics Canada does not provide information for this community.																		
Gwen Lake 3	Statistics Canada does not provide information for this community.																		
Paul's Basin 2	35	114.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
One Mile 6	Statistics Canada does not provide information for this community.																		
Nine Mile Creek 4	Statistics Canada does not provide information for this community.																		
Lulu 5	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Wolf Creek 3	Statistics Canada does not provide information for this community.																		
Sub-Total Indian Reserves	5,275	84.3	15.6	8.8	6.2	4.9	4.2	0.0	0.8	4,975	58.1	42.1	22.6	18.7	17.4	14.0	3.2	1.7	
Fraser-Fort George/Thompson-Nicola Region Total	116,350	85.2	14.8	9.4	5.4	4.9	4.0	0.8	0.4	111,605	57.1	42.9	22.9	20.0	18.3	13.3	5.0	1.7	
FRASER VALLEY REGION																			
Municipal Areas																			
District of Hope*	5,780	88.1	11.9	5.5	6.4	6.2	5.2	1.0	0.0	5,560	63.1	36.9	12.0	24.9	22.4	18.9	3.5	2.5	
City of Chilliwack*	75,915	85.8	14.2	9.5	4.7	4.4	3.5	0.9	0.3	71,850	52.9	47.1	27.3	19.8	18.5	14.8	3.7	1.3	
City of Abbotsford*	129,350	85.8	14.2	8.6	5.7	4.4	3.8	0.6	1.2	122,425	55.1	44.9	26.3	18.6	13.9	11.6	2.3	4.7	
District of Kent	4,750	88.0	12.1	3.6	8.5	8.4	7.7	0.7	0.0	4,495	57.3	42.8	13.9	28.9	27.6	23.8	3.8	1.3	
Village of Harrison Hot Springs	1,495	89.0	11.4	1.3	10.0	7.0	6.7	0.0	3.0	1,470	65.6	34.4	5.4	28.9	22.1	19.0	0.0	6.5	
District of Mission	35,120	88.8	11.2	6.0	5.2	5.0	4.7	0.3	0.2	33,365	61.0	39.0	20.2	18.8	17.8	16.4	1.4	1.0	
Sub-Total Municipal Areas	252,410	86.3	13.7	8.3	5.4	4.6	4.0	0.7	0.8	239,165	55.6	44.4	25.0	19.4	16.4	13.7	2.6	3.0	
Rural Areas																			
Electoral Area B, Fraser Valley Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Electoral Area D, Fraser Valley Regional District*	1,280	93.4	7.0	1.6	5.1	5.1	4.7	0.0	0.0	1,175	47.7	52.3	20.4	31.9	31.1	30.6	0.0	0.0	

TABLE A-4 Cont'd

Location	Total - Mobility Status 1 Year Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	Total - Mobility Status 5 Years Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴
Electoral Area E, Fraser Valley Regional District*	3,160	91.5	8.5	4.6	3.8	3.6	3.3	0.0	0.0	3,095	73.7	26.3	12.6	13.7	13.4	12.0	1.6	0.0
Electoral Area G, Fraser Valley Regional District	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Sub-Total Rural Areas	4,440	92.0	8.1	3.7	4.2	4.1	3.7	0.0	0.0%	4,270	66.5	33.5	14.8	18.7	18.3	17.1	1.2	0.0
Indian Reserves																		
Ohamil 1*	75	93.3	0.0	0.0	0.0	0.0	0.0	0.0	0.	65	76.9	23.1	0.0	15.	15.4	15.4	0.0	0.0
Peters 1*	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Peters 1A*	Statistics Canada does not provide information for this community.																	
Popkum 1*	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Grass 15*	Statistics Canada does not provide information for this community.																	
Tzeachten 13*	1,365	94.5	5.1	2.2	2.9	2.9	2.9	0.0	0.0	1345	58.4	41.6	12.6	29.0	29.0	26.4	2.2	0.0
Matsqui Main 2*	80	93.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70	78.6	21.4	14.3	14.3	14.3	14.3	0.0	0.0
Teequaloose 3	Statistics Canada does not provide information for this community.																	
Skuet	Statistics Canada does not provide information for this community.																	
Papsilqua 2b	Statistics Canada does not provide information for this community.																	
Papsilqua 2	Statistics Canada does not provide information for this community.																	
Papsilqua 2a	Statistics Canada does not provide information for this community.																	
Spuzzum 1	Statistics Canada does not provide information for this community.																	
Spuzzum 1a	Statistics Canada does not provide information for this community.																	
Spuzzum 7	Statistics Canada does not provide information for this community.																	
Stout 8	Statistics Canada does not provide information for this community.																	
Saddle Rock 9	Data for this area has been suppressed for data quality or confidentiality reasons.																	
4 1/2 Mile 2	Statistics Canada does not provide information for this community.																	
Yale 25	Statistics Canada does not provide information for this community.																	
Yale 23	Statistics Canada does not provide information for this community.																	
Yale 22	Statistics Canada does not provide information for this community.																	
Yale 21	Statistics Canada does not provide information for this community.																	
Yale 20	Statistics Canada does not provide information for this community.																	
Yale 19	Statistics Canada does not provide information for this community.																	
Kuthlaith 3	Statistics Canada does not provide information for this community.																	
Yale 18	Statistics Canada does not provide information for this community.																	

TABLE A-4 Cont'd

Location	Total - Mobility Status 1 Year Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	Total - Mobility Status 5 Years Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	
Yale Town 1	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Albert Flat 5	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Qualark 4	Statistics Canada does not provide information for this community.																		
Squeah 6	Statistics Canada does not provide information for this community.																		
Kaykaip 7	Statistics Canada does not provide information for this community.																		
Stullawheets 8	45	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45	77.8	22.2	0.0	22.2	22.2	0.0	0.0	0.0	
Skawahlum 10	Statistics Canada does not provide information for this community.																		
Puckatholetchin 11	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Swahliseah 14	Statistics Canada does not provide information for this community.																		
Klaklacum 12	Statistics Canada does not provide information for this community.																		
Trafalgar Flat 13	Statistics Canada does not provide information for this community.																		
Kawkawa Lake 16	Statistics Canada does not provide information for this community.																		
Aywawwis 15	Statistics Canada does not provide information for this community.																		
Tunnel 6	Statistics Canada does not provide information for this community.																		
Hope 1	Statistics Canada does not provide information for this community.																		
Schkam 2	130	96.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	110	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Greenwood Island 3	Statistics Canada does not provide information for this community.																		
Chawathil 4	160	68.8	31.3	0.0	31.3	31.3	31.3	0.0	0.0	145	69.0	31.0	0.0	27.6	27.6	27.6	0.0	0.0	
Skawahlook 1	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Ruby Creek 2	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Lukseetsissum 9	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Wahleach Island 2	Statistics Canada does not provide information for this community.																		
Peters 2	Statistics Canada does not provide information for this community.																		
Seabird Island	600	90.8	9.2	4.2	4.2	4.2	4.2	0.0	0.0	550	63.6	37.3	23.6	12.7	11.8	10.9	0.0	0.0	
Popkum 2	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Tsealah 2	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Cheam 1	220	88.6	9.1	6.8	0.0	0.0	0.0	0.0	0.0	200	70.0	32.5	25.0	7.5	7.5	10.0	0.0	0.0	
Schelawat 1	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Chehalis 6	Statistics Canada does not provide information for this community.																		
Chehalis 5	640	89.8	10.2	7.8	2.3	2.3	2.3	0.0	0.0	590	76.3	23.7	17.8	6.8	6.8	6.8	0.0	0.0	
Scowitz 1	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Williams 2	Statistics Canada does not provide information for this community.																		
Skwahla 2	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Yakweakwoose 12	Data for this area has been suppressed for data quality or confidentiality reasons.																		

TABLE A-4 Cont'd

Location	Total - Mobility Status 1 Year Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	Total - Mobility Status 5 Years Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴
Skowkale ⁷	790	91.8	8.2	3.8	4.4	3.8	3.8	0.0	0.0	755	68.2	31.1	12.6	17.9	17.9	16.6	1.3	0.0
Soowahlie 14	185	91.9	8.1	0.0	8.1	8.1	5.4	0.0	0.0	175	80.0	22.9	11.4	11.4	11.4	11.4	0.0	0.0
Skwali 3	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Skwah 4	210	97.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	185	73.0	27.0	13.5	13.5	13.5	13.5	0.0	0.0
Kwawkwawapilt 6	350	97.1	4.3	0.0	0.0	0.0	0.0	0.0	0.0	345	71.0	27.5	14.5	13.0	14.5	13.0	0.0	0.0
Squiaala ⁸	80	81.3	12.5	18.8	0.0	0.0	0.0	0.0	0.0	70	64.3	35.7	28.6	0.0	0.0	0.0	0.0	0.0
Aitchelitch 9	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Skway 5	95	89.5	15.8	10.5	10.5	10.5	10.5	0.0	0.0	85	64.7	35.3	17.6	11.8	11.8	11.8	0.0	0.0
Holachten 8	315	85.7	14.3	0.0	11.1	11.1	11.1	0.0	0.0	300	68.3	31.7	6.7	26.7	25.0	20.0	5.0	0.0
Skumalasp 16	Statistics Canada does not provide information for this community.																	
Zaitscullachan 9	Statistics Canada does not provide information for this community.																	
Lakway Cemetery 3	Statistics Canada does not provide information for this community.																	
Lackaway 2	Statistics Canada does not provide information for this community.																	
Yaalstrick 1	Statistics Canada does not provide information for this community.																	
Skweahm 10	290	91.4	6.9	0.0	5.2	5.2	0.0	0.0	0.0	270	64.8	35.2	0.0	31.5	31.5	29.6	0.0	0.0
Lakahahmen 11	180	80.6	19.4	5.6	13.9	13.9	11.1	5.6	0.0	170	64.7	38.2	11.8	26.5	26.5	17.6	5.9	0.0
Papekwatchin 4	Statistics Canada does not provide information for this community.																	
Sumas Cemetery 12	Statistics Canada does not provide information for this community.																	
Aylechootlook 5	Statistics Canada does not provide information for this community.																	
Upper Sumas 6	180	97.2	5.6	0.0	0.0	5.6	0.0	0.0	0.0	175	88.6	14.3	5.7	11.4	11.4	11.4	0.0	0.0
Pekw'xe:Yles	Statistics Canada does not provide information for this community.																	
Sahhucum 1	Statistics Canada does not provide information for this community.																	
Three Islands 3	Statistics Canada does not provide information for this community.																	
Langley 4	Statistics Canada does not provide information for this community.																	
Langley 3	Statistics Canada does not provide information for this community.																	
Langley 2	Statistics Canada does not provide information for this community.																	
Sub-Total Indian Reserves	5,990	91.4	8.2	3.1	4.4	4.5	3.9	0.2	0.0	5,650	68.2	32.0	13.1	18.6	18.5	16.8	1.2	0.0
Fraser Valley Region Total	262,840	86.5	13.5	8.1	5.4	4.6	4.0	0.6	0.7	249,085	56.0	44.0	24.6	19.4	16.4	13.8	2.6	2.9
METRO VANCOUVER REGION																		
Municipal Areas																		
Township of Langley*	102,110	88.0	12.0	5.6	6.4	5.8	5.2	0.6	0.6	97,265	59.1	40.9	18.8	22.1	19.3	16.4	2.8	2.8
City of Surrey*	458,230	86.4	13.6	8.1	5.5	4.2	3.5	0.6	1.3	434,010	55.4	44.6	25.2	19.4	12.5	10.3	2.2	6.9

TABLE A-4 Cont'd

Location	Total - Mobility Status 1 Year Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	Total - Mobility Status 5 Years Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴
City of Coquitlam*	123,700	87.5	12.5	5.4	7.1	5.3	4.	0.6	1.9%	118,555	59.0	41.0	16.1	24.9	17.2	15.0	2.2	7.7
City of Burnaby*	218,110	84.8	15.2	7.1	8.1	5.3	4.5	0.8	2.8	209,505	55.2	44.8	19.0	25.7	15.2	12.4	2.8	10.6
District of Maple Ridge	74,450	88.4	11.6	6.3	5.3	4.9	4.4	0.6	0.4	70,875	58.7	41.3	20.8	20.6	18.3	15.8	2.4	2.3
City of Langley	24,220	84.5	15.5	7.5	8.1	7.1	6.4	0.7	0.9	23,075	48.4	51.6	21.6	29.9	25.6	22.4	3.2	4.4
City of Pitt Meadows	17,465	86.1	13.9	4.8	9.1	8.7	8.0	0.7	0.4	16,625	55.8	44.2	13.5	30.7	27.5	25.6	1.9	3.2
City of White Rock	18,460	86.2	13.8	4.8	9.0	7.9	7.0	0.9	1.1	17,985	55.2	44.8	18.5	26.3	23.4	20.4	3.0	2.9
City of Port Coquitlam	55,225	89.5	10.5	4.3	6.2	5.0	4.4	0.6	1.1	52,735	62.8	37.2	14.8	22.4	17.6	15.8	1.8	4.7
City of New Westminster	64,340	82.1	17.9	7.3	10.6	8.8	7.8	1.0	1.8	61,830	48.9	51.1	18.4	32.7	25.4	22.3	3.0	7.3
Corporation of Delta	97,915	90.1	9.9	4.4	5.4	4.7	4.3	0.4	0.7	93,960	67.6	32.4	15.6	16.9	13.6	12.0	1.6	3.3
Tsawwassen First Nation	715	89.5	11.2	6.3	4.2	4.2	4.2	0.0	0.0	710	60.6	39.4	18.3	21.1	14.8	8.5	6.3	6.3
City of Richmond	187,835	85.9	14.1	8.5	5.5	2.8	2.3	0.5	2.7	180,995	56.8	43.2	23.1	20.1	9.4	7.7	1.7	10.8
City of Port Moody	32,440	86.6	13.4	3.6	9.7	8.2	7.2	1.0	1.6	30,730	53.7	46.3	13.4	32.9	26.0	22.2	3.8	6.9
Village of Anmore	2,070	92.3	7.5	0.5	7.0	7.0	7.0	0.0	0.0	2,015	66.3	33.5	6.0	27.5	24.8	22.6	2.2	3.0
Village of Belcarra	645	92.2	7.8	0.0	7.0	5.4	6.2	0.0	0.0	615	74.8	25.2	6.5	17.9	15.4	15.4	0.0	0.0
District of North Vancouver	82,900	89.5	10.5	6.0	4.5	3.2	2.3	0.9	1.3	79,590	67.6	32.4	18.5	13.9	8.7	6.6	2.1	5.2
City of Vancouver	584,785	82.4	17.6	10.7	6.9	4.0	2.7	1.3	2.9	565,380	53.8	46.2	25.0	21.2	11.5	6.8	4.7	9.8
City of North Vancouver	47,135	82.9	17.1	10.9	6.3	4.3	3.6	0.7	2.0	45,280	51.3	48.7	27.0	21.7	12.2	9.8	2.5	9.5
District of West Vancouver	41,805	88.1	11.9	5.4	6.5	3.6	2.7	0.9	3.0	40,740	63.1	36.9	16.5	20.4	11.0	8.5	2.5	9.4
Village of Lions Bay	1,315	88.6	11.4	3.4	8.0	7.6	6.5	0.0	0.0	1,255	78.5	21.9	3.2	18.3	15.5	14.3	1.2	3.2
Bowen Island, Island Municipality	Data for this area has been suppressed for data quality or confidentiality reasons.																	
Sub-Total Municipal Areas	2,235,870	85.5	14.5	7.9	6.6	4.6	3.7	0.8	2.0	2,143,730	56.5	43.5	21.8	21.7	13.9	11.0	3.0	7.8
Rural Areas																		
Electoral Area A, Metro Vancouver	12,225	71.7	28.3	10.7	17.6	6.0	3.7	2.3	11.6	11,625	27.3	72.7	21.1	51.7	18.4	11.1	7.2	33.2
Sub-Total Rural Areas	12,225	71.7	28.3	10.7	17.6	6.0	3.7	2.3	11.6	11,625	27.3	72.7	21.1	51.7	18.4	11.1	7.2	33.2
Indian Reserves																		
Whonnock 1	Data for this area has been suppressed for data quality or confidentiality reasons.																	

TABLE A-4 Cont'd

Location	Total - Mobility Status 1 Year Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	Total - Mobility Status 5 Years Ago	Non-Movers (%) ¹	Movers (%) ²	Non-Migrants (%) ³	Migrants (%) ⁴	Internal Migrants (%) ⁴	Intraprovincial Migrants (%) ⁴	Interprovincial Migrants (%) ⁴	External Migrants (%) ⁴	
Matsqui 4	380	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	385	53.2	46.8	7.8	39.0	39.0	37.7	0.0	0.0	
Langley 5	Data for this area has been suppressed for data quality or confidentiality reasons.																		
McMillan Island 6	70	78.6	14.3%	0.	14.3	0.0	0.0	0.0	0.0	65	84.6	15.4	15.4	15.4	15.4	0.0	0.0	0.0	
Pitt Lake 4	Statistics Canada does not provide information for this community.																		
Katzie 2	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Graveyard 5	Statistics Canada does not provide information for this community.																		
Katzie 1	220	86.4	13.6	4.5	9.1	6.8	4.5	0.0	0.0	205	75.6	24.4	12.2	12.2	12.2	12.2	0.0	0.0	
Barnston Island 3	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Coquitlam 1	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Coquitlam 2	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Semiahmoo	105	90.5	9.5	9.5	0.0	0.0	0.0	0.0	0.0	95	84.2	21.1	10.5	10.	10.5	10.5	0.0	0.0	
Inlailawatash 4A	Statistics Canada does not provide information for this community.																		
Burrard Inlet 3	1,470	86.1	13.6	6.1	7.5	5.4	3.7	2.0	2.0	1,390	47.1	52.5	26.6	25.9	21.9	18.7	2.9	4.3	
Seymour Creek 2	95	84.2	10.5	0.0	10.5	10.5	0.0	0.0	0.0	85	76.5	23.5	0.0	17.6	17.6	23.5	0.0	0.0	
Mission 1	610	94.3	6.6%	0.0	4.9	4.9	4.9	0.0	0.0	585	80.3	19.7	4.3	16.2	16.2	15.4	0.0	0.0	
Capilano 5	2,640	77.5	22.	7.2	15.2	9.5	8.7	0.8	5.5	2,570	47.7	52.3	14.4	37.9	18.5	16.0	2.7	19.5	
Kitsilano 6	Statistics Canada does not provide information for this community.																		
Musqueam 2	1,590	86.8	13.2	9.1	4.1	3.8	2.5	0.9	0.0	1,520	58.	41.8%	27.3	14.5	12.2	8.2	4.3	2.3	
Sea Island 3	Statistics Canada does not provide information for this community.																		
Musqueam 4	Data for this area has been suppressed for data quality or confidentiality reasons.																		
Sub-Total Indian Reserves	7,180	84.5	15.3	6.2	9.0	6.2	5.1	0.9	2.4	6,900	55.0	45.0	18.2	27.0	18.4	15.7	2.5	8.6	
Metro Vancouver Region Total	2,255,275	85.5	14.5	7.9	6.6	4.6	3.8	0.8	2.0	2,162,255	56.4	43.6	21.8	21.9	13.9	11.0	3.0	7.9	

Source: Statistics Canada 2013a

Notes: Percent across each row do not sum to 100%. The sum of movers and non-movers is 100%. Other sub-categories are presented as a percentage of the total mobility population opposed to as a percentage of the category of which they are a subset.

* Denotes incorporated communities, counties and IRs crossed by the proposed pipeline corridor, a pump station or a reactivated pipeline segment.

1 Non-movers: persons in private households who have not moved from one residence to another between the reference dates (e.g., during the 2-year or 5-year period).

2 Movers: persons in private households who have moved from one residence to another within the previous year. Movers include non-migrants and migrants.

3 Non-migrants: persons in private households who moved but remained in the same city, town, township or IR.

4 Migrants: persons who have moved to the community between the reference dates. This includes internal migrants (who moved to a different city, town, township village or IR within Canada between the reference dates), as well as external migrants (who lived outside Canada at the earlier reference date). Internal migrants can be intraprovincial (moving within the same province) or interprovincial (moving between provinces).

5 The Village of Valemout is not located within the proposed pipeline corridor; however, it lies in close proximity (400 m), and therefore is considered a corridor community.

- 6 Data for Neskonlith 1 and Neskonlith 2 is amalgamated and presented as Neskonlith.
- 7 Data for Skowkale 10 and Skowkale 11 is amalgamated and presented as Skowkale.
- 8 Data for Squiaala 7 and Squiaala 8 is amalgamated and presented as Squiaala.

TABLE A-5

SELECTED INCOME CHARACTERISTICS OF CORRIDOR COMMUNITIES IN ALBERTA (2011)

Location	Median Income of Population 15+ (\$)			Median Income of Population Aged 15+ who Worked Full Year, Full Time and With Employment Income in 2010 (\$)			Market Income as a Percentage of Total Income (%)			Government Transfer as a Percentage of Income (%)		
	T	M	F	T	M	F	T	M	F	T	M	F
EDMONTON REGION												
City of Edmonton*	35,363	43,929	28,460	53,667	60,225	47,016	91.7	94.4	87.6	8.3	5.6	12.4
City of Spruce Grove*	41,657	61,084	29,400	61,076	73,584	46,124	93.4	96.3	87.7	6.6	3.7	12.3
Town of Stony Plain*	39,346	60,083	23,683	62,848	76,551	45,338	91.4	95.2	84.3	8.6	4.9	15.8
Village of Wabamun*	Data for this area has been suppressed for data quality or confidentiality reasons.											
City of Fort Saskatchewan	40,118	63,419	25,814	66,478	79,980	47,081	93.1	96.0	86.7	6.9	4.1	13.2
Village of Spring Lake	37,755	44,355	25,503	56,142	59,167	56,126	88.5	90.1	84.9	11.0	9.7	14.4
Town of Mayerthorpe	Data for this area has been suppressed for data quality or confidentiality reasons.											
Town of Onoway	42,573	54,115	29,569	57,948	63,472	56,868	91.3	94.0	88.9	8.4	6.1	11.9
Village of Alberta Beach	Data for this area has been suppressed for data quality or confidentiality reasons.											
Town of Morinville	41,199	56,767	26,442	57,591	66,919	45,948	92.7	94.8	88.6	7.2	5.1	11.3
Town of Bon Accord	47,422	57,028	37,248	54,244	66,255	43,250	92.2	95.6	88.5	7.7	4.3	12.3
Town of Gibbons	48,149	64,876	30,336	59,701	69,844	49,957	93.3	96.5	88.2	6.6	3.3	12.3
Town of Legal	Data for this area has been suppressed for data quality or confidentiality reasons.											
Town of Redwater	Data for this area has been suppressed for data quality or confidentiality reasons.											
City of St. Albert	44,652	59,365	34,168	67,990	78,281	57,077	93.7	96.0	90.0	6.3	4.0	10.0
Town of Drayton Valley	35,728	54,904	23,840	52,350	66,680	38,558	92.8	96.1	86.2	7.2	3.8	13.7
Village of Breton	34,056	34,507	17,379	47,727	37,357	107,013	79.1	79.8	71.8	21.0	16.9	25.9
City of Leduc	40,327	58,006	26,865	57,525	69,479	43,628	92.7	96.1	86.1	7.3	3.9	14.0
Town of Beaumont	47,499	68,717	32,844	64,110	84,475	46,734	94.8	97.7	89.5	5.2	2.3	10.5
Town of Calmar	39,390	55,706	26,096	63,517	73,743	47,390	91.5	93.6	86.0	8.7	6.0	14.2
Town of Devon	38,993	54,731	27,207	53,161	65,970	41,998	92.2	95.6	86.0	7.7	4.4	14.0
Village of Thorsby	Data for this area has been suppressed for data quality or confidentiality reasons.											
Village of Warburg	Data for this area has been suppressed for data quality or confidentiality reasons.											
Sub-Total Municipal Areas	40,223	56,898	27,036	57,770	68,199	46,875	92.9	95.2	86.6	7.4	4.3	13.5
Strathcona County*	45,046	62,443	32,471	70,215	83,141	54,718	94.5	96.5	90.7	5.5	3.5	9.3
Parkland County*	41,283	56,409	28,960	64,271	75,131	50,113	94.0	95.9	89.8	6.0	4.1	10.2
Summer Village of Betula Beach	Data for this area has been suppressed for data quality or confidentiality reasons.											
Summer Village of Kapasiwin	Data for this area has been suppressed for data quality or confidentiality reasons.											
Summer Village of Lakeview	Data for this area has been suppressed for data quality or confidentiality reasons.											
Summer Village of Point Alison	Data for this area has been suppressed for data quality or confidentiality reasons.											
Summer Village of Seba Beach	Data for this area has been suppressed for data quality or confidentiality reasons.											
Lac Ste Anne County	33,653	46,383	23,165	49,473	60,424	39,561	89.3	91.6	85.3	10.7	8.4	14.6
Summer Village of Birch Cove	Data for this area has been suppressed for data quality or confidentiality reasons.											

TABLE A-5 Cont'd

Location	Median Income of Population 15+ (\$)			Median Income of Population Aged 15+ who Worked Full Year, Full Time and With Employment Income in 2010 (\$)			Market Income as a Percentage of Total Income (%)			Government Transfer as a Percentage of Income (%)		
	T	M	F	T	M	F	T	M	F	T	M	F
Summer Village of Castle Island	Data for this area has been suppressed for data quality or confidentiality reasons.											
Summer Village of Nakamun Park	Data for this area has been suppressed for data quality or confidentiality reasons.											
Summer Village of Ross Haven	Data for this area has been suppressed for confidentiality reasons.											
Summer Village of Silver Sands	Data for this area has been suppressed for confidentiality reasons.											
Summer Village of South View	Data for this area has been suppressed for data quality or confidentiality reasons.											
Summer Village of Sunrise Beach	Data for this area has been suppressed for data quality or confidentiality reasons.											
Summer Village of Sunset Point	Data for this area has been suppressed for confidentiality reasons.											
Summer Village of Val Quentin	Data for this area has been suppressed for confidentiality reasons.											
Summer Village of West Cove	Data for this area has been suppressed for confidentiality reasons.											
Summer Village of Yellowstone	Data for this area has been suppressed for data quality or confidentiality reasons.											
Sturgeon County	42,162	53,828	31,407	61,054	67,846	50,270	94.5	96.2	91.2	5.5	3.7	8.8
Brazeau County	35,776	55,058	23,453	52,977	64,577	34,556	93.7	95.9	89.0	6.2	4.2	10.9
Leduc County	40,327	58,006	26,865	57,525	69,479	43,628	92.7	96.1	86.1	7.3	3.9	14.0
Summer Village of Golden Days	Data for this area has been suppressed for confidentiality reasons.											
Summer Village of Itaska Beach	Data for this area has been suppressed for data quality or confidentiality reasons.											
Summer Village of Sundance Beach	Data for this area has been suppressed for confidentiality reasons.											
Sub-Total Rural Areas	40,805	55,734	27,913	59,290	68,663	46,871	93.4	95.9	88.0	6.1	4.1	10.7
Stony Plain 135	19,748	20,084	19,224	35,374	34,985	35,399	80.8	86.7	71.7	20.2	13.3	27.4
Alexander 134	16,700	15,700	17,216	33,998	37,536	29,928	76.7	83.7	66.9	23.2	15.7	32.8
Wabamun 133b	Data for this area has been suppressed for data quality or confidentiality reasons.											
Wabamun 133a	14,211	12,355	14,642	30,499	33,407	29,239	61.8	75.1	50.1	38.6	25.6	52.5
Stony Plain 135a	Statistics Canada does not provide information for this community											
Alexis 133	11,068	6,068	14,375	30,263	26,400	31,156	61.0	69.5	52.2	39.3	30.8	47.1
Sub-Total Indian Reserves	15,456	14,028	15,929	32,249	34,196	30,542	69.8	79.9	59.7	27.0	18.3	39.0
Edmonton Region Total	39,754	55,382	26,654	57,525	66,800	46,036	92.3	95.3	86.8	7.5	4.4	13.7
RURAL ALBERTA REGION												
Town of Edson*	36,117	57,786	24,724	59,656	77,135	40,115	92.3	95.4	86.1	7.7	4.7	13.9
Town of Hinton*	38,111	64,982	23,537	64,503	77,790	39,254	93.5	95.8	88.4	6.5	4.1	11.6
Sub-Total Municipal Areas	37,114	61,384	24,131	62,080	77,463	39,685	92.9	95.6	87.2	7.1	4.4	12.8
Yellowhead County*	33,284	50,092	20,525	58,524	71,673	43,420	91.1	93.4	86.1	8.9	6.7	14.0
Sub-Total Rural Areas	33,284	50,092	20,525	58,524	71,673	43,420	91.1	93.4	86.1	8.9	6.7	14.0
O'Chiese 203	8,398	3,134	14,391	29,914	32,996	29,877	57.2	72.6	44.7	42.8	29.7	51.9
Alexis Elk River 233	Statistics Canada does not provide information for this community											
Alexis Cardinal River 234	Statistics Canada does not provide information for this community											
Sub-Total Indian Reserves	8,398	3,134	14,391	29,914	32,996	29,877	57.2	72.6	44.7	42.8	29.7	51.9

TABLE A-5 Cont'd

Location	Median Income of Population 15+ (\$)			Median Income of Population Aged 15+ who Worked Full Year, Full Time and With Employment Income in 2010 (\$)			Market Income as a Percentage of Total Income (%)			Government Transfer as a Percentage of Income (%)		
	T	M	F	T	M	F	T	M	F	T	M	F
Rural Alberta Region Total	34,701	53,939	22,031	59,090	74,404	39,685	91.7	94.5	87.3	8.3	5.0	14.3
JASPER NATIONAL PARK REGION												
Municipality of Jasper*	35,035	44,991	26,186	50,092	62,329	41,878	94.9	96.5	91.4	5.1	3.3	8.3
Sub-Total Municipal Areas	35,035	44,991	26,186	50,092	62,329	41,878	94.9	96.5	91.4	5.1	3.3	8.3
ID No 12*	Data for this area has been suppressed for data quality or confidentiality reasons.											
Sub-Total Rural Areas	Data for this area has been suppressed for data quality or confidentiality reasons.											
Jasper National Park Region Total	35,035	44,991	26,186	50,092	62,329	41,878	94.9	96.5	91.4	5.1	3.3	8.3

Source: Statistics Canada 2013a

Note: * Denotes incorporated communities, counties and IRs crossed by the proposed pipeline corridor, a pump station or a reactivated pipeline segment.

TABLE A-6

SELECTED INCOME CHARACTERISTICS OF CORRIDOR COMMUNITIES IN BC (2011)

Location	Median Income of Population 15+ (\$)			Median Income of Population Aged 15+ who Worked Full Year, Full Time and With Employment Income in 2010 (\$)			Market Income as a Percentage of Total Income (%)			Government Transfer as a Percentage of Income (%)		
	T	M	F	T	M	F	T	M	F	T	M	F
FRASER-FORT GEORGE / THOMPSON-NICOLA REGION												
Village of Valemount* ¹	20,963	35,993	17,180	39,914	47,838	32,988	80.1	84.8	71.6	20.1	15.3	28.7
District of Clearwater*	25,240	33,968	23,122	43,577	73,876	37,694	82.5	85.1	79.3	17.3	15.4	20.6
City of Kamloops*	31,380	39,542	25,005	50,293	58,760	42,407	87.7	90.7	83.3	12.3	9.3	16.7
City of Merritt*	30,662	41,037	20,526	53,966	64,361	47,297	83.0	86.1	77.7	17.1	13.7	22.1
Village of McBride	18,848	24,527	17,166	24,830	24,936	24,041	69.5	73.6	62.0	29.9	23.2	38.0
District of Barriere*	Data for this area has been suppressed for data quality or confidentiality reasons.											
Municipality of Sun Peaks	28,489	46,216	20,480	46,196	46,248	45,946	91.7	91.2	87.7	9.6	9.0	11.7
Village of Chase	24,218	31,473	20,727	36,120	42,320	27,976	73.8	76.3	71.0	26.2	24.2	28.6
District of Logan Lake	23,770	39,312	18,045	74,638	98,145	35,460	78.5	83.3	67.0	21.3	16.6	33.0
Town of Princeton	24,464	24,508	22,664	61,853	81,273	50,172	74.5	77.0	71.4	25.3	22.9	28.5
Sub-Total Municipal Areas	24,464	35,993	20,526	46,196	58,760	37,694	76.3	84.8	77.7	20.7	15.6	24.0
Electoral Area H, Regional District of Fraser-Fort George*	23,820	25,534	18,466	28,198	25,021	28,233	81.3	81.5	79.5	19.0	18.1	20.3
Electoral Area A, Thompson-Nicola Regional District*	24,385	35,438	15,341	47,682	59,420	35,801	81.7	85.8	73.0	18.1	14.4	26.8
Electoral Area B, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.											
Electoral Area O, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.											
Electoral Area P, Thompson-Nicola Regional District*	30,404	41,891	18,663	50,070	55,654	46,494	85.3	88.4	79.4	14.7	11.6	20.7
Electoral Area J, Thompson-Nicola Regional District*	30,048	37,978	23,386	57,389	66,243	51,390	83.0	82.2	85.0	16.8	18.3	14.9
Electoral Area M, Thompson-Nicola Regional District*	29,434	38,073	24,764	52,089	58,864	31,322	86.9	89.2	83.3	13.0	11.0	17.1
Electoral Area N, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.											
Electoral Area L, Thompson-Nicola Regional District	Data for this area has been suppressed for data quality or confidentiality reasons.											
Electoral Area H, Regional District of Okanagan-Similkameen	Data for this area has been suppressed for data quality or confidentiality reasons.											
Sub-Total Rural Areas	29,434	37,978	18,663	50,070	58,864	35,801	84.7	82.2	79.4	15.2	12.8	20.7
Kamloops 4	Statistics Canada does not provide information for this community											
Whispering Pines 4	Data for this area has been suppressed for confidentiality reasons.											
Zoht 5*	Statistics Canada does not provide information for this community											
Zoht 4*	Data for this area has been suppressed for data quality or confidentiality reasons.											

TABLE A-6 Cont'd

Location	Median Income of Population 15+ (\$)			Median Income of Population Aged 15+ who Worked Full Year, Full Time and With Employment Income in 2010 (\$)			Market Income as a Percentage of Total Income (%)			Government Transfer as a Percentage of Income (%)		
	T	M	F	T	M	F	T	M	F	T	M	F
Joeyaksa 2*	Statistics Canada does not provide information for this community											
Coldwater 1	15,686	15,374	16,174	26,545	24,983	30,089	72.9	73.3	72.2	26.6	26.1	28.5
Boulder Creek 5	Statistics Canada does not provide information for this community											
Nekalliston 2	Data for this area has been suppressed for data quality or confidentiality reasons.											
North Thompson 1	Data for this area has been suppressed for confidentiality reasons.											
Louis Creek 4	Data for this area has been suppressed for data quality or confidentiality reasons.											
Squaam 2	Data for this area has been suppressed for data quality or confidentiality reasons.											
Hustalen 1	Data for this area has been suppressed for data quality or confidentiality reasons.											
Marshy Lake 1	Statistics Canada does not provide information for this community											
Toops 3	Statistics Canada does not provide information for this community											
Hihium Lake 6a	Statistics Canada does not provide information for this community											
Hihium Lake 6b	Statistics Canada does not provide information for this community											
Quaaout 1	Data for this area has been suppressed for confidentiality reasons.											
Kamloops 5	Statistics Canada does not provide information for this community											
Sahhaltkum 4	17,437	13,464	19,824	37,016	39,205	34,490	78.7	80.1	73.4	21.0	14.5	28.0
Meadow Creek 3	Statistics Canada does not provide information for this community											
Neskonlith ²	Data for this area has been suppressed for confidentiality reasons.											
Skeetchestn	19,724	20,779	17,159	31,739	37,987	30,450	84.0	88.7	78.1	17.0	11.2	23.0
Kamloops 1	32,829	38,135	28,027	55,795	64,310	46,676	88.4	89.7	86.8	11.7	10.7	13.1
Kamloops 2	Statistics Canada does not provide information for this community											
Kamloops 3	Statistics Canada does not provide information for this community											
Pipseul 3	Statistics Canada does not provide information for this community											
Salmon Lake 7	Statistics Canada does not provide information for this community											
Douglas Lake 3	Data for this area has been suppressed for confidentiality reasons.											
Chapperon Lake 5	Statistics Canada does not provide information for this community											
Chapperon Creek 6	Statistics Canada does not provide information for this community											
Nicola Lake 1	Data for this area has been suppressed for confidentiality reasons.											
Zoht 14	Statistics Canada does not provide information for this community											
Nicola Mameet 1	14,390	15,203	12,108	31,346	25,719	36,539	69.2	77.1	60.4	29.9	23.1	39.4
Hamilton Creek 2	Data for this area has been suppressed for data quality or confidentiality reasons.											
Spahomin Creek 8	Statistics Canada does not provide information for this community											
Spahomin Creek 4	Statistics Canada does not provide information for this community											
Hamilton Creek 7	Statistics Canada does not provide information for this community											
Antko 21	Statistics Canada does not provide information for this community											
Nooaitch Grass 9	Statistics Canada does not provide information for this community											
Logan's 6	Statistics Canada does not provide information for this community											

TABLE A-6 Cont'd

Location	Median Income of Population 15+ (\$)			Median Income of Population Aged 15+ who Worked Full Year, Full Time and With Employment Income in 2010 (\$)			Market Income as a Percentage of Total Income (%)			Government Transfer as a Percentage of Income (%)		
	T	M	F	T	M	F	T	M	F	T	M	F
Nooaitch 10	Data for this area has been suppressed for data quality or confidentiality reasons.											
Speous 8	Statistics Canada does not provide information for this community											
Gwen Lake 3	Statistics Canada does not provide information for this community											
Paul's Basin 2	Data for this area has been suppressed for confidentiality reasons.											
One Mile 6	Statistics Canada does not provide information for this community											
Nine Mile Creek 4	Statistics Canada does not provide information for this community											
Lulu 5	Data for this area has been suppressed for data quality or confidentiality reasons.											
Wolf Creek 3	Statistics Canada does not provide information for this community											
Sub-Total Indian Reserves	17,437	15,374	17,159	31,739	37,987	34,490	78.7	76.2	78.1	22.0	22.8	26.9
Fraser-Fort George/Thompson-Nicola Region Total	24,385	35,438	19,824	46,196	55,654	35,801	79.4	85.8	74.2	17.9	13.7	22.9
FRASER VALLEY REGION												
District of Hope*	20,578	24,534	19,030	48,090	56,005	40,072	78.4	82.5	72.8	21.6	17.5	27.0
City of Chilliwack*	27,092	36,404	21,567	45,212	52,048	37,550	84.8	88.7	79.1	15.2	11.3	20.9
City of Abbotsford*	26,428	33,939	21,630	46,421	51,865	39,955	86.2	90.2	80.4	13.8	9.8	19.6
District of Kent	26,019	29,695	22,858	47,746	52,111	40,250	80.6	81.6	79.3	19.4	18.4	20.8
Village of Harrison Hot Springs	26,663	37,408	17,700	53,079	62,312	40,705	80.5	83.6	76.0	19.2	16.5	24.1
District of Mission	27,750	35,215	21,659	48,696	54,183	40,643	86.7	89.6	82.1	13.4	10.4	17.9
Sub-Total Municipal Areas	26,546	34,577	21,599	47,918	53,147	40,161	83.3	89.5	79.8	16.1	12.2	20.3
Electoral Area B, Fraser Valley Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.											
Electoral Area D, Fraser Valley Regional District*	28,398	55,584	12,157	45,707	45,794	44,032	88.5	91.2	81.2	11.6	7.7	19.0
Electoral Area E, Fraser Valley Regional District*	25,021	31,517	22,552	48,755	54,264	35,455	85.1	88.2	79.5	14.8	11.6	20.7
Electoral Area G, Fraser Valley Regional District	Data for this area has been suppressed for data quality or confidentiality reasons.											
Sub-Total Rural Areas	26,710	43,551	17,355	47,231	50,029	39,744	86.9	90.1	80.1	13.1	9.1	20.1
Ohamil 1*	Data for this area has been suppressed for confidentiality reasons.											
Peters 1*	Data for this area has been suppressed for data quality or confidentiality reasons.											
Peters 1A*	Statistics Canada does not provide information for this community											
Popkum 1*	Data for this area has been suppressed for data quality or confidentiality reasons.											
Grass 15*	Statistics Canada does not provide information for this community											
Tzeachten 13*	22,328	29,874	17,831	43,595	50,478	32,639	65.7	70.1	59.4	34.2	30.2	40.3
Matsqui Main 2*	Data for this area has been suppressed for confidentiality reasons.											
Teequaloose 3	Statistics Canada does not provide information for this community											
Skuet	Statistics Canada does not provide information for this community											

TABLE A-6 Cont'd

Location	Median Income of Population 15+ (\$)			Median Income of Population Aged 15+ who Worked Full Year, Full Time and With Employment Income in 2010 (\$)			Market Income as a Percentage of Total Income (%)			Government Transfer as a Percentage of Income (%)		
	T	M	F	T	M	F	T	M	F	T	M	F
Papsilqua 2b	Statistics Canada does not provide information for this community											
Papsilqua 2	Statistics Canada does not provide information for this community											
Papsilqua 2a	Statistics Canada does not provide information for this community											
Spuzzum 1	Statistics Canada does not provide information for this community											
Spuzzum 1a	Statistics Canada does not provide information for this community											
Spuzzum 7	Statistics Canada does not provide information for this community											
Stout 8	Statistics Canada does not provide information for this community											
Saddle Rock 9	Data for this area has been suppressed for data quality or confidentiality reasons.											
4 1/2 Mile 2	Statistics Canada does not provide information for this community											
Yale 25	Statistics Canada does not provide information for this community											
Yale 23	Statistics Canada does not provide information for this community											
Yale 22	Statistics Canada does not provide information for this community											
Yale 21	Statistics Canada does not provide information for this community											
Yale 20	Statistics Canada does not provide information for this community											
Yale 19	Statistics Canada does not provide information for this community											
Kuthlaith 3	Statistics Canada does not provide information for this community											
Yale 18	Statistics Canada does not provide information for this community											
Yale Town 1	Data for this area has been suppressed for data quality or confidentiality reasons.											
Albert Flat 5	Data for this area has been suppressed for data quality or confidentiality reasons.											
Qualark 4	Statistics Canada does not provide information for this community											
Squeah 6	Statistics Canada does not provide information for this community											
Kaykaip 7	Statistics Canada does not provide information for this community											
Stullawheets 8	Data for this area has been suppressed for confidentiality reasons.											
Skawahlum 10	Statistics Canada does not provide information for this community											
Puckatholetchin 11	Data for this area has been suppressed for data quality or confidentiality reasons.											
Swahliseah 14	Statistics Canada does not provide information for this community											
Klaklacum 12	Statistics Canada does not provide information for this community											
Trafalgar Flat 13	Statistics Canada does not provide information for this community											
Kawkawa Lake 16	Statistics Canada does not provide information for this community											
Aywawwis 15	Statistics Canada does not provide information for this community											
Tunnel 6	Statistics Canada does not provide information for this community											
Hope 1	Statistics Canada does not provide information for this community											
Schkam 2	Data for this area has been suppressed for confidentiality reasons.											
Greenwood Island 3	Statistics Canada does not provide information for this community											
Chawathil 4	Data for this area has been suppressed for confidentiality reasons.											
Skawahlook 1	Data for this area has been suppressed for data quality or confidentiality reasons.											

TABLE A-6 Cont'd

Location	Median Income of Population 15+ (\$)			Median Income of Population Aged 15+ who Worked Full Year, Full Time and With Employment Income in 2010 (\$)			Market Income as a Percentage of Total Income (%)			Government Transfer as a Percentage of Income (%)		
	T	M	F	T	M	F	T	M	F	T	M	F
Ruby Creek 2	Statistics Canada does not provide information for this community											
Lukseetsissum 9	Data for this area has been suppressed for data quality or confidentiality reasons.											
Wahleach Island 2	Statistics Canada does not provide information for this community											
Peters 2	Statistics Canada does not provide information for this community											
Seabird Island	16,565	14,549	17,398	33,081	33,839	32,633	72.2	80.3	66.8	28.5	21.5	34.7
Popkum 2	Data for this area has been suppressed for data quality or confidentiality reasons.											
Tseatah 2	Data for this area has been suppressed for data quality or confidentiality reasons.											
Cheam 1	Data for this area has been suppressed for confidentiality reasons.											
Schelawat 1	Data for this area has been suppressed for data quality or confidentiality reasons.											
Chehalis 6	Statistics Canada does not provide information for this community											
Chehalis 5	15,276	13,951	16,408	30,839	30,332	30,848	76.9	81.2	73.7	22.9	18.9	26.9
Scowlitz 1	Data for this area has been suppressed for data quality or confidentiality reasons.											
Williams 2	Statistics Canada does not provide information for this community											
Skwahla 2	Data for this area has been suppressed for data quality or confidentiality reasons.											
Yakweakwoose 12	Data for this area has been suppressed for data quality or confidentiality reasons.											
Skowkale ³	20,817	27,430	16,675	43,149	55,247	29,304	70.7	76.0	63.0	29.3	24.0	36.2
Soowahlie 14	Data for this area has been suppressed for confidentiality reasons.											
Skwali 3	Data for this area has been suppressed for data quality or confidentiality reasons.											
Skwah 4	Data for this area has been suppressed for confidentiality reasons.											
Kwawkwapilt 6	21,719	28,453	15,965	54,806	0	0	55.7	62.3	48.4	43.5	38.4	53.9
Squiaala ⁴	Data for this area has been suppressed for confidentiality reasons.											
Aitchelitch 9	Data for this area has been suppressed for data quality or confidentiality reasons.											
Skway 5	Data for this area has been suppressed for confidentiality reasons.											
Holachten 8	19,372	23,306	17,025	36,937	43,263	29,023	69.5	73.9	67.8	29.0	29.0	30.4
Skumalasp 16	Statistics Canada does not provide information for this community											
Zaitscullachan 9	Statistics Canada does not provide information for this community											
Lakway Cemetery 3	Statistics Canada does not provide information for this community											
Lackaway 2	Statistics Canada does not provide information for this community											
Yaalstrick 1	Statistics Canada does not provide information for this community											
Skweahm 10	23,434	33,845	21,405	35,946	35,943	35,950	72.6	83.5	62.8	26.0	18.1	37.2
Lakahahmen 11	Data for this area has been suppressed for confidentiality reasons.											
Papekwatchin 4	Statistics Canada does not provide information for this community											
Sumas Cemetery 12	Statistics Canada does not provide information for this community											
Aylechootlook 5	Statistics Canada does not provide information for this community											
Upper Sumas 6	Data for this area has been suppressed for confidentiality reasons.											
Pekw'xe:Yles	Statistics Canada does not provide information for this community											

TABLE A-6 Cont'd

Location	Median Income of Population 15+ (\$)			Median Income of Population Aged 15+ who Worked Full Year, Full Time and With Employment Income in 2010 (\$)			Market Income as a Percentage of Total Income (%)			Government Transfer as a Percentage of Income (%)		
	T	M	F	T	M	F	T	M	F	T	M	F
Sahhucum 1	Statistics Canada does not provide information for this community											
Three Islands 3	Statistics Canada does not provide information for this community											
Langley 4	Statistics Canada does not provide information for this community											
Langley 3	Statistics Canada does not provide information for this community											
Langley 2	Statistics Canada does not provide information for this community											
Sub-Total Indian Reserves	20,817	27,430	17,025	36,937	35,943	30,848	64.7	64.6	67.8	29.3	24.0	35.5
Fraser Valley Region Total	23,434	29,874	17,831	45,707	51,865	35,950	72.6	81.1	75.4	20.1	14.4	26.7
METRO VANCOUVER REGION												
Township of Langley*	33,749	43,427	26,254	52,671	59,951	43,944	90.4	93.1	86.5	9.6	6.9	13.5
City of Surrey*	26,799	33,379	21,832	45,642	50,737	40,481	88.1	91.5	83.2	11.9	8.5	16.8
City of Coquitlam*	29,112	36,418	23,194	53,190	58,895	47,079	90.6	93.4	86.6	9.4	6.5	13.4
City of Burnaby*	25,463	30,087	21,759	48,104	52,881	43,647	88.9	91.6	85.5	11.1	8.4	14.5
District of Maple Ridge	32,412	42,954	24,789	52,269	60,290	43,619	89.3	92.1	84.9	10.7	7.9	15.1
City of Langley	29,267	36,603	24,920	48,225	54,249	42,737	85.3	88.6	80.9	14.7	11.4	19.0
City of Pitt Meadows	34,549	42,954	28,127	53,898	59,361	45,034	89.5	92.4	85.5	10.5	7.6	14.5
City of White Rock	32,789	40,624	28,329	54,948	62,613	49,409	86.9	90.6	82.3	13.1	9.4	17.7
City of Port Coquitlam	33,623	41,576	26,619	52,488	58,166	46,345	90.8	93.5	87.1	9.2	6.5	12.9
City of New Westminster	31,391	36,254	27,591	50,065	53,489	45,447	89.2	91.6	86.2	10.8	8.4	13.8
Corporation of Delta	33,188	42,627	25,922	54,789	62,324	46,426	90.1	92.8	85.9	9.9	7.2	14.1
Tsawwassen First Nation	29,689	36,408	25,045	50,991	50,848	67,837	91.5	93.5	88.5	8.8	6.8	11.6
City of Richmond	23,694	28,411	20,388	46,733	51,012	42,652	89.6	92.5	85.7	10.4	7.5	14.3
City of Port Moody	38,151	48,034	31,402	58,885	67,230	49,007	93.2	95.1	90.2	6.8	4.9	9.8
Village of Anmore	47,120	59,964	35,445	67,563	82,848	47,935	96.8	98.4	93.7	3.6	2.4	6.4
Village of Belcarra	58,693	60,150	48,865	59,314	104,986	33,271	93.0	91.6	94.8	7.2	7.6	6.4
District of North Vancouver	36,832	46,062	30,202	62,060	69,922	53,245	92.7	95.1	89.0	7.3	4.9	11.0
City of Vancouver	27,815	31,704	24,551	49,842	53,345	45,884	91.6	93.7	88.7	8.4	6.3	11.3
City of North Vancouver	34,515	39,780	30,357	53,078	58,449	47,288	90.9	93.4	87.7	9.1	6.6	12.3
District of West Vancouver	36,574	50,480	30,223	73,938	89,953	56,028	94.3	96.3	89.9	5.7	3.6	10.1
Village of Lions Bay	43,651	48,294	38,478	73,224	75,377	65,480	93.5	93.5	92.4	6.4	6.1	6.8
Bowen Island, Island Municipality	Data for this area has been suppressed for data quality or confidentiality reasons.											
Sub-Total Municipal Areas	33,188	41,576	26,619	53,078	59,361	46,345	90.1	93.5	87.1	9.3	6.5	12.5
Electoral Area A, Metro Vancouver	16,738	20,622	14,759	61,385	70,456	48,118	93.4	96.2	89.0	6.6	3.9	11.0
Sub-Total Rural Areas	16,738	20,622	14,759	61,385	70,456	48,118	93.4	96.2	89.0	6.6	3.9	11.0
Whonnock 1	Data for this area has been suppressed for data quality or confidentiality reasons.											
Matsqui 4	19,575	19,189	19,735	24,731	0	0	42.8	37.9	47.3	56.3	63.2	53.1
Langley 5	Data for this area has been suppressed for data quality or confidentiality reasons.											

TABLE A-6 Cont'd

Location	Median Income of Population 15+ (\$)			Median Income of Population Aged 15+ who Worked Full Year, Full Time and With Employment Income in 2010 (\$)			Market Income as a Percentage of Total Income (%)			Government Transfer as a Percentage of Income (%)		
	T	M	F	T	M	F	T	M	F	T	M	F
McMillan Island 6	Data for this area has been suppressed for confidentiality reasons.											
Pitt Lake 4	Statistics Canada does not provide information for this community											
Katzie 2	Data for this area has been suppressed for data quality or confidentiality reasons.											
Graveyard 5	Statistics Canada does not provide information for this community											
Katzie 1	Data for this area has been suppressed for data quality or confidentiality reasons.											
Barnston Island 3	Data for this area has been suppressed for data quality or confidentiality reasons.											
Coquitlam 1	Data for this area has been suppressed for data quality or confidentiality reasons.											
Coquitlam 2	Data for this area has been suppressed for data quality or confidentiality reasons.											
Semiahmoo	Data for this area has been suppressed for confidentiality reasons.											
Inlailawatash 4A	Statistics Canada does not provide information for this community											
Burrard Inlet 3	38,405	39,998	34,228	53,163	66,189	52,298	92.4	95.3	90.3	7.5	5.2	10.4
Seymour Creek 2	Data for this area has been suppressed for confidentiality reasons.											
Mission 1	12,644	10,168	13,750	31,231	32,078	27,294	75.9	83.5	69.8	23.4	17.5	29.9
Capilano 5	18,504	19,152	18,433	40,767	42,342	38,195	81.7	87.0	76.4	18.5	13.3	23.7
Kitsilano 6	Statistics Canada does not provide information for this community											
Musqueam 2	21,197	26,044	19,187	64,589	78,724	49,170	91.0	94.8	86.9	8.9	6.0	13.5
Sea Island 3	Statistics Canada does not provide information for this community											
Musqueam 4	Data for this area has been suppressed for data quality or confidentiality reasons.											
Sub-Total Indian Reserves	19,575	19,189	19,187	40,767	42,342	38,195	77.2	86.8	73.4	15.1	10.8	21.4
Metro Vancouver Region Total	32,412	39,780	25,922	53,078	59,361	46,345	87.9	92.5	85.9	9.1	6.4	13.2

Sources: Statistics Canada 2013a

Notes: * Denotes incorporated communities, counties and IRs crossed by the proposed pipeline corridor, a pump station or a reactivated pipeline segment.

- 1 The Village of Valemount is not located within the proposed pipeline corridor; however, it is in close proximity (400 m) and is anticipated to be a hub for construction activities, and therefore is considered a corridor community.
- 2 Data for Neskonlith 1 and Neskonlith 2 is amalgamated and presented as Neskonlith.
- 3 Data for Skowkale 10 and Skowkale 11 is amalgamated and presented as Skowkale.
- 4 Data for Squiaala 7 and Squiaala 8 is amalgamated and presented as Squiaala.

APPENDIX B
HUMAN OCCUPANCY AND RESOURCE USE TABLES

TABLE B-1
PARKS AND PROTECTED AREAS IN THE HUMAN
OCCUPANCY AND RESOURCE USE REGIONAL STUDY AREA IN ALBERTA

Name	Designation	Size (ha) ¹	Approximate Distance from the Project ²
EDMONTON REGION			
North Bruderheim	Provincial Recreation Area	352.9	44.0 km from RK 2.9
Northwest of Bruderheim	Natural Area	261.6	39.7 km from RK 2.9
Elk Island	National Park	19,310.6	25.4 km from RK 3.4
Beaverhill	Natural Area	322.5	53.4 km from RK 5.8
Antler Lake Island	Natural Area	2.5	23.5 km from RK 7.8
Cooking Lake-Blackfoot	Provincial Recreation Area	9,921.5	25.4 km from RK 7.8
North Cooking Lake	Natural Area	212.6	22.1 km from RK 8.4
Sherwood Park	Natural Area	68.7	3.2 km from RK 9.4
Wanisan Lake	Natural Area	5.2	28.5 km from RK 10.1
Hastings Lake	Natural Area	61.5	28.0 km from RK 11.1
Parkland	Natural Area	258.9	32.8 km from RK 11.1
Miquelon Lake	Provincial Park	72.9	37.3 km from RK 11.1
Edgar T. Jones	Natural Area	87.8	29.6 km from RK 11.1
Hastings Lake Islands	Natural Area	14.0	26.2 km from RK 11.1
Beaverhill Lake Heritage Rangeland	Natural Area	17,554.5	46.8 km from RK 11.1
Clifford E. Lee	Natural Area	11.1	10.4 km from RK 37.1
Riverlot 56	Natural Area	107.2	16.7 km from RK 37.1
Lois Hole Centennial	Provincial Park	1,805.4	6.6 km from RK 50.7
Wagner	Natural Area	220.4	3.3 km from RK 53.6
Thorsby	Natural Area	65.2	28.5 km from RK 61.4
Bilby	Natural Area	121.9	15.2 km from RK 74.2
Kilini Creek	Natural Area		2.8 km from RK 77.8
George Lake	Natural Area	130.1	39.4 km from RK 78.7
Kakina Lake	Natural Area	64.3	31.9 km from RK 78.7
Newton Lake	Natural Area	34.8	48.1 km from RK 78.7
Telfordville	Natural Area	64.5	32.8 km from RK 80.8
Manly Corner	Natural Area	323.8	4.2 km from RK 84.4
Lloyd Creek	Natural Area	226.8	68.1 km from RK 85.6
Winfield	Natural Area	64.4	68.0 km from RK 85.6
Genesee	Natural Area	180.3	23.9 km from RK 89.9
Gunn	Provincial Recreation Area	1.4	18.4 km from RK 89.9
Lac La Nonne	Natural Area	55.1	43.9 km from RK 93.7
Smithfield	Natural Area	129.3	3.9 km from RK 94.1
St. Francis	Natural Area	81.0	23.9 km from RK 101.7
Alsike Bat Lake	Natural Area	119.4	37.3 km from RK 102.0
Burtonsville Island	Natural Area	450.3	25.8 km from RK 102.0
Coyote Lake	Natural Area	295.7	31.7 km from RK 102.0
Poplar Creek	Natural Area	323.0	45.7 km from RK 102.0
Calhoun Bay	Provincial Recreation Area	391.9	64.4 km from RK 102.1
Buck Lake	Natural Area	109.8	62.6 km from RK 102.1
Carnwood Modeste	Natural Area	65.0	43.8 km from RK 102.1
Modeste Creek	Natural Area	387.9	33.4 km from RK 102.1
Modeste Saskatchewan	Natural Area	362.5	26.5 km from RK 102.1
Sundance	Natural Area	129.0	10.8 km from RK 103.0
Pembina River	Natural Area	75.7	39.1 km from RK 104.7
Lily Lake	Natural Area	171.3	13.1 km from RK 112.8
Majeau Lake	Natural Area	130.5	39.3 km from RK 104.7
Wabamun Lake	Natural Area	230.4	4.7 km from RK 112.2
Isle Lake	Natural Area	126.0	2.6 km from RK 114.7
Thunder Lake	Provincial Park	197.2	59.9 km from RK 115.5

TABLE B-1 Cont'd

Name	Designation	Size (ha) ¹	Approximate Distance from the Project ²
Roselea	Natural Area	251.9	55.3 km from RK 115.5
Camp Creek	Natural Area	46.5	73.2 km from RK 115.7
Buck Lake	Provincial Recreation Area	49.0	61.8 km from RK 121.6
Buck Lake Creek	Natural Area	129.7	46.5 km from RK 121.6
Eagle Point	Provincial Park	1,958.8	27.9 km from RK 121.6
Clear Lake	Natural Area	89.9	71.9 km from RK 122.0
Dussault Lake	Natural Area	57.5	5.2 km from RK 123.2
Blue Rapids	Provincial Park	3,563.9	41.2 km from RK 126.6
Horseshoe Creek	Natural Area	326.0	78.9 km from RK 126.6
Washout Creek	Natural Area	122.0	62.9 km from RK 126.6
Prefontaine Brock Lakes	Natural Area	197.8	23.8 km from RK 128.6
Park Court	Natural Area	143.2	17.3 km from RK 129.9
Matthews Crossing	Natural Area	312.0	6.5 km from RK 130.4
Pembina River Moon Lake	Natural Area	107.2	9.6 km from RK 132.1
Pembina River	Provincial Park	177.1	1.5 km from RK 134.0
Rocky Rapids	Natural Area	63.7	9.6 km from RK 132.1
Big Lake	Natural Area/Important Bird Area	1,119.0	Approximately 6.5 km from RK 50.7
RURAL ALBERTA REGION			
Easyford	Natural Area	3.1	36.1 km from RK 136.1
Round Valley	Natural Area	63.7	25.2 km from RK 136.1
Mystery Lake	Natural Area	48.6	60.6 km from RK 137.6
Paddle River Dam	Provincial Recreation Area	71.7	33.2 km from RK 141.8
Paddle River	Natural Area	64.5	24.9 km from RK 153.1
Highway	Natural Area	260.9	20.7 km from RK 167.2
Whitecourt	Natural Area	20.4	52.5 km from RK 187.2
Whitecourt Mountain	Natural Area	558.4	44.9 km from RK 187.3
Aurora	Natural Area	668.0	104.5 km from RK 201.9
Harlech	Provincial Recreation Area	12.4	121.5 km from RK 202.4
Minnow Lake	Provincial Recreation Area	361.5	25.5 km from RK 206.3
Wolf Lake West	Provincial Recreation Area	29.2	42.3 km from RK 206.8
Brazeau Tufa	Natural Area	63.0	79.1 km from RK 223.3
Little Sundance Creek	Provincial Recreation Area	23.9	15.3 km from RK 249.3
Blackstone	Provincial Recreation Area	3.2	106.6 km from RK 253.0
Brown Creek	Provincial Recreation Area	3.9	89.8 km from RK 253.0
Crescent Falls	Provincial Recreation Area	261.3	130.2 km from RK 253.0
Goldeye Lake	Provincial Recreation Area	51.1	126.6 km from RK 253.0
Snow Creek	Provincial Recreation Area	63.4	127.2 km from RK 253.0
Wapiabi	Provincial Recreation Area	4,024.8	106.3 km from RK 253.0
Brazeau River	Provincial Recreation Area	9.7	74.6 km from RK 255.5
Pembina Forks	Provincial Recreation Area	10.5	68.4 km from RK 255.5
Fairfax Lake	Provincial Recreation Area	129.9	63.8 km from RK 255.8
Sundance	Provincial Park	3,725.1	2.1 km from RK 256.5
Sundance	Special Management Zone	4,297.2	3.5 km from RK 258.2
Fickle Lake	Provincial Recreation Area	1,156.0	9.0 km from RK 262.8
Lovett River	Provincial Recreation Area	38.2	52.4 km from RK 263.1
Weald	Provincial Recreation Area	30.8	18.0 km from RK 263.1
Musreau Lake	Provincial Recreation Area	1,816.8	139.2 km from RK 306.5
Kakwa River	Provincial Recreation Area	7.8	128.8 km from RK 309.1
Wildhay Glacial Cascades	Natural Area	2,485.0	23.8 km from RK 309.1
Shuttler Flats	Provincial Recreation Area	14.6	200.0 km from RK 311.1
Southview	Provincial Recreation Area	4.8	113.5 km from RK 311.2
Pinto Creek Canyon	Natural Area	1,237.4	37.4 km from RK 311.2
McLeod River	Provincial Recreation Area	31.9	19.4 km from RK 314.2
William A. Switzer	Provincial Park	6,134.0	8.6 km from RK 327.3

TABLE B-1 Cont'd

Name	Designation	Size (ha) ¹	Approximate Distance from the Project ²
Big Berland	Provincial Recreation Area	159.6	63.9 km from RK 329.2
Wildhay	Provincial Recreation Area	3.8	26.9 km from RK 329.2
Pierre Grey's Lakes	Provincial Park	634.2	84.9 km from RK 329.2
Sheep Creek	Provincial Recreation Area	10.9	119.1 km from RK 329.2
Two Lakes	Provincial Park	1,578.1	176.7 km from RK 329.2
Willmore	Wilderness Park	461,749.4	38.3 km from RK 332.7
Sherman Meadows	Provincial Recreation Area	401.0	177.8 km from RK 332.9
Rock Lake	Provincial Park	1,666.8	35.6 km from RK 333.0
Kakwa Wildland	Wildland Provincial Park	65,982.6	144.4 km from RK 333.0
Smoky River South	Provincial Recreation Area	79.9	114.8 km from RK 333.0
Sulphur Gates	Provincial Recreation Area	1,095.8	114.0 km from RK 333.0
Watson Creek	Provincial Recreation Area	33.5	38.5 km from RK 338.7
Brazeau Canyon Wildland	Wildland Provincial Park	4,772.9	73.8 km from RK 338.7
Wildhorse – Kinky Lakes	Provincial Recreation Area	989.2	1.5 km from RK 339.4
Rock Lake – Solomon Creek	Wildland Provincial Park	33,270.0	8.5 km from RK 339.4
Wildhorse Lake	Provincial Recreation Area	65.9	2.1 km from RK 339.4
Marshybank	Ecological Reserve	845.3	82.6 km from RK 339.4
Cardinal Divide	Natural Area	630.6	47.4 km from RK 339.4
White Goat	Wilderness Area	44,398.5	115.1 km from RK 339.4
Whitehorse Creek	Provincial Recreation Area	22.9	41.5 km from RK 339.4
Whitehorse Wildland	Wildland Provincial Park	17,398.8	31.6 km from RK 339.4
Kootenay Plains	Provincial Park	689.5	139.6 km from RK 339.4
Lake of Falls	Natural Area	1,043.8	150.9 km from RK 339.4
Landslide Lake	Natural Area	2,283.3	151.6 km from RK 339.4
Kootenay Plains	Provincial Recreation Area	104.0	161.1 km from RK 339.4
Banff	National Park	629.1	117.8 km from RK 339.4
Jasper	National Park	1,122,795.4	7.7 km from RK 339.4
JASPER NATIONAL PARK			
The entire Jasper National Park Region is within Jasper National Park			

Sources: AltaLIS 2008, 2010, 2012, 2013a, ATRP- Parks Division 2012, Natural Resources Canada 2013

Note: 1 Locations are approximate.

TABLE B-2

**PARKS AND PROTECTED AREAS IN THE HUMAN
OCCUPANCY AND RESOURCE USE REGIONAL STUDY AREA IN BC**

Name	Designation	Size (ha)	Approximate Distance from the Project ¹
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION			
Mount Robson Corridor	Protected Area	Unknown	1.7 km from RK 489.6
Kakwa	Class A Provincial Park	170,890	101.3 km from RK 489.6
Mount Robson	Protected Area	Unknown	1.6 km from RK 492.0
Small River Caves	Class A Provincial Park	1,818	22.5 km from RK 492.2
Mount Terry Fox	Class A Provincial Park	1,930	2.4 km from RK 500.5
Sunbeam Creek	Ecological Reserve	511	64.0 km from RK 505.4
Aleza Lake	Ecological Reserve	242	218.5 km from RK 505.4
Erg Mountain Park	Class A Provincial Park	1,011	119.6 km from RK 505.4
Holliday Creek Arch	Protected Area	395	41.4 km from RK 505.4
Purden Lake	Class A Provincial Park	2,521	195.1 km from RK 505.4
Slim Creek	Class A Provincial Park	506	146.4 km from RK 505.4
Sugarbowl-Grizzly Den	Protected Area	24,765	167.0 km from RK 505.4
Ptarmigan Creek	Class A Provincial Park and Protected Area	4,633	111.1 km from RK 506.2
West Twin	Class A Provincial Park and Protected Area	22,317	76.1 km from RK 506.7
Lower Raush	Protected Area	1,279	46.2 km from RK 506.9
Bowron Lake	Class A Provincial Park	149,207	91.9 km from RK 506.9
Cariboo Mountains	Class A Provincial Park	113,469	51.0 km from RK 506.9
Cariboo River	Class A Provincial Park	3,211	118.7 km from RK 506.9
Long Creek	Class A Provincial Park	254	113.3 km from RK 506.9
Upper Raush	Protected Area	5,582	33.0 km from RK 506.9
Quesnel Lake	Class A Provincial Park	872	98.9 km from RK 536.3
Hamber	Class A Provincial Park	24,000	71.2 km from RK 568.7
North Thompson Oxbows East	Class A Provincial Park	293	6.0 km from RK 572.0
North Thompson Oxbows Manteau	Class A Provincial Park	515	10.8 km from RK 574.5
Foster Arm	Protected Area	1,020	37.7 km from RK 589.2
Mud Lake Delta	Class A Provincial Park	500	5.6 km from RK 611.2
Oregana Creek	Provincial Park	286	14.7 km from RK 632.0
Upper Adams River	Class A Provincial Park	5,733	12.8 km from RK 650.3
Upper Seymour River	Class A Provincial Park	10,672	23.6 km from RK 658.5
Martha Creek	Class A Provincial Park	71	101.8 km from RK 660.8
Harbour Dudgeon Lake	Class A Provincial Park	375	20.2 km from RK 664.2
Anstey Hunakwa	Class A Provincial Park	6,852	62.5 km from RK 670.8
Cinnemousun Narrows	Class A Provincial Park	176	77.7 km from RK 670.8
Shuswap Lake Marine	Class A Provincial Park	896	58.5 km from RK 670.8
Silver Beach	Class A Provincial Park	130	57.7 km from RK 670.8
Victor Lake	Class A Provincial Park	14.7	107.0 km from RK 670.8
Yard Creek	Class A Provincial Park	175	95.0 km from RK 670.8
Caligata Lake	Class A Provincial Park	153	13.3 km from RK 688.4
Adams Lake Marine- Refuge Bay Site	Class A Provincial Park	43	31.2 km from RK 696.2
Momich Lakes	Class A Provincial Park	1,848	34.7 km from RK 696.2
Pukeashun	Class A Provincial Park	1,779	51.8 km from RK 696.2
Adams Lake Marine- Poplar Point Site	Class A Provincial Park	32	44.5 km from RK 698.8
Wells Gray	Class A Provincial Park	540,000	1.9 km from RK 723.5
Horsefly Lake	Class A Provincial Park	148	116.8 km from RK 726.5
Donnelly Lake	Class A Provincial Park	814	37.4 km from RK 741.7
Taweel	Class A Provincial Park	4,558	8.7 km from RK 741.7
Dunn Peak	Protected Area	19,353	1.9 km from RK 748.5
Eakin Creek Floodplain	Class A Provincial Park	126	4.6 km from RK 751.6
Emar Lakes	Class A Provincial Park	1,604	9.7 km from RK 751.6
High Lakes Basin	Class A Provincial Park	560	12.7 km from RK 756.5

TABLE B-2 Cont'd

Name	Designation	Size (ha)	Approximate Distance from the Project ¹
Adams Lake Marine- Spillman Beach Site	Class A Provincial Park	139	42.7 km from RK 769.0
Bonaparte	Class A Provincial Park	11,811	20.6 km from RK 769.0
Adams Lake- Bush Creek Site	Class A Provincial Park	56	36.7 km from RK 811.9
Shuswap Lake	Class A Provincial Park	149	56.6 km from RK 812.2
Roderick Haig Brown	Class A Provincial Park	1,076	41.3 km from RK 812.2
Niskonlith Lake	Class A Provincial Park	238	35.7 km from RK 819.7
Banana Island	Class A Provincial Park	10.4	39.3 km from RK 820.5
Porcupine Meadows	Class A Provincial Park	2,704	16.4 km from RK 821.4
Paul Lake	Class A Provincial Park and Recreation Area	670	13.8 km from RK 838.8
Pritchard	Class A Provincial Park	15	35.8 km from RK 838.8
Monte Creek	Class A Provincial Park	1.7	30.9 km from RK 839.1
Tranquille	Ecological Reserve	235	10.5 km from RK 844.7
Elephant Hill	Class A Provincial Park	995	57.3 km from RK 845.4
Juniper Beach	Class A Provincial Park	260	45.0 km from RK 845.4
Painted Bluffs	Class A Provincial Park	100	23.3 km from RK 845.4
Six Mile Hill	Protected Area	151	19.7 km from RK 845.4
Steelhead	Class A Provincial Park	38	30.7 km from RK 845.4
Walhachin Oxbows	Class A Provincial Park	37	34.9 km from RK 845.4
Dewdrop-Rosseau	Wildlife Management Area	4,240	13.1 km from RK 845.4
Tranquille	Wildlife Management Area	254	2.9 km from RK 845.8
Cornwall Hills	Class A Provincial Park	1,188	68.6 km from RK 845.9
Mount Savona	Class A Provincial Park	382	24.9 km from RK 846.0
Bedard Aspen	Class A Provincial Park	173	75.0 km from RK 858.1
Epsom	Class A Provincial Park	102	60.9 km from RK 858.1
Greenstone Mountain	Class A Provincial Park	124	13.9 km from RK 858.1
Oregon Jack	Class A Provincial Park	233	73.1 km from RK 858.1
Tunkwa	Class A Provincial Park	5,100	28.0 km from RK 858.1
McConnell Lake	Class A Provincial Park	102	5.3 km from RK 866.3
Buse Lake	Protected Area	228	25.0 km from RK 868.9
Pillar	Class A Provincial Park	2	52.2 km from RK 870.9
Monte Lake	Class A Provincial Park	8	37.2 km from RK 871.6
Roche Lake	Class A Provincial Park	2,041	12.7 km from RK 871.6
Lac Le Jeune	Class A Provincial Park	213	5.5 km from RK 877.0
Walloper Lake	Class A Provincial Park	55	10.4 km from RK 877.3
Monck	Class A Provincial Park	92	4.6 km from RK 906.2
Soap Lake	Ecological Reserve	884	46.7 km from RK 925.8
Goldpan	Class A Provincial Park	5	51.7 km from RK 925.8
Skwaha Lake	Ecological Reserve	850	59.8 km from RK 925.8
Kentucky-Alleyne	Class A Provincial Park	144	20.6 km from RK 939.1
Skihst	Ecological Reserve	36	52.0 km from RK 949.1
Skihst	Class A Provincial Park	386	50.2 km from RK 949.1
Stein Valley Nlaka'pamux Heritage	Class A Provincial Park	107,191	58.7 km from RK 949.1
Upper Rogers kólji7	Conservancy	3,605	93.8 km from RK 951.4
Nahatlatch	Class A Provincial Park and Protected Area	1,695	50.7 km from RK 951.4
Stoyoma Creek	Ecological Reserve	76	30.0 km from RK 977.5
FRASER VALLEY REGION			
Snowy	Protected Area	25,889	89.3 km from RK 992.7
Whipsaw Creek	Ecological Reserve	32	41.1 km from RK 992.8
Cathedral	Class A Provincial Park and Protected Area	33,272	75.8 km from RK 993.1
Alexandra Bridge	Class A Provincial Park	55	21.1 km from RK 1006.0
Yale Garry Oak	Ecological Reserve	11.65	13.5 km from RK 1021.5
Emory Creek	Class A Provincial Park	15	11.2 km from RK 1029.5
E.C. Manning	Class A Provincial Park	70,844	16.8 km from RK 1036.0

TABLE B-2 Cont'd

Name	Designation	Size (ha)	Approximate Distance from the Project ¹
Skagit River Cottonwoods	Ecological Reserve	69	28.0 km from RK 1036.0
Ross Lake	Ecological Reserve	61	45.9 km from RK 1036.1
Skagit River Forest	Ecological Reserve	73	33.8 km from RK 1036.1
Skagit River Rhododendrons	Ecological Reserve	70	36.5 km from RK 1036.1
Skagit Valley	Class A Provincial Park	27,964	23.3 km from RK 1036.1
Nicolium River	Class A Provincial Park	24	1.6 km from RK 1037.2
Silver Lake	Class A Provincial Park	77	5.4 km from RK 1046.1
Mehatl Creek	Class A Provincial Park	23,860	67.7 km from RK 1054.5
Sasquatch	Class A Provincial Park	1,217	4.3 km from RK 1064.0
Chilliwack Lake	Class A Provincial Park	9,258	17.5 km from RK 1074.1
Chilliwack River	Ecological Reserve	86	30.3 km from RK 1074.4
Ferry Island	Class C Provincial Park	29	2.2 km from RK 1080.2
Kilby	Class A Provincial Park	3	11.4 km from RK 1090.4
Chilliwack River	Class A Provincial Park	26	5.5 km from RK 1093.8
Katherine Tye (Vedder Crossing)	Ecological Reserve	29	3.1 km from RK 1096.8
Fraser River	Ecological Reserve	177	6.7 km from RK 1099.4
Bert Brink	Wildlife Management Area	915	5.2 km from RK 1101.9
Cultus Lake	Class A Provincial Park	2,561	3.0 km from RK 1103.6
Liumchen	Ecological Reserve	2,161	9.0 km from RK 1105.2
Davis Lake	Class A Provincial Park	192	22.0 km from RK 1129.5
Rolley Lake	Class A Provincial Park	115	13.1 km from RK 1137.4
METRO VANCOUVER REGION			
Fort Langley	National Historic Site of Canada	8.4	Approximately 2.0 km from RK 1149.5
Golden Ears	Class A Provincial Park	62,540	8.5 km from RK 1150.4
Pitt Polder	Ecological Reserve	88	14.9 km from RK 1154.6
Peace Arch	Class A Provincial Park	9	19.6 km from RK 1158.3
Boundary Bay	Wildlife Management Area	11,470	12.7 km from RK 1159.6
Serpentine	Wildlife Management Area	71	12.7 km from RK 1159.6
Pincone Burke	Class A Provincial Park	38,000	10.4 km from RK 1163.7
Pitt-Addington Marsh	Wildlife Management Area	2,972	10.4 km from RK 1163.7
Widgeon Valley	National Wildlife Area	125	Approximately 20.3 km from RK 1163.7
Minnehada Regional Park	DUC Project	163	Approximately 10.0 km from RK 1163.7
Coquitlam River	Wildlife Management Area	16.7	1.0 km from RK 1167.1
Roberts Bank	Wildlife Management Area	8,770	24.4 km from RK 1177.8
South Arm Marshes	Wildlife Management Area	937	19.1 km from RK 1177.8
George C. Reifel	Migratory Bird Sanctuary	648	Approximately 24.9 km from RK 1177.8
Alaksen	National Wildlife Area	299	Approximately 24.2 km from RK 1177.8
Alaksen	Ramsar Site	596	Approximately 24.2 km from RK 1177.8
Sturgeon Bank	Wildlife Management Area	5,152	19.0 km from RK 1182.4
Mount Seymour	Class A Provincial Park	3,508	3.2 km from RK 1183.4
Say Nuth Khaw Yum Heritage Park/Indian Arm	Class A Provincial Park	6,826	6.9 km from RK 1183.6
Garibaldi	Class A Provincial Park	194,650	50.4 km from RK 1183.6

Sources: BC MFLNRO 2008a,b, Natural Resources Canada 2013

Notes: 1 Locations are approximate.

**TABLE B-3
 FOREST GRAZING LICENSES,
 GRAZING LEASES AND GRAZING PERMITS CROSSED
 BY THE PROPOSED PIPELINE CORRIDOR IN ALBERTA**

Type	RK
EDMONTON REGION	
No forest grazing licenses, grazing leases or grazing permits are crossed by the proposed pipeline corridor in the Edmonton Region.	
RURAL ALBERTA REGION	
Grazing Lease	RK 136.2 to RK 136.9
Grazing Lease	RK 136.2 to RK 136.9
Grazing Lease	RK 136.4 to RK 136.7
Grazing Lease	RK 136.4 to RK 136.7
Grazing Lease	RK 136.8 to RK 136.9
Grazing Lease	RK 136.8 to RK 136.9
Grazing Lease	RK 159.3 to RK 160.2
Grazing Lease	RK 161.0 to RK 161.8
Grazing Lease	RK 189.1 to RK 189.9
Forest Grazing License	RK 197.2 to RK 197.3
Grazing Lease	RK 239.8 to RK 240.7
Grazing Permit	RK 239.8 to RK 240.7
Grazing Permit	RK 243.4 to RK 244.3
Grazing Lease	RK 244.6 to RK 244.7
Grazing Lease	RK 244.7 to RK 244.8
Grazing Lease	RK 244.9 to RK 245.0
Grazing Lease	RK 254.0 to RK 245.1
Grazing Lease	RK 248.5 to RK 248.9
Grazing Lease	RK 248.5 to RK 248.9
Grazing Lease	RK 248.5 to RK 248.9
Grazing Lease	RK 249.1 to RK 249.5
Grazing Lease	RK 249.1 to RK 249.5
Grazing Lease	RK 249.1 to RK 249.5
Grazing Lease	RK 249.1 to RK 250.2
Grazing Lease	RK 249.1 to RK 250.2
Grazing Lease	RK 249.1 to RK 250.2
Grazing Lease	RK 250.0 to RK 251.8
Grazing Lease	RK 250.0 to RK 251.8
Grazing Lease	RK 250.0 to RK 251.8
Grazing Lease	RK 250.0 to RK 251.8
Grazing Permit	RK 252.6 to RK 252.9
Grazing Lease	RK 253.0 to RK 253.8
Grazing Permit	RK 254.6 to RK 255.6
Forest Grazing License	RK 310.2 to RK 310.6
Forest Grazing License	RK 310.5 to RK 311.3
Grazing Lease	RK 327.4 to RK 327.5
Grazing Lease	RK 329.8 to RK 330.3
Forest Grazing License	RK 330.2 to RK 331.2
Forest Grazing License	RK 330.2 to RK 331.2
Forest Grazing License	RK 331.1 to RK 331.4
Forest Grazing License	RK 331.2 to RK 331.5
Forest Grazing License	RK 331.3 to RK 332.4
Forest Grazing License	RK 331.6 to RK 332.2
Forest Grazing License	RK 332.2 to RK 333.3
JASPER NATIONAL PARK REGION	
No forest grazing licenses, grazing leases or grazing permits are crossed by the proposed pipeline corridor in the Jasper National Park Region.	

Source: AltaLIS 2013b

Note: All numbers are approximate.

TABLE B-4

RANGE TENURES CROSSED BY THE PROPOSED PIPELINE CORRIDOR IN BC

Type	Name	RK
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION		
Range Tenure	Mount Robson Ranch Ltd.	RK 489.6 to RK 491.6
Range Tenure	Roberto Pooli	RK 517.7 to RK 518.9
Range Tenure	Rex Duncan	RK 517.7 to RK 518.9
Range Tenure	Dorothy Williams	RK 517.7 to RK 518.9
Range Tenure	Williewin Ranch Ltd.	RK 656.3 to RK 669.9, RK 683.3 to RK 691.9
Range Tenure	Ernest Graffunder	RK 669.8 to RK 683.4
Range Tenure	Sierra Simmentals Ltd.	RK 669.8 to RK 683.4
Range Tenure	3-S Ranch Ltd.	RK 683.1 to RK 683.2, RK 683.3 to RK 683.4, RK 684.1 to RK 684.2, RK 686.5 to RK 686.5
Range Tenure	Wadlegger Logging and Construction Ltd.	RK 692.1 to RK 692.2, RK 692. To RK 695.5
Range Tenure	Cecile Gallot	RK 692.1 to RK 692.2, RK 692. To RK 695.5
Range Tenure	Leonard Gallot	RK 692.1 to RK 692.2, RK 692. To RK 695.5
Range Tenure	Ian Moilliet	RK 697.5 to RK 697.8
Range Tenure	Ernest Graffunder	RK 702.4 to RK 702.5, RK 704.0 to RK 704.3
Range Tenure	Sierra Simmentals Ltd.	RK 702.4 to RK 702.5, RK 704.0 to RK 704.3
Range Tenure	Estate of Robert Powell	RK 704.3 to RK 707.7
Range Tenure	James Jackson	RK 707.6 to RK 708.2, RK 709.0 to RK 709.1, RK 709.8 to RK 710.8
Range Tenure	Benjamin Krause	RK 752.3 to RK 761.1
Range Tenure	John Livingstone	RK 752.3 to RK 752.5
Range Tenure	Mary Jim	RK 756.5 to RK 756.6, RK 757.7 to RK 757.1
Range Tenure	John Greenall	RK 760.1 to RK 761.1,
Range Tenure	Bruno Schilling	RK 761.0 to RK 769.0
Range Tenure	Howard Beharrell	RK 761.0 to RK 769.0
Range Tenure	Leonard Proppe	RK 761.0 to RK 769.0
Range Tenure	Ted Scott	RK 814.6 to RK 814.7, RK 818.1 to RK 818.8, RK 820.2 to RK 820.2
Range Tenure	Pamela Ogilvie	RK 814.6 to RK 814.7, RK 818.1 to RK 818.4, RK 820.2 to RK 820.2
Range Tenure	Frolek Cattle Co. Ltd.	RK 827.5 to RK 844.7
Range Tenure	Terence Inskip	RK 827.5 to RK 844.7
Range Tenure	Erik Bergstrand	RK 827.5 to RK 844.7
Range Tenure	Rafael Horsch	RK 827.5 to RK 844.7
Range Tenure	Frederick Pain	RK 874.4 to RK 876.8
Range Tenure	Frolek Cattle Co. Ltd.	RK 874.4 to RK 881.7
Range Tenure	Gerard Guichon Ranch Limited	RK 891.6 to RK 893.0, RK 893.2 to RK 893.3, RK 897.4 to RK 897.7, RK 898.5 to RK 905.4,

TABLE B-4 Cont'd

Type	Name	RK
Range Tenure	Coquihalla Developments Corporation	RK 905.3 to RK 911.6, RK 913.1 to RK 913.2, RK 914.2 to RK 914.9, RK 915.3 to RK 915.2
Range Tenure	Gene Ewalt	RK 933.2 to RK 935.5, RK 936.7 to RK 945.0
Range Tenure	Louis Cooke	RK 950.4 to RK 955.4, RK 955.8 to RK 956.7
Range Tenure	Pine Ranch Ltd.	RK 958.6 to RK 980.7, RK 981.3 to RK 991.8
FRASER VALLEY REGION		
Range Tenure	Corner's Pride Farms Ltd.	RK 1074.7 to RK 1075.6, RK 1075.8 to RK 1075.9
METRO VANCOUVER REGION		
No provincially listed range tenures are crossed by the proposed pipeline corridor in the Metro Vancouver Region.		

Source: BC MFLNRO 2010

Note: All numbers are approximate.

TABLE B-5

GRAZING LEASES CROSSED BY THE PROPOSED PIPELINE CORRIDOR IN BC

Type	Name	RK
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION		
Grazing Lease	Divided into units	RK 549.1 to RK 656.3
Grazing Lease	Wire Cache West Pasture	RK 656.3 to RK 670.0
Grazing Lease	McMurphy Front Pasture	RK 670.0 to RK 675.5
Grazing Lease	Lower East Mad Pasture	RK 675.5 to RK 680.9
Grazing Lease	East Mad Pasture	RK 680.9 to RK 683.4
Grazing Lease	Lower Sawfly Pasture	RK 683.1 to RK 683.2, RK 683.3 to RK 683.4
Grazing Lease	Mad Front Pasture	RK 683.4 to RK 686.5
Grazing Lease	Lower Sawfly Pasture	RK 684.1 to RK 684.2
Grazing Lease	I. U. A 3	RK 686.4 to RK 686.6
Grazing Lease	Lower Sawfly Pasture	RK 686.5 to RK 686.5
Grazing Lease	Reg Unit	RK 686.5 to RK 688.7
Grazing Lease	I. U. A 3	RK 688.1 to RK 689.2
Grazing Lease	Reg Unit	RK 688.8 to RK 693.9
Grazing Lease	I. U. A 3	RK 689.7 to RK 690.2
Grazing Lease	Area E Pasture	RK 692.1 to RK 695.5
Grazing Lease	Reg Unit	RK 694.8 to RK 704.2
Grazing Lease	Area D Pasture	RK 697.5 to 697.8
Grazing Lease	Peavine Pasture	RK 702.4 to RK 702.5, RK 704.0 to RK 704.3
Grazing Lease	Area C Pasture	RK 704.3 to RK 707.7
Grazing Lease	Reg Unit	RK 705.1 to RK 705.7, RK 706.1 to RK 706.1, RK 706.2 to RK 706.4
Grazing Lease	South MacLennan Mountain Pasture	RK 707.6 to RK 708.2
Grazing Lease	MacLennan Mountain Pasture	RK 708.0 to RK 710.1
Grazing Lease	South MacLennan Mountain Pasture	RK 709.1 to RK 709.1, RK 709.8 to RK 710.8
Grazing Lease	MacLennan Mountain Pasture	RK 710.8 to RK 717.7
Grazing Lease	Foghorn Unit	RK 715.5 to RK 715.9
Grazing Lease	MacLennan Mountain Pasture	RK 715.6 to RK 715.8

TABLE B-5 Cont'd

Type	Name	RK
Grazing Lease	Raft Unit	RK 717.6 to RK 725.8
Grazing Lease	Vacant	RK 725.6 to RK 737.5
Grazing Lease	Mt. Olie Unit	RK 737.5 to RK 744.1
Grazing Lease	Private Land	RK 744.1 to RK 752.4
Grazing Lease	Dum Lake Unit	RK 752.3 to RK 761.1
Grazing Lease	Grassy Knoll Unit	RK 752.3 to RK 752.5
Grazing Lease	Mt. Olie Unit	RK 753.5 to RK 753.5
Grazing Lease	East Pasture	RK 756.5 to RK 756.6, RK 756.7 to RK 757.1
Grazing Lease	Former S.U.P. 5666 Pasture	RK 760.1 to RK 761.1
Grazing Lease	Patrick Lake Unit	RK 761.0 to RK 769.1
Grazing Lease	Thuya Pasture	RK 761.1 to RK 761.3, RK 762.1 to RK 763.0
Grazing Lease	Jamieson Creek Unit	RK 811.9 to RK 820.2
Grazing Lease	Area A Pasture	RK 814.6 to RK 814.7, RK 818.1 to RK 818.4, RK 820.2 to RK 820.2
Grazing Lease	Grazing Lease and Private Land	RK 820.2 to RK 828.1
Grazing Lease	Dairy Creek Pasture	RK 827.5 to RK 831.6
Grazing Lease	Deep Lake Pasture	RK 831.6 to RK 834.6
Grazing Lease	Westsyde Pasture	RK 834.5 to RK 836.9
Grazing Lease	Halston Pasture	RK 836.9 to RK 842.2
Grazing Lease	Lac du Bois Unit	RK 839.7 to RK 839.8
Grazing Lease	Batchelor Pasture	RK 842.2 to RK 844.7
Grazing Lease	Lac du Bois Unit	RK 844.5 to RK 846.9
Grazing Lease	Hughes Unit	RK 846.8 to RK 847.1
Grazing Lease	Anderson Unit	RK 846.8 to RK 874.9
Grazing Lease	Morrison Meadow Pasture	RK 874.4 to RK 876.9
Grazing Lease	Old Camp Lease A Pasture	RK 874.8 to RK 879.2
Grazing Lease	Stump Lake West Pasture	RK 876.9 to RK 879.2
Grazing Lease	Old Camp Lease B Pasture	RK 879.2 to RK 881.7
Grazing Lease	Stump Lake Unit	RK 881.7 to RK 889.3
Grazing Lease	Frogmore	RK 891.6 to RK 893.0, RK 893.2 to RK 893.2
Grazing Lease	Callaghan	RK 893.2 to RK 893.3
Grazing Lease	Powder House	RK 897.4 to RK 897.5
Grazing Lease	God's Garden	RK 897.5 to RK 897.7, RK 898.5 to RK 898.5
Grazing Lease	Westside Front B	RK 898.5 to RK 899.5
Grazing Lease	Summer Range South	RK 899.1 to RK 900.5
Grazing Lease	Westside Front A	RK 899.5 to RK 899.5
Grazing Lease	Pipeline	RK 900.3 to RK 905.4
Grazing Lease	Pleasant Valley	RK 905.3 to RK 911.6
Grazing Lease	Creek	RK 913.1 to RK 913.2
Grazing Lease	Pleasant Valley	RK 914.2 to RK 914.5
Grazing Lease	Sunshine Valley	RK 914.5 to RK 914.8, RK 915.3 to RK 915.9
Grazing Lease	Upper Lease	RK 933.3 to RK 935.5
Grazing Lease	Veale (lease)	RK 936.7 to RK 937.6
Grazing Lease	Stirling	RK 937.6 to RK 939.7
Grazing Lease	Iron Mtn.	RK 938.7 to RK 940.1
Grazing Lease	Stirling	RK 939.6 to RK 941.5
Grazing Lease	Skuagam	RK 941.4 to RK 945.0
Grazing Lease	Fink	RK 950.4 to RK 955.4
Grazing Lease	N/A	RK 952.7 to RK 952.8
Grazing Lease	Fink	RK 955.8 to RK 956.7

TABLE B-5 Cont'd

Type	Name	RK
Grazing Lease	Fig Lake	RK 958.6 to RK 965.3
Grazing Lease	Brodie	RK 965.3 to RK 979.0
Grazing Lease	Coldwater	RK 979.0 to RK 980.9
Grazing Lease	N/A	RK 980.9 to RK 981.5, RK 981.7 to RK 981.9
Grazing Lease	Coldwater	RK 981.3 to RK 991.8
FRASER VALLEY REGION		
No provincially listed grazing leases are crossed by the proposed pipeline corridor in the Fraser Valley Region.		
METRO VANCOUVER REGION		
No provincially listed grazing leases are crossed by the proposed pipeline corridor in the Metro Vancouver Region.		

Source: BC MFLNRO 2011

Note: All numbers are approximate.

TABLE B-6

**AGRICULTURAL LAND RESERVE LAND
 CROSSED BY THE PROPOSED PIPELINE CORRIDOR IN BC**

Socio-Economic Region	ALR Land Crossed
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION	RK 506.7 to RK 507.6
	RK 509.6 to RK 513.0
	RK 523.7 to RK 526.2
	RK 640.0 to RK 642.3
	RK 651.6 to RK 655.3
	RK 656.1 to RK 662.5
	RK 694.9 to RK 698.2
	RK 700.0 to RK 702.8
	RK 708.8 to RK 709.6
	RK 714.1 to RK 717.9
	RK 718.0 to RK 720.2
	RK 724.0 to RK 724.0
	RK 729.5 to RK 731.1
	RK 731.5 to RK 733.6
	RK 734.3 to RK 736.6
	RK 736.9 to RK 737.1
	RK 747.3 to RK 756.5
	RK 756.6 to RK 758.0
	RK 762.5 to RK 769.0
	RK 811.9 to RK 813.8
	RK 815.0 to RK 818.7
	RK 818.7 to RK 820.2
	RK 820.5 to RK 820.6
	RK 820.8 to RK 821.1
	RK 822.0 to RK 829.4
	RK 829.4 to RK 830.2
	RK 834.5 to RK 839.8
	RK 844.7 to RK 844.8
	RK 848.0 to RK 848.5
	RK 849.8 to RK 850.8
	RK 852.3 to RK 863.0
	RK 863.3 to RK 864.9
RK 867.2 to RK 880.1	
RK 882.7 to RK 883.0	
RK 883.3 to RK 889.3	
RK 891.9 to RK 896.3	
RK 916.0 to RK 921.1	
RK 922.7 to RK 922.9	

TABLE B-6 Cont'd

Socio-Economic Region	ALR Land Crossed
FRASER VALLEY REGION	RK 923.4 to RK 932.8
	RK 945.6 to RK 953.5
	RK 957.0 to RK 958.2
	RK 1049.3 to RK 1050.6
	RK 1051.3 to RK 1051.4
	RK 1056.6 to RK 1061.0
	RK 1062.8 to RK 1064.4
	RK 1075.8 to RK 1076.3
	RK 1078.8 to RK 1080.9
	RK 1081.9 to RK 1097.1
	RK 1095.5 to RK 1095.5
	RK 1098.6 to RK 1114.7
RK 1121.1 to RK 1146.8	
METRO VANCOUVER REGION	RK 1147.3 to RK 1154.3

Source: ALC 2013

Note: All numbers are approximate.

TABLE B-7

**TRAILS CROSSED BY THE
PROPOSED PIPELINE CORRIDOR AND HUMAN
OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA IN ALBERTA**

Name	Spatial Boundary	RK
EDMONTON REGION		
Trail 20	HORU LSA	0.9 km from RK 63.4
Trail 6	HORU LSA	0.1 km from RK 118.1
Trail 5	HORU LSA	0.4 km from RK 120.4
Trail 2	Proposed pipeline corridor	RK 130.4
Trail 4	HORU LSA	0.1 km from RK 130.8
RURAL ALBERTA REGION		
Trail 2	HORU LSA	0.6 km from RK 139.3
Trail 14	HORU LSA	0.3 km from RK 206.8
Trail 12	HORU LSA	0.2 km from RK 206.8
Trail 11	HORU LSA	0.4 km from RK 207.0
Trail	Proposed pipeline corridor	Approximately RK 231.0
Trail 13	HORU LSA	0.8 km from RK 232.8
Trail	Proposed pipeline corridor	Approximately RK 234.0
Trail 4	Proposed pipeline corridor	RK 273.4.0 to RK 273.5
Trail 3	Proposed pipeline corridor	RK 274.9 to RK 275.1
Trail 9	HORU LSA	0.7 km from RK 293.9
Trail 8	HORU LSA	0.9 km from RK 301.7
Trail 16	HORU LSA	0.9 km from RK 307.1
Trail 5	Proposed pipeline corridor	RK 316.4 to RK 316.7
Trail 18	HORU LSA	0.7 km from RK 320.9
Gravel or unimproved trail	Proposed pipeline corridor	Approximately RK 323.0
JASPER NATIONAL PARK REGION		
Trail	Existing TMPL	KP 390.8

Source: IHS Inc. 2013a

Note: All numbers are approximate.

TABLE B-8

**COMMERCIAL RECREATION USE
AREAS IN THE PROPOSED PIPELINE CORRIDOR AND
HUMAN OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA IN ALBERTA**

Commercial Recreation Activity	Location	Spatial Boundary	RK
EDMONTON REGION			
Strathcona Rugby Field	Strathcona County	Proposed pipeline corridor	Approximately RK 4.0 to RK 5.0
Golf Course	Strathcona County	HORU LSA	0.9 km from RK 4.1
Park/Sports Field	Strathcona County	HORU LSA	0.5 km from RK 4.3
Park/Sports Field	Strathcona County	HORU LSA	0.9 km from RK 6.4
Golf Course	Strathcona County	HORU LSA	0.8 km from RK 6.6
Park/Sports Field	City of Edmonton	HORU LSA	0.5 km from RK 24.6
Golf Course	City of Edmonton	Proposed pipeline corridor	RK 24.3 to RK 24.6
Drive-In Theatre	City of Edmonton	HORU LSA	0.6 km from RK 41.6
Campground	City of Spruce Grove	HORU LSA	0.5 km from RK 60.7
Campground	Parkland County	HORU LSA	0.5 km from RK 94.6
Campground	Parkland County	HORU LSA	0.5 km from 95.5
Campground	Parkland County	HORU LSA	0.6 km from 96.5
Golf Course	Parkland County	HORU LSA	0.5 km from RK 117.2
RURAL ALBERTA REGION			
Campground	Yellowhead County	HORU LSA	0.3 km from RK 178.6
Campground	Yellowhead County	HORU LSA	0.1 km from RK 194.6
Campground	Yellowhead County	HORU LSA	0.9 km from RK 222.3
Vision Park	Town of Edson	Proposed pipeline corridor	Approximately RK 228.8 to RK 229.8
Park/Sports Field	Town of Edson	HORU LSA	0.9 km from RK 230.7
Park/Sports Field	Town of Edson	HORU LSA	0.7 km from RK 231.3
Park/Sports Field	Town of Edson	HORU LSA	0.5 km from RK 231.6
Park/Sports Field	Town of Edson	HORU LSA	0.8 km from RK 231.8
Park/Sports Field	Town of Edson	HORU LSA	0.5 km from RK 232.1
Park/Sports Field	Town of Edson	Proposed pipeline corridor	RK 237.0 to RK 237.2
Campground	Yellowhead County	HORU LSA	0.6 km from 245.7
Campground	Yellowhead County	HORU LSA	0.8 km from 249.7
Golf Course	Yellowhead County	Proposed pipeline corridor	Approximately RK 258.1 to RK 259.0
Campground	Yellowhead County	HORU LSA	0.9 km from RK 284.9
Campground	Yellowhead County	HORU LSA	0.6 km from RK 298.5
Hinton Golf Club	Town of Hinton	HORU LSA	0.2 km from RK 324.3
Picnic Site	Yellowhead County	HORU LSA	0.5 km from RK 335.2
JASPER NATIONAL PARK REGION			
No commercial recreation areas are crossed by the existing TMPL right-of-way in the Jasper National Park Region.			

Source: IHS Inc. 2013a

Note: All numbers are approximate.

TABLE B-9

PROVINCIALY DESIGNATED RECREATION AREAS AND TRAILS IN THE PROPOSED PIPELINE CORRIDOR AND HUMAN OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA IN BC

Name	Spatial Boundary	Type	Location
FRASER-FORT GEORGE / THOMPSON-NICOLA REGION			
Jackman Flats	HORU LSA	Recreation Site	0.02 km from RK 508.4
Mt. Terry Fox Trail	HORU LSA	Recreation Trail	0.9 km from RK 515.5
Swift Creek Trail	HORU LSA	Recreation Trail	0.6 km from RK 521.5
Camp Creek Trails	HORU LSA	Recreation Site	0.1 km from RK 532.8
Keyhole Trail	Proposed pipeline corridor	Recreation Trail	RK 552.4 to RK 553.4
Clemina Creek Trails	Proposed pipeline corridor	Recreation Site	RK 553.1 to RK 556.5, RK 556.9 to RK 557.4
Colly Lake	Proposed pipeline corridor	Recreation Reserve	RK 556.8 to RK 556.9
Allan Creek Trail	HORU LSA	Recreation Site	0.1 km from RK 562.5
Chappell Creek Snowmobile Trail	HORU LSA	Recreation Trail	0.3 km from RK 581.6
Chappell Creek Parking Area	HORU LSA	Recreation Site	0.2 km from RK 581.7
River Loop Cross Country Ski Trails	HORU LSA	Recreation Trail	0.6 km from RK 614.0
Blue River Trails	HORU LSA	Recreation Trail	0.7 km from RK 615.1
Little Angus Horne	Proposed pipeline corridor	Recreation Reserve	RK 620.6 to RK 621.0
Finn Creek Parking Lot	Proposed pipeline corridor	Recreation Site	RK 639.4 to RK 639.5
Groundhog Snowmobile Trail	Proposed pipeline corridor	Recreation Trail	RK 639.5 to RK 639.5
Clearwater Demonstration Forest	HORU LSA	Recreation Site	0.4 km from RK 718.1
McNabb Trail	HORU LSA	Recreation Reserve	0.4 km from RK 750.4
Lac du Bois ATV Area	Proposed pipeline corridor	Recreation Reserve	RK 841.0 to RK 841.3
Lac Le Jeune Snowmobile Trails	Proposed pipeline corridor	Recreation Trail	RK 870.2 to RK 870.8, RK 875.1 to RK 875.2, RK 875.3 to RK 875.4
Swakum Bike Area	HORU LSA	Recreation Reserve	0.2 km from RK 926.3
Iron Mountain Mountain Bike Trail	HORU LSA	Recreation Site	0.3 km from RK 934.3
Kingsvale	HORU LSA	Recreation Site	0.4 km from RK 958.5
2010 Spirit Trail	Proposed pipeline corridor	Recreation Trail	RK 970.3 to RK 970.4
FRASER VALLEY REGION			
Mt. Henning and 10K Area Snowmobile Trail	HORU LSA	Recreation Trail	0.3 km from RK 991.3
Pipeline Cabin	HORU LSA	Recreation Site	0.5 km from RK 991.7
Coquihalla Lakes	HORU LSA	Recreation Reserve	0.3 km from RK 992.4
Boston Bar Creek	Proposed pipeline corridor	Recreation Reserve	RK 1018.6 to RK 1018.6
Ladner Creek	Proposed pipeline corridor	Recreation Reserve	RK 1019.9 to RK 1020.1
Squeah	Proposed pipeline corridor	Recreation Site	RK 1028.4 to RK 1029.4
Coquihalla River	Proposed pipeline corridor	Recreation Reserve	RK 1030.1 to RK 1030.8
Ogilvie Peak	Proposed pipeline corridor	Recreation Trail	RK 1035 and RK 1037.1
Vedder Mountain Interpretive Forest	HORU LSA	Interpretive Forest	RK 0.2 km from RK 1104.5
METRO VANCOUVER REGION			
No provincially-designated recreation areas or trails were identified in the proposed pipeline corridor or HORU LSA of the Metro Vancouver Region.			

Source: BC Ministry of Jobs, Tourism and Innovation 2008a,b,c

Note: All numbers are approximate.

TABLE B-10

**COMMERCIAL RECREATION TENURES IN THE PROPOSED PIPELINE
CORRIDOR AND HUMAN OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA IN BC**

Commercial Recreation Activity	Location	Tenure (Tenure Holder)	RK
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION			
Guided freshwater recreation	Mount Robson	834921 (Mount Robson White Water Rafting Co. Ltd.)	RK 495.5 to RK 495.5, RK 496.7 to RK 499.8, RK 498.3 to RK 498.3, RK 499.5 to RK 499.6
Guided freshwater recreation	Mount Robson	834928 (Maligne Rafting Adventures Ltd.)	RK 495.5 to RK 495.5, RK 496.7 to RK 499.8, RK 498.3 to RK 498.3
Guided freshwater recreation	Fraser River, Holmes River, Dore River, Goat River, Canoe River and Babine River	874446 (Stellar Descents Backcountry Adventures Ltd.)	RK 495.5 to RK 495.5, RK 496.7 to RK 499.8, RK 498.3 to RK 498.3
Multiple use	Mount Robson	834930 (Wildways Safaris)	RK 495.5 to RK 495.5, RK 517.0 to RK 517.1
Heli Ski	Valemount	841505	0.5 km from RK 547.5
Heli Hiking	Canoe River	276250	1.0 km from RK 548.6
Heli Hiking	Canoe River	905437	1.0 km from RK 548.6
Heli Ski	Blue River	882810 (Cariboo Helicopter Skiing (88) Ltd.)	RK 552.2 to RK 649.0
Snowmobiling	Robson Valley	834751 (Timothy Olson, Manabu Saito and Barry Wood)	RK 553.2 to RK 556.5, RK 556.9 to RK 557.3
Multiple use	Valemount	899299 (Mountain Riding Adventures Ltd.)	RK 553.2 to RK 556.5, RK 556.9 to RK 557.3
Miscellaneous	North of Chappell Creek	878952	0.2 km from RK 581.7
Miscellaneous	North of Miledge Creek	878951 (Cariboo Helicopter Skiing (88) Ltd.)	RK 592.6 to RK 592.7
Heli Ski	Thunder River	885302	0.2 km from RK 600.7
Snowmobiling	Clearwater	901547	0.4 km from RK 614.1
Snowmobiling	Clearwater	825847	0.4 km from RK 614.1
Multiple Use	North Thompson River, Raft River	835200 (Thompson Rivers University)	RK 683.6 to RK 683.6, RK 717.5 to RK 717.8
Miscellaneous	Clearwater	884405	0.2 km from RK 717.9
Guided freshwater recreation	Clearwater- North Thompson River	847789 (Interior Whitewater Expeditions Ltd.)	RK 725.4 to RK 725.7
Community Outdoor Recreation	Goose Lake Road	205320	0.9 km from RK 862.9
Miscellaneous	Hope to Nakusp	835419 (West Canada Bike Tours Ltd.)	RK 970 to RK 970.1, RK 970.3 to RK 970.4
FRASER VALLEY REGION			
Multiple Use	Coquihalla River	835200 (Thompson Rivers University)	RK 1076.4 to RK 1026.6, RK 1026.8 to RK 1026.9, RK 1027.2 to RK 1027.4, RK 1027.8 to RK 1028, RK 1028 to RK 1028.3, RK 1028.9 to RK 1028.8, RK 1029.2 to RK 1029.8, RK 1029.9 to RK 1030.3, RK 1030.4 to RK 1032.3, RK 1032.5 to RK 1032.7, RK 1033.4 to RK 1033.6, RK 1033.9 to RK 1034.5, RK 1036.7 to RK 1037.1
Multiple Use	Thompson, Nicola, Coquihalla and Nahatlach Rivers	858517 (Reo Rafting Ltd.)	RK 1026.4 to RK 1026.5, RK 1028.1 to RK 1028.3, RK 1028.6 to RK 1028.7, RK 1029.3 to RK 1029.7, RK 1029.9 to RK 1030.2, RK 1030.5 to RK 1032.3, RK 1032.6 to RK 1032.7, RK 1034 to RK 1034.1, RK 1036.8 to RK 1036.8, RK 1037 to RK 1037.1
METRO VANCOUVER REGION			
No commercial recreation tenures are located in the Metro Vancouver Region in the proposed pipeline corridor or the HORU LSA.			

Source: BC MFLNRO 2008c

TABLE B-11

**WILDLIFE MANAGEMENT UNITS WITH HUNTING
 SEASONS CROSSED BY THE PROPOSED PIPELINE CORRIDOR AND
 HUMAN OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA IN ALBERTA**

WMU	Hunting Seasons	RK
248	<ul style="list-style-type: none"> • white-tailed deer (antlered and antlerless) - archery only September 1 to November 30 • mule deer (antlered and antlerless) - archery only September 1 to November 30 • moose (antlered and antlerless) – archery only September 1 to November 30 • moose (antlerless) (Strathcona County portion only) – Monday to Friday only, October 25 to December 7 • elk (antlered and antlerless) – archery only September 1 to November 30 • cougar – archery only November 1 to November 30 • snow or Ross's geese – September 1 to December 16 • Canada or white-fronted geese- September 1 to December 16 • ducks, coots and snipe – September 1 to December 16 • male pheasant – September 1 to November 30 • ruffed grouse – September 1 to November 30 • spruce grouse – September 1 to November 30 • gray partridge – September 1 to November 30 	RK 0.0 to RK 80.7
336	<ul style="list-style-type: none"> • white-tailed deer (antlered and antlerless) - archery only September 1 to October 31, general November 1 to November 30. • mule deer (antlered and antlerless) – November 1 to November 30, archery only September 1 to October 31 • moose (antlered and antlerless) – November 1 to November 30, archery only September 1 to October 31 • elk (antlered- 3 point or larger) – November 1 to November 30, archery only September 1 to October 31; (antlerless) – November 1 to December 20, archery only September 1 to October 31 • black bear – September 1 to November 30 and April 1, 2014 to May 31, 2014 • cougar – December 1 to February 28, 2014 • snow or Ross's geese – September 1 to December 16 • Canada or white-fronted geese- September 1 to December 16 • ducks, coots and snipe – September 1 to December 16 • male pheasant – September 1 to November 30 • ruffed grouse – September 1 to November 30 • spruce grouse – September 1 to November 30 • ptarmigan – September 1 to November 30 • blue grouse – September 1 to November 30 • gray partridge – September 1 to November 30 	RK 80.8 to RK 133.7
337	<ul style="list-style-type: none"> • white-tailed deer (antlered and antlerless) - archery only September 1 to October 31, general November 1 to November 30. • mule deer (antlered and antlerless) – November 1 to November 30, archery only September 1 to October 31 • moose (antlered and antlerless) – November 1 to November 30, archery only September 1 to October 31 • elk (antlered- 3 point or larger) – November 1 to November 30, archery only September 1 to October 31; (antlerless) – November 1 to December 20 and December 21 to January 20, 2014, archery only September 1 to October 31 • cougar – December 1 to February 28, 2014 • black bear – September 1 to November 30 and April 1, 2014 to May 31, 2014 • snow or Ross's geese – September 1 to December 16 • Canada or white-fronted geese- September 1 to December 16 • ducks, coots and snipe – September 1 to December 16 • male pheasant – September 1 to November 30 • ruffed grouse – September 1 to November 30 • spruce grouse – September 1 to November 30 • ptarmigan – September 1 to November 30 • blue grouse – September 1 to November 30 • gray partridge – September 1 to November 30 	RK 133.8 to RK 163.4

TABLE B-11 Cont'd

WMU	Hunting Seasons	RK
338	<ul style="list-style-type: none"> • white-tailed deer (antlered and antlerless) - archery only September 1 to October 31, general November 1 to November 30. • mule deer (antlered) – November 1 to November 30, archery only September 1 to October 31 • moose (antlered) – November 1 to November 30, archery only September 1 to October 31 • elk (antlered 3-point or larger) – November 1 to November 30, archery only September 1 to October 31; (antlerless) – November 1 to December 20 and December 21 to January 20, 2014, archery only September 1 to October 31 • cougar – December 1 to February 28, 2014 • black bear – September 1 to November 30 and April 1, 2014 to May 31, 2014 • snow or Ross's geese – September 1 to December 16 • Canada or white-fronted geese- September 1 to December 16 • ducks, coots and snipe – September 1 to December 16 • male pheasant – September 1 to November 30 • ruffed grouse – September 1 to November 30 • spruce grouse – September 1 to November 30 • ptarmigan – September 1 to November 30 • blue grouse – September 1 to November 30 • gray partridge – September 1 to November 30 	RK 163.5 to RK 187.1
348	<ul style="list-style-type: none"> • white-tailed deer (antlered and antlerless) - archery only September 1 to October 31, general November 1 to November 30. • mule deer (antlered and antlerless) – November 1 to November 30, archery only September 1 to October 31 • moose (antlered) – November 1 to November 30, archery only September 1 to October 31 • elk (antlerless) – November 1 to December 20 and December 21 to January 20, 2014, archery only September 1 to October 31 • cougar – December 1 to February 28, 2014 • black bear – September 1 to November 30 and April 1, 2014 to May 31, 2014 • snow or Ross's geese – September 1 to December 16 • Canada or white-fronted geese- September 1 to December 16 • ducks, coots and snipe – September 1 to December 16 • male pheasant – September 1 to November 30 • ruffed grouse – September 1 to November 30 • spruce grouse – September 1 to November 30 • ptarmigan – September 1 to November 30 • blue grouse – September 1 to November 30 • gray partridge – September 1 to November 30 	RK 187.2 to RK 200.1
346	<ul style="list-style-type: none"> • white-tailed deer (antlered and antlerless) - archery only August 25 – September 16, general September 17 to November 30. • mule deer (antlered and antlerless) – September 17 to November 30, archery only August 25 to September 16 • moose (antlered) – September 24 to October 31 and November 1 to November 30, archery only August 25 to September 23 • elk (antlered 3-point or larger) – September 17 to November 30, archery only August 25 to September 16; (antlerless) September 17 to October 31, November 1 to December 20 and December 21 to January 20, 2014, archery only August 25 to September 16 • cougar – December 1 to February 28, 2014 • black bear – September 1 to November 30 and April 1, 2014 to June 15, 2014, archery only August 25 to August 31 • snow or Ross's geese – September 1 to December 16 • Canada or white-fronted geese- September 1 to December 16 • ducks, coots and snipe – September 1 to December 16 • male pheasant – September 1 to November 30 • ruffed grouse – September 1 to November 30 • spruce grouse – September 1 to November 30 • ptarmigan – September 1 to November 30 • blue grouse – September 1 to November 30 • gray partridge – September 1 to November 30 	RK 200.2 to RK 248.2 and RK 259.9 to RK 278.2

TABLE B-11 Cont'd

WMU	Hunting Seasons	RK
342	<ul style="list-style-type: none"> • white-tailed deer (antlered and antlerless) - archery only August 25 – September 16, general September 17 to November 30. • mule deer (antlered) – September 17 to November 30, archery only August 25 to September 16 • moose (antlered) – September 24 to October 31 and November 1 to November 30, archery only August 25 to September 23 • elk (antlered 3-point or larger) – September 17 to November 30, archery only August 25 to September 16; (antlerless) September 17 to December 20, archery only August 25 to September 16 • cougar – December 1 to February 28, 2014 • black bear – September 1 to November 30 and April 1, 2014 to May 31, 2014, archery only August 25 to August 31 • snow or Ross's geese – September 1 to December 16 • Canada or white-fronted geese- September 1 to December 16 • ducks, coots and snipe – September 1 to December 16 • male pheasant – September 1 to November 30 • ruffed grouse – September 1 to November 30 • spruce grouse – September 1 to November 30 • ptarmigan – September 1 to November 30 • blue grouse – September 1 to November 30 • gray partridge – September 1 to November 30 	RK 248.3 to RK 259.8 and RK 278.3 to RK 321.8
344	<ul style="list-style-type: none"> • white-tailed deer (antlered and antlerless) - September 17 to November 30, archery only August 25 to September 16 • mule deer (antlered) – September 17 to November 30, archery only August 25 to September 16 • moose (antlered) – September 24 to October 31 and November 1 to November 30, archery only August 25 to September 23 • elk (antlered 3-point or larger) – September 17 to November 30, archery only August 25 to September 16; (antlerless) September 17 to December 20, archery only August 25 to September 16 • cougar – December 1 to February 28, 2014 • black bear – September 1 to November 30 and April 1, 2014 to June 15, 2014, archery only August 25 to August 31 • snow or Ross's geese – September 1 to December 16 • Canada or white-fronted geese- September 1 to December 16 • ducks, coots and snipe – September 1 to December 16 • male pheasant – September 1 to November 30 • ruffed grouse – September 1 to November 30 • spruce grouse – September 1 to November 30 • ptarmigan – September 1 to November 30 • blue grouse – September 1 to November 30 • gray partridge – September 1 to November 30 	RK 309.3 to RK 309.4
438	<ul style="list-style-type: none"> • white-tailed deer (antlered and antlerless) - September 17 to November 30, archery only August 25 to September 16 • mule deer (antlered) – September 17 to November 30, archery only August 25 to September 16 • moose (antlered) – September 24 to November 30, archery only August 25 to September 23 • elk (antlered 6-point or larger) – September 17 to November 30, archery only August 25 to September 16; (antlerless) September 17 to November 30, archery only August 25 to September 16 • trophy sheep (resident) – November 1 to November 10, November 11 to November 20 and November 21 to November 30, (non-resident) September 1 to October 15 • cougar – December 1 to February 28, 2014 • black bear – September 1 to November 30 and April 1, 2014 to June 15, 2014, archery only August 25 to August 31 • snow or Ross's geese – September 1 to December 16 • Canada or white-fronted geese- September 1 to December 16 • ducks, coots and snipe – September 1 to December 16 • male pheasant – September 1 to November 30 • ruffed grouse – September 1 to November 30 • spruce grouse – September 1 to November 30 • ptarmigan – September 1 to November 30 • blue grouse – September 1 to November 30 	RK 321.8 to RK 339.4

Sources: Alberta Guide to Hunting Regulations 2013.

TABLE B-12

**FUR MANAGEMENT ZONES WITH TRAPPING SEASONS
 CROSSED BY THE PROPOSED PIPELINE CORRIDOR AND
 HUMAN OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA IN ALBERTA**

Fur Management Zone	Trapping Seasons	RK
7	<ul style="list-style-type: none"> • badger – December 1 to April 15 • beaver – October 15 to April 30 • coyote – October 1 to February 28 • fox – October 1 to February 28 • mink – November 1 to January 31 • muskrat – October 15 to April 30 • squirrel – November 1 to February 28 • weasel – November 15 to February 14 • wolf – October 1 to February 28 	RK 0.0 to RK 133.7
4	<ul style="list-style-type: none"> • badger – December 1 to April 15 • beaver – October 1 to May 15 • coyote – October 1 to February 28 • fisher- November 1 to January 31 • fox – October 1 to February 28 • lynx – December 1 to February 15 • marten – November 1 to January 31 • mink – November 1 to January 31 • muskrat – October 1 to May 15 • otter – December 1 to May 15 • squirrel – November 1 to February 28 • weasel – November 1 to February 28; • wolf – October 1 to March 31 • wolverine – November 1 to January 31 	RK 133.8 to RK 309.4
5	<ul style="list-style-type: none"> • badger – December 1 to April 15 • beaver – October 1 to May 31 • coyote – October 1 to February 28 • fisher- November 1 to January 31 • fox – October 1 to February 28 • lynx – December 1 to February 15 • marten – November 1 to January 31 • mink – November 1 to January 31 • muskrat – October 1 to May 15 • squirrel – November 1 to February 28 • weasel – November 1 to February 28; • wolf – October 1 to March 31 • wolverine – November 1 to January 31 	RK 309.5 to RK 339.4

Sources: Alberta Guide to Trapping Regulations 2013.

TABLE B-13
REGISTERED TRAPPING AREAS
CROSSED BY THE PROPOSED PIPELINE CORRIDOR AND
HUMAN OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA IN ALBERTA

Trapping Tenure Holder	Spatial Boundary	Location ¹
EDMONTON REGION		
There are no trapping tenures in proposed pipeline corridor or the HORU LSA in the Edmonton Region		
RURAL ALBERTA REGION		
Alan Gros-Louis	Proposed pipeline corridor	RK 163.5 to RK 166.9
Sally Jones	Proposed pipeline corridor	RK 173.7 to RK 180.3, RK 180.9 to RK 180.9
Jim Robinson	HORU LSA	1.0 km from RK 178.4
Laurent Rondeau	Proposed pipeline corridor	RK 199.1 to RK 202.6, RK 207.2 to RK 216.8
Steller Ross	Proposed pipeline corridor	RK 220.4 to RK 224.1
Donald Jr Gauchier	Proposed pipeline corridor	RK 246.1 to RK 246.1, RK 259.9 to RK 259.9
David Winard	Proposed pipeline corridor	RK 247.9 to RK 259.9
Leon Sharra	Proposed pipeline corridor	RK 259.8 to RK 271.0
Neil Kidner	HORU LSA	1.0 km from RK 263.3
Erich C Ploentzke	Proposed pipeline corridor	RK 271.0 to RK 279.0
Philippe Robert	Proposed pipeline corridor	RK 278.9 to RK 286.1
Robert Allan Kallio	HORU LSA	1.0 km from RK 280.2
Volker H Muller	Proposed pipeline corridor	RK 286.1 to RK 294.9
Edward Poelzer	Proposed pipeline corridor	RK 294.9 to RK 315.9
Fish and Wildlife – Edmonton Office	HORU LSA	0.4 km from RK 309.4
Robert Hunt	HORU LSA	0.9 km from RK 310.6
Daniel Edwin Berry	Proposed pipeline corridor	RK 323.0 to RK 329.1, RK 336.4 to RK 338.8
Lena Ouellet	Proposed pipeline corridor	RK 329.0 to RK 339.0
Clark A Lamb	Proposed pipeline corridor	RK 338.8 to RK 339.4
JASPER NATIONAL PARK REGION		
There are no trapping tenures in proposed pipeline corridor or the HORU LSA in the Jasper Park Region		

Source: IHS Inc. 2012

Note: 1 RKs are approximate.

TABLE B-14

**FISHING OPPORTUNITIES CROSSED BY THE PROPOSED PIPELINE CORRIDOR
 AND HUMAN OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA IN ALBERTA**

Name	Nearest RK	Description
EDMONTON REGION		
Blackmud Creek	RK 24.2	<ul style="list-style-type: none"> Fishing opportunities for pike, walleye and goldeye
Whitemud Creek	RK 28.1	<ul style="list-style-type: none"> Some fishing opportunities for pike
North Saskatchewan River	RK 33.5	<ul style="list-style-type: none"> Fishing opportunities for brown trout, burbot, goldeye, pike, rocky mountain whitefish, sturgeon, sauger and walleye. Can be a difficult river for fishing. Large pike, sturgeon and walleye have been caught in the past.
Hubbles Lake	0.6 km from RK 72.7	<ul style="list-style-type: none"> Good fishing opportunities for pike and perch.
Wabamun Lake	0.4 km from RK 113.1	<ul style="list-style-type: none"> Popular recreational lake. Good fishing opportunities for large pike, whitefish and perch.
Isle Lake	0.9 km from RK 5.1	<ul style="list-style-type: none"> Fishing opportunities for pike, walleye and perch.
RURAL ALBERTA REGION		
Pembina River	RK 135.5	<ul style="list-style-type: none"> Good fishing opportunities for burbot, rocky mountain whitefish, bull trout, perch and walleye. Popular for grayling and brook trout fishing.
Little Brule Creek	RK 173.7	<ul style="list-style-type: none"> Fishing opportunities for grayling and pike fishing.
Lobstick River	RK 185.4	<ul style="list-style-type: none"> Good fishing opportunities for northern pike and grayling. Popular for burbot fishing.
Carrot Creek	RK 193.1	<ul style="list-style-type: none"> Good fishing opportunities for rainbow trout and grayling.
Wolf Creek	RK 220.4	<ul style="list-style-type: none"> Fishing opportunities for rainbow trout, rocky mountain whitefish and grayling near Wolf Lake, and pike and walleye near McLeod River.
McLeod River	RK 223.9	<ul style="list-style-type: none"> Good fishing opportunities for grayling, brook trout, bull trout, burbot, finescale dace, goldeye, lake chub, longnose dace, longnose sucker, mountain whitefish, pike, rainbow trout, spoonhead culpin, spottail shiner, perch, walleye, white sucker and perch.
Bench Creek	RK 227.5, RK 236.6	<ul style="list-style-type: none"> Fishing opportunities for stocked brown trout.
Little Sundance Creek	RK 245.2	<ul style="list-style-type: none"> Fishing opportunities for rainbow trout, brook trout and some grayling.
Sundance Creek	RK 248.0	<ul style="list-style-type: none"> Popular location for rocky mountain whitefish. Fishing opportunities for rainbow trout, bull trout, brown trout and grayling.
Ponoka Creek	RK 295.2	<ul style="list-style-type: none"> Some fishing opportunities for rainbow trout and brook trout.
Roundcroft Creek	RK 298.6	<ul style="list-style-type: none"> Some fishing opportunities for small brook trout.

Source: Backroad Mapbooks 2011

TABLE B-15

MANAGEMENT UNITS WITH HUNTING AND TRAPPING SEASONS CROSSED BY THE PROPOSED PIPELINE CORRIDOR AND HUMAN OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA IN BC

MU	Hunting Seasons	Trapping Seasons	RK
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION			
7-2	<ul style="list-style-type: none"> mule deer (4 point bucks) – November 21 to November 30 mule deer (bucks) – September 10 to November 20, (bow-only) September 1 to September 9 white-tailed deer (bucks) – September 10 to November 30 moose (spike-fork bulls) – September 10 to November 5, (bow only) September 1 to September 9 moose (claves) – October 10 to October 25 Elk (6 point bulls) – September 10 to October 9 – (bow only) September 1 to September 9 black bear – August 15 to November 15 wolf – August 1 to June 15 coyote – September 1 to March 31 cougar – September 10 to March 31 lynx – November 1 to February 15 snowshoe hare – August 1 to April 30 Columbian ground squirrel – no closed season dusky, ruffed and spruce grouse – September 1 to November 15 ptarmigan – August 15 to February 28 coots, common snipe, ducks, geese (snow, Ross's and white-fronted) – September 1 to September 13, September 16 to November 30 geese (Canada, white-fronted and cackling) – September 1 to September 13, September 16 to November 30 	<ul style="list-style-type: none"> Beaver – October 1 to May 31 Black bear – September 15 to May 31 Coyote – October 15 to March 31, (no closed season below 1,100 m elevation) Fisher – November 1 to February 15 Fox – October 15 to February 28 Marten – November 1 to February 28 Minx – November 1 to February 15 Muskrat – October 1 to May 31 Raccoon – October 1 to March 31 River otter – October 1 to May 31 Skunk – October 15 to February 28 Squirrel – November 1 to March 30 Weasel – November 1 to February 28 Wolverine – November 1 to February 28 Wolf – October 15 to May 31 	RK 489.6 to RK 548.2
7-3	<ul style="list-style-type: none"> mule deer (4 point bucks) – November 21 to November 30 mule deer (bucks) – September 10 to November 20, (bow-only) September 1 to September 9 white-tailed deer (bucks) – September 10 to November 30 moose (spike-fork bulls) – September 10 to November 5, (bow only) September 1 to September 9 moose (claves) – October 10 to October 25 Elk (6 point bulls) – September 10 to October 9 – (bow only) September 1 to September 9 black bear – August 15 to November 15 wolf – August 1 to June 15 coyote – September 1 to March 31 cougar – September 10 to March 31 lynx – November 1 to February 15 snowshoe hare – August 1 to April 30 Columbian ground squirrel – no closed season dusky, ruffed and spruce grouse – September 1 to November 15 ptarmigan – August 15 to February 28 coots, common snipe, ducks, geese (snow, Ross's and white-fronted) – September 1 to September 13, September 16 to November 30 geese (Canada, white-fronted and cackling) – September 1 to September 13, September 16 to November 30 	<ul style="list-style-type: none"> Beaver – October 1 to May 31 Black bear – September 15 to May 31 Coyote – October 15 to March 31, (no closed season below 1,100 m elevation) Fisher – November 1 to February 15 Fox – October 15 to February 28 Marten – November 1 to February 28 Minx – November 1 to February 15 Muskrat – October 1 to may 31 Raccoon – October 1 to March 31 River otter – October 1 to May 31 Skunk – October 15 to February 28 Squirrel – November 1 to March 30 Weasel – November 1 to February 28 Wolverine – November 1 to February 28 Wolf – October 15 to May 31 	RK 495.0 to RK 495.6 and RK 496.5 to RK 499.7

TABLE B-15 Cont'd

MU	Hunting Seasons	Trapping Seasons	RK
7-4	<ul style="list-style-type: none"> • mule deer (4 point bucks) – November 21 to November 30 • mule deer (bucks) – September 10 to November 20, (bow-only) September 1 to September 9 • white-tailed deer (bucks) – September 10 to November 30 • moose (spike-fork bulls) – September 10 to November 5, (bow only) September 1 to September 9 • moose (claves) – October 10 to October 25 • Elk (6 point bulls) – September 10 to October 9 – (bow only) September 1 to September 9 • black bear – August 15 to November 15 • wolf – August 1 to June 15 • coyote – September 1 to March 31 • cougar – September 10 to March 31 • lynx – November 1 to February 15 • snowshoe hare – August 1 to April 30 • Columbian ground squirrel – no closed season • dusky, ruffed and spruce grouse – September 1 to November 15 • ptarmigan – August 15 to February 28 • coots, common snipe, ducks, geese (snow, Ross's and white-fronted) – September 1 to September 13, September 16 to November 30 • geese (Canada, white-fronted and cackling) – September 1 to September 13, September 16 to November 30 	<ul style="list-style-type: none"> • Beaver – October 1 to May 31 • Black bear – September 15 to May 31 • Coyote – October 15 to March 31, (no closed season below 1,100 m elevation) • Fisher – November 1 to February 15 • Fox – October 15 to February 28 • Marten – November 1 to February 28 • Minx – November 1 to February 15 • Muskrat – October 1 to May 31 • Raccoon – October 1 to March 31 • River otter – October 1 to May 31 • Skunk – October 15 to February 28 • Squirrel – November 1 to March 30 • Weasel – November 1 to February 28 • Wolverine – November 1 to February 28 • Wolf – October 15 to May 31 	RK 523.7 to RK 524.0
3-43	<ul style="list-style-type: none"> • Mule deer (4 point buck) - September 10 to September 30, November 1 to December 10 • Mule deer (bucks) - October 1 to October 31, (bow only) September 1 to September 9 • White-tailed deer (bucks) – September 10 to December 10, (bow only) September 1 to September 9 • White-tailed deer (antlerless) - October 10 to October 31 • Moose (spike-fork Bulls) September 20 to October 31 • Black bears - September 1 to November 30, April 1 to June 30 • Wolf - August 1 to June 15 • Coyote - September 1 to March 31 • Cougar – September 10 to March 31 • Bobcat - November 15 to February 15 • Lynx - November 15 to February 15 • Raccoon - No Closed Season • Snowshoe hare - August 1 to April 30 • Columbian ground squirrel - No Closed Season • Grouse (dusky, ruffed and spruce) September 10 to November 30 • Ptarmigan - September 1 to November 30 • Partridge (chukar and gray) - October 1 to November 30 • Pheasant - October 1 to November 30 • Mourning doves - September 1 to September 30 • Coots and common snipe - September 10 to December 23 • Ducks - September 10 to December 23 • Geese (snow, ross's and white-fronted) - September 10 to December 23 • Geese (Canada and cackling) - September 10 to September 20, October 1 to December 23, March 1 to March 10 	<ul style="list-style-type: none"> • Beaver – October 15 to April 30 • Black bear – October 1 to May 31 • Bobcat – November 15 to February 15 • Coyote – October 15 to March 31 • Fisher – November 1 to February 15 • Fox – October 15 to February 28 • Lynx - November 15 to February 15 • Marten – November 1 to February 15 • Mink – November 1 to February 15 • Muskrat - October 15 to April 30 • Raccoon – October 1 to March 31 • River otter – October 15 to April 30 • Skunk – October 15 to February 28 • Squirrel – November 1 to March 15 • Weasel – November 1 to February 15 • Wolverine – November 1 to January 31 • Wolf – October 15 to March 31 	RK 548.1 to RK 548.7, RK 552.3 to RK 561.6 and RK 563.6 to RK 580.9

TABLE B-15 Cont'd

MU	Hunting Seasons	Trapping Seasons	RK
3-44	<ul style="list-style-type: none"> • Mule deer (4 point buck) - September 10 to September 30, November 1 to December 10 • Mule deer (bucks) - October 1 to October 31, (bow only) September 1 to September 9 • White-tailed deer (bucks) – September 10 to December 10, (bow only) September 1 to September 9 • White-tailed deer (antlerless) - October 10 to October 31 • Moose (spike-fork Bulls) September 20 to October 31 • Black bears - September 1 to November 30, April 1 to June 30 • Wolf - August 1 to June 15 • Coyote - September 1 to March 31 • Cougar – September 10 to March 31 • Bobcat - November 15 to February 15 • Lynx - November 15 to February 15 • Raccoon - No Closed Season • Snowshoe hare - August 1 to April 30 • Columbian ground squirrel - No Closed Season • Grouse (dusky, ruffed and spruce)September 10 to November 30 • Ptarmigan - September 1 to November 30 • Partridge (chukar and gray) - October 1 to November 30 • Pheasant - October 1 to November 30 • Mourning doves - September 1 to September 30 • Coots and common snipe - September 10 to December 23 • Ducks - September 10 to December 23 • Geese (snow, ross's and white-fronted) - September 10 to December 23 • Geese (Canada and cackling) - September 10 to September 20, October 1 to December 23, March 1 to March 10 	<ul style="list-style-type: none"> • Beaver – October 15 to April 30 • Black bear – October 1 to May 31 • Bobcat – November 15 to February 15 • Coyote – October 15 to March 31 • Fisher – November 1 to February 15 • Fox – October 15 to February 28 • Lynx - November 15 to February 15 • Marten – November 1 to February 15 • Mink – November 1 to February 15 • Muskrat - October 15 to April 30 • Raccoon – October 1 to March 31 • River otter – October 15 to April 30 • Skunk – October 15 to February 28 • Squirrel – November 1 to March 15 • Weasel – November 1 to February 15 • Wolverine – November 1 to January 31 • Wolf – October 15 to March 31 	RK 548.3 to RK 552.6, RK 553.7 to RK 554.1, RK 556.2 to RK 556.9, RK 560.9 to RK 563.8, RK 577.7 to RK 577.7 and RK 580.7 to RK 613.8
3-40	<ul style="list-style-type: none"> • Mule deer (4 point buck) - September 10 to September 30, November 1 to December 10 • Mule deer (bucks) - October 1 to October 31, (bow only) September 1 to September 9 • White-tailed deer (bucks) – September 10 to December 10, (bow only) September 1 to September 9 • White-tailed deer (antlerless) - October 10 to October 31 • Moose (spike-fork Bulls) September 20 to October 31 • Black bears - September 1 to November 30, April 1 to June 30 • Wolf - August 1 to June 15 • Coyote - September 1 to March 31 • Cougar – September 10 to March 31 • Bobcat - November 15 to February 15 • Lynx - November 15 to February 15 • Raccoon - No Closed Season • Snowshoe hare - August 1 to April 30 • Columbian ground squirrel - No Closed Season • Grouse (dusky, ruffed and spruce)September 10 to November 30 • Ptarmigan - September 1 to November 30 • Partridge (chukar and gray) - October 1 to November 30 • Pheasant - October 1 to November 30 • Mourning doves - September 1 to September 30 • Coots and common snipe - September 10 to December 23 • Ducks - September 10 to December 23 • Geese (snow, ross's and white-fronted) - September 10 to December 23 • Geese (Canada and cackling) - September 10 to September 20, October 1 to December 23, March 1 to March 10 	<ul style="list-style-type: none"> • Beaver – October 15 to April 30 • Black bear – October 1 to May 31 • Bobcat – November 15 to February 15 • Coyote – October 15 to March 31 • Fisher – November 1 to February 15 • Fox – October 15 to February 28 • Lynx - November 15 to February 15 • Marten – November 1 to February 15 • Mink – November 1 to February 15 • Muskrat - October 15 to April 30 • Raccoon – October 1 to March 31 • River otter – October 15 to April 30 • Skunk – October 15 to February 28 • Squirrel – November 1 to March 15 • Weasel – November 1 to February 15 • Wolverine – November 1 to January 31 • Wolf – October 15 to March 31 	RK 613.8 to RK 621.7, RK 622.3 to RK 623.8, RK 624.7 to RK 626.9, RK 643.0 to RK 643.7, RK 651.1 to RK 715.5 and RK 715.6 to RK 725.5

TABLE B-15 Cont'd

MU	Hunting Seasons	Trapping Seasons	RK
3-41	<ul style="list-style-type: none"> • Mule deer (4 point buck) - September 10 to September 30, November 1 to December 10 • Mule deer (bucks) - October 1 to October 31, (bow only) September 1 to September 9 • White-tailed deer (bucks) – September 10 to December 10, (bow only) September 1 to September 9 • White-tailed deer (antlerless) - October 10 to October 31 • Moose (spike-fork Bulls) September 20 to October 31 • Black bears - September 1 to November 30, April 1 to June 30 • Wolf - August 1 to June 15 • Coyote - September 1 to March 31 • Cougar – September 10 to March 31 • Bobcat - November 15 to February 15 • Lynx - November 15 to February 15 • Raccoon - No Closed Season • Snowshoe hare - August 1 to April 30 • Columbian ground squirrel - No Closed Season • Grouse (dusky, ruffed and spruce)September 10 to November 30 • Ptarmigan - September 1 to November 30 • Partridge (chukar and gray) - October 1 to November 30 • Pheasant - October 1 to November 30 • Mourning doves - September 1 to September 30 • Coots and common snipe - September 10 to December 23 • Ducks - September 10 to December 23 • Geese (snow, ross's and white-fronted) - September 10 to December 23 • Geese (Canada and cackling) - September 10 to September 20, October 1 to December 23, March 1 to March 10 	<ul style="list-style-type: none"> • Beaver – October 15 to April 30 • Black bear – October 1 to May 31 • Bobcat – November 15 to February 15 • Coyote – October 15 to March 31 • Fisher – November 1 to February 15 • Fox – October 15 to February 28 • Lynx - November 15 to February 15 • Marten – November 1 to February 15 • Mink – November 1 to February 15 • Muskrat - October 15 to April 30 • Raccoon – October 1 to March 31 • River otter – October 15 to April 30 • Skunk – October 15 to February 28 • Squirrel – November 1 to March 15 • Weasel – November 1 to February 15 • Wolverine – November 1 to January 31 • Wolf – October 15 to March 31 	RK 619.9 to RK 625.5, RK 625.6 to RK 651.5, RK 675.0 to RK 675.1, RK 677.9 to RK 678.5, RK 680.7 to RK 681.0, RK 682.2 to RK 683.5, RK 708.4 to RK 709.1, RK 709.2 to RK 710.1 and RK 715.3 to RK 715.7
3-39	<ul style="list-style-type: none"> • Mule deer (4 point buck) - September 10 to September 30, November 1 to December 10 • Mule deer (bucks) - October 1 to October 31, (bow only) September 1 to September 9 • White-tailed deer (bucks) – September 10 to December 10, (bow only) September 1 to September 9 • White-tailed deer (antlerless) - October 10 to October 31 • Moose (spike-fork Bulls) September 20 to October 31 • Black bears - September 1 to November 30, April 1 to June 30 • Wolf - August 1 to June 15 • Coyote - September 1 to March 31 • Cougar – September 10 to March 31 • Bobcat - November 15 to February 15 • Lynx - November 15 to February 15 • Raccoon - No Closed Season • Snowshoe hare - August 1 to April 30 • Columbian ground squirrel - No Closed Season • Grouse (dusky, ruffed and spruce)September 10 to November 30 • Ptarmigan - September 1 to November 30 • Partridge (chukar and gray) - October 1 to November 30 • Pheasant - October 1 to November 30 • Mourning doves - September 1 to September 30 • Coots and common snipe - September 10 to December 23 • Ducks - September 10 to December 23 • Geese (snow, ross's and white-fronted) - September 10 to December 23 • Geese (Canada and cackling) - September 10 to September 20, October 1 to December 23, March 1 to March 10 	<ul style="list-style-type: none"> • Beaver – October 15 to April 30 • Black bear – October 1 to May 31 • Bobcat – November 15 to February 15 • Coyote – October 15 to March 31 • Fisher – November 1 to February 15 • Fox – October 15 to February 28 • Lynx - November 15 to February 15 • Marten – November 1 to February 15 • Mink – November 1 to February 15 • Muskrat - October 15 to April 30 • Raccoon – October 1 to march 31 • River otter – October 15 to April 30 • Skunk – October 15 to February 28 • Squirrel – November 1 to March 15 • Weasel – November 1 to February 15 • Wolverine – November 1 to January 31 • Wolf – October 15 to March 31 	RK 725.3 to RK 752.4

TABLE B-15 Cont'd

MU	Hunting Seasons	Trapping Seasons	RK
3-28	<ul style="list-style-type: none"> • mule deer (4 point bucks) – September 10 to September 30, November 1 to December 10 • mule deer (bucks) – October 1 to October 31, Bow only September 1 to September 9 • white-tailed deer (bucks) – September 10 to December 10, Bow only September 1 to September 9 • moose (spike-fork bulls) – October 15 to November 15 • black bear – September 1 to November 30, April 1 to June 15 • wolf – September 10 to June 15 • coyote – September 1 to March 31 • cougar – November 15 to March 31 • bobcat – November 15 to February 15 • lynx – November 15 to February 15 • raccoon – no closed season • snowshoe hare – August 1 to April 30 • columbian ground squirrel – no closed season • dusky, ruffed and spruce grouse – September 10 to November 30 • ptarmigan – September 1 to November 30 • chukar partridge – October 1 to November 30 • gray partridge – October 1 to November 30 • pheasant – October 1 to November 30 • mourning doves – September 1 to September 30 • coots, common snipe, ducks, geese (snow, Ross's and white-fronted) – September 10 to December 23 • geese (Canada and cackling) – September 10 to September 20, October 1 to December 23, March 1 to March 10 	<ul style="list-style-type: none"> • beaver – October 1 to April 30 • black bear – October 1 to May 31 • bobcat – November 15 to February 15 • coyote – October 15 to March 31 • fisher – November 1 to February 15 • fox – October 15 to February 28 • lynx – November 15 to February 15 • marten – November 1 to February 15 • mink – November 1 to February 15 • muskrat – October 15 to April 30 • raccoon – October 1 to March 31 • river otter – October 15 to April 30 • skunk – October 15 to February 28 • squirrel – November 1 to March 15 • weasel – November 1 to February 15 • wolverine – November 1 to January 31 • wolf – October 15 to March 31 	RK 751.4 to RK 769.0 and RK 811.9 to RK 841.9
3-29	<ul style="list-style-type: none"> • mule deer (4 point bucks) – September 10 to September 30, November 1 to December 10 • mule deer (bucks) – October 1 to October 31, Bow only September 1 to September 9 • white-tailed deer (bucks) – September 10 to December 10, Bow only September 1 to September 9 • moose (spike-fork bulls) – October 15 to November 15 • black bear – September 1 to November 30, April 1 to June 15 • wolf – September 10 to June 15 • coyote – September 1 to March 31 • cougar – November 15 to March 31 • bobcat – November 15 to February 15 • lynx – November 15 to February 15 • raccoon – no closed season • snowshoe hare – August 1 to April 30 • columbian ground squirrel – no closed season • dusky, ruffed and spruce grouse – September 10 to November 30 • ptarmigan – September 1 to November 30 • chukar partridge – October 1 to November 30 • gray partridge – October 1 to November 30 • pheasant – October 1 to November 30 • mourning doves – September 1 to September 30 • coots, common snipe, ducks, geese (snow, Ross's and white-fronted) – September 10 to December 23 • geese (Canada and cackling) – September 10 to September 20, October 1 to December 23, March 1 to March 10 	<ul style="list-style-type: none"> • beaver – October 1 to April 30 • black bear – October 1 to May 31 • bobcat – November 15 to February 15 • coyote – October 15 to March 31 • fisher – November 1 to February 15 • fox – October 15 to February 28 • lynx – November 15 to February 15 • marten – November 1 to February 15 • mink – November 1 to February 15 • muskrat – October 15 to April 30 • raccoon – October 1 to March 31 • river otter – October 15 to April 30 • skunk – October 15 to February 28 • squirrel – November 1 to March 15 • weasel – November 1 to February 15 • wolverine – November 1 to January 31 • wolf – October 15 to March 31 	RK 841.8 to RK 847.1

TABLE B-15 Cont'd

MU	Hunting Seasons	Trapping Seasons	RK
3-19	<ul style="list-style-type: none"> • mule deer (4 point bucks) – September 10 to September 30, November 1 to December 10 • mule deer (bucks) – October 1 to October 31, Bow only September 1 to September 9 • white-tailed deer (bucks) – September 10 to December 10, Bow only September 1 to September 9 • white-tailed deer (antlerless) – October 10 to October 31 • moose (spike-fork bulls) – October 15 to November 15 • black bear – September 1 to November 30, April 1 to June 15 • wolf – September 10 to June 15 • coyote – September 1 to March 31 • cougar – November 15 to March 31 • bobcat – November 15 to February 15 • lynx – November 15 to February 15 • raccoon – no closed season • snowshoe hare – August 1 to April 30 • columbian ground squirrel – no closed season • dusky, ruffed and spruce grouse – September 10 to November 30 • ptarmigan – September 1 to November 30 • chukar partridge – October 1 to November 30 • gray partridge – October 1 to November 30 • pheasant – October 1 to November 30 • mourning doves – September 1 to September 30 • coots, common snipe, ducks, geese (snow, Ross's and white-fronted) – September 10 to December 23 • geese (Canada and cackling) – September 10 to September 20, October 1 to December 23, March 1 to March 10 	<ul style="list-style-type: none"> • beaver – October 1 to April 30 • black bear – October 1 to May 31 • bobcat – November 15 to February 15 • coyote – October 15 to March 31; • fox – October 15 to February 28 • lynx – November 15 to February 15 • marten – November 1 to February 15 • mink – November 1 to February 15 • muskrat – October 15 to April 30 • raccoon – October 1 to March 31 • river otter – October 15 to April 30 • skunk – October 15 to February 28 • squirrel – November 1 to March 15 • weasel – November 1 to February 15 • wolverine – November 1 to January 31 • wolf – October 15 to March 31 	RK 847.1 to RK 926.6
3-12	<ul style="list-style-type: none"> • mule deer (4 point bucks) – September 10 to September 30, November 1 to December 10 • mule deer (bucks) – October 1 to October 31, Bow only September 1 to September 9 • white-tailed deer (bucks) – September 10 to December 10, Bow only September 1 to September 9 • moose (spike-fork bulls) – October 15 to November 15 • black bear – September 1 to November 30, April 1 to June 15 • wolf – September 10 to June 15 • coyote – September 1 to March 31 • cougar – November 15 to March 31 • bobcat – November 15 to February 15 • lynx – November 15 to February 15 • raccoon – no closed season • snowshoe hare – August 1 to April 30 • columbian ground squirrel – no closed season • dusky, ruffed and spruce grouse – September 10 to November 30 • ptarmigan – September 1 to November 30 • chukar partridge – October 1 to November 30 • gray partridge – October 1 to November 30 • pheasant – October 1 to November 30 • mourning doves – September 1 to September 30 • coots, common snipe, ducks, geese (snow, Ross's and white-fronted) – September 10 to December 23 • geese (Canada and cackling) – September 10 to September 20, October 1 to December 23, March 1 to March 10 	<ul style="list-style-type: none"> • beaver – October 1 to April 30 • black bear – October 1 to May 31 • bobcat – November 15 to February 15 • coyote – October 15 to March 31 • fox – October 15 to February 28 • lynx – November 15 to February 15 • marten – November 1 to February 15 • mink – November 1 to February 15 • muskrat – October 15 to April 30 • raccoon – October 1 to March 31 • river otter – October 15 to April 30 • skunk – October 15 to February 28 • squirrel – November 1 to March 15 • weasel – November 1 to February 15 • wolverine – November 1 to January 31 • wolf – October 15 to March 31 	RK 926.5 to RK 930.5

TABLE B-15 Cont'd

MU	Hunting Seasons	Trapping Seasons	RK
3-13	<ul style="list-style-type: none"> • mule deer (4 point bucks) – September 10 to September 30, November 1 to December 10 • mule deer (bucks) – October 1 to October 31, Bow only September 1 to September 9 • white-tailed deer (bucks) – September 10 to December 10, Bow only September 1 to September 9 • white-tailed deer (antlerless) – October 10 to October 31 • moose (spike-fork bulls) – October 15 to November 15 • black bear – September 1 to November 30, April 1 to June 15 • wolf – September 10 to June 15 • coyote – September 1 to March 31 • cougar – November 15 to March 31 • bobcat – November 15 to February 15 • lynx – November 15 to February 15 • raccoon – no closed season • snowshoe hare – August 1 to April 30 • columbian ground squirrel – no closed season • dusky, ruffed and spruce grouse – September 10 to November 30 • ptarmigan – September 1 to November 30 • chukar partridge – October 1 to November 30 • gray partridge – October 1 to November 30 • pheasant – October 1 to November 30 • mourning doves – September 1 to September 30 • band-tailed pigeons – September 15 to September 30 • coots, common snipe, ducks, geese (snow, Ross's and white-fronted) – September 10 to December 23 • geese (Canada and cackling) – September 10 to September 20, October 1 to December 23, March 1 to March 10 	<ul style="list-style-type: none"> • beaver – October 1 to April 30 • black bear – October 1 to May 31 • bobcat – November 15 to February 15 • coyote – October 15 to March 31 • fox – October 15 to February 28 • lynx – November 15 to February 15 • marten – November 1 to February 15 • mink – November 1 to February 15 • muskrat – October 15 to April 30 • raccoon – October 1 to March 31 • river otter – October 15 to April 30 • skunk – October 15 to February 28 • squirrel – November 1 to March 15 • weasel – November 1 to February 15 • wolverine – November 1 to January 31 • wolf – October 15 to March 31 	RK 930.5 to RK 991.3
3-14	<ul style="list-style-type: none"> • mule deer (4 point bucks) – September 10 to September 30, November 1 to December 10 • mule deer (bucks) – October 1 to October 31, Bow only September 1 to September 9 • white-tailed deer (bucks) – September 10 to December 10, Bow only September 1 to September 9 • white-tailed deer (antlerless) – October 10 to October 31 • moose (spike-fork bulls) – October 15 to November 15 • black bear – September 1 to November 30, April 1 to June 15 • wolf – September 10 to June 15 • coyote – September 1 to March 31 • cougar – November 15 to March 31 • bobcat – November 15 to February 15 • lynx – November 15 to February 15 • raccoon – no closed season • snowshoe hare – August 1 to April 30 • columbian ground squirrel – no closed season • dusky, ruffed and spruce grouse – September 10 to November 30 • ptarmigan – September 1 to November 30 • chukar partridge – October 1 to November 30 • gray partridge – October 1 to November 30 • pheasant – October 1 to November 30 • mourning doves – September 1 to September 30 • band-tailed pigeons – September 15 to September 30 	<ul style="list-style-type: none"> • beaver – October 1 to April 30 • black bear – October 1 to May 31 • bobcat – November 15 to February 15 • coyote – October 15 to March 31 • fox – October 15 to February 28 • lynx – November 15 to February 15 • marten – November 1 to February 15 • mink – November 1 to February 15 • muskrat – October 15 to April 30 • raccoon – October 1 to March 31 • river otter – October 15 to April 30 • skunk – October 15 to February 28 • squirrel – November 1 to March 15 • weasel – November 1 to February 15 • wolverine – November 1 to January 31 • wolf – October 15 to March 31 	RK 930.5 to RK 991.3

TABLE B-15 Cont'd

MU	Hunting Seasons	Trapping Seasons	RK
3-14 (cont'd)	<ul style="list-style-type: none"> coots, common snipe, ducks, geese (snow, Ross's and white-fronted) – September 10 to December 23 geese (Canada and cackling) – September 10 to September 20, October 1 to December 23, March 1 to March 10 	<ul style="list-style-type: none"> See above 	See above
3-15	<ul style="list-style-type: none"> mule deer (4 point bucks) – September 10 to September 30, November 1 to December 10 mule deer (bucks) – October 1 to October 31, Bow only September 1 to September 9 white-tailed deer (bucks) – September 10 to December 10, Bow only September 1 to September 9 white-tailed deer (antlerless) – October 10 to October 31 moose (spike-fork bulls) – October 15 to November 15 black bear – September 1 to November 30, April 1 to June 15 wolf – September 10 to June 15 coyote – September 1 to March 31 cougar – November 15 to March 31 bobcat – November 15 to February 15 lynx – November 15 to February 15 raccoon – no closed season snowshoe hare – August 1 to April 30 columbian ground squirrel – no closed season dusky, ruffed and spruce grouse – September 10 to November 30 ptarmigan – September 1 to November 30 chukar partridge – October 1 to November 30 gray partridge – October 1 to November 30 pheasant – October 1 to November 30 mourning doves – September 1 to September 30 band-tailed pigeons – September 15 to September 30 coots, common snipe, ducks, geese (snow, Ross's and white-fronted) – September 10 to December 23 geese (Canada and cackling) – September 10 to September 20, October 1 to December 23, March 1 to March 10 	<ul style="list-style-type: none"> beaver – October 1 to April 30 black bear – October 1 to May 31 bobcat – November 15 to February 15 coyote – October 15 to March 31 fox – October 15 to February 28 lynx – November 15 to February 15 marten – November 1 to February 15 mink – November 1 to February 15 muskrat – October 15 to April 30 raccoon – October 1 to March 31 river otter – October 15 to April 30 skunk – October 15 to February 28 squirrel – November 1 to March 15 weasel – November 1 to February 15 wolverine – November 1 to January 31 wolf – October 15 to March 31 	RK 930.5 to RK 991.3
FRASER VALLEY REGION			
2-17	<ul style="list-style-type: none"> mule deer (bucks) – September 10 to December 15, Bow only September 1 to September 9 black bear – September 10 to November 30, April 1 to June 15, Bow only September 1 to September 9 coyote – September 10 to June 15 raccoon, skunk – September 1 to March 31 snowshoe hare – August 1 to April 30 bobcat – November 15 to February 15 cougar – September 10 to March 31, April 1 to June 15 dusky, ruffed and spruce grouse – September 10 to December 15, Bow only September 1 to September 9 ptarmigan – September 10 to December 15, Bow only September 1 to September 9 band-tailed pigeons – September 15 to September 20 coots, common snipe – October 12, 2013 to January 24, 2014 ducks – October 12, 2013 to January 24, 2014 snow and Ross's geese – October 12, 2013 to January 5, 2014 and February 20, 2014 to March 10, 2014 white-fronted geese – October 12, 2013 to January 24, 2013 Canada and cackling geese – September 7, 2013 to September 15, 2013, October 12, 2013 to November 24, 2013, December 21, 2013 to January 12, 2014 and February 10, 2014 to March 10, 2014 	<ul style="list-style-type: none"> beaver – October 1 to April 30 bobcat – November 15 to February 15 coyote – September 10 to June 15 fox – October 15 to February 28 marten – November 1 to February 15 mink – November 15 to February 15 muskrat – November 15 to February 15 raccoon – October 1 to March 31 river otter – October 15 to April 30 skunk – October 15 to February 28 squirrel – November 1 to March 15 weasel – November 1 to February 15 	RK 991.3 to RK 1044.7

TABLE B-15 Cont'd

MU	Hunting Seasons	Trapping Seasons	RK
2-2	<ul style="list-style-type: none"> • mule deer (bucks) – September 10 to December 15, Bow only September 1 to September 9 • black bear – September 10 to November 30, April 1 to June 15, Bow only September 1 to September 9 • coyote – September 10 to June 15 • raccoon, skunk – September 1 to March 31 • bobcat – November 15 to February 15 • cougar – September 10 to March 31, April 1 to June 15 • dusky, ruffed and spruce grouse – September 10 to December 15, Bow only September 1 to September 9 • ptarmigan – September 10 to December 15, Bow only September 1 to September 9 • band-tailed pigeons – September 15 to September 20 • coots, common snipe – October 12, 2013 to January 24, 2014 • ducks – October 12, 2013 to January 24, 2014 • snow and Ross's geese – October 12, 2013 to January 5, 2014 and February 20, 2014 to March 10, 2014 • white-fronted geese – October 12, 2013 to January 24, 2013 • Canada and cackling geese – September 7, 2013 to September 15, 2013, October 12, 2013 to November 24, 2013, December 21, 2013 to January 12, 2014 and February 10, 2014 to March 10, 2014 	<ul style="list-style-type: none"> • beaver – October 1 to April 30 • bobcat – November 15 to February 15 • coyote – September 10 to June 15 • fox – October 15 to February 28 • marten – November 1 to February 15 • mink – November 15 to February 15 • muskrat – November 15 to February 15 • raccoon – October 1 to March 31 • river otter – November 15 to February 28 • skunk – October 15 to February 28 • squirrel – November 1 to March 15 • weasel – November 1 to February 15 	RK 1044.7 to RK 1049.8
2-3	<ul style="list-style-type: none"> • mule deer (bucks) – September 10 to December 15, Bow only September 1 to September 9 • black bear – September 10 to November 30, April 1 to June 15, Bow only September 1 to September 9 • coyote – September 10 to June 15 • raccoon, skunk – September 1 to March 31 • bobcat – November 15 to February 15 • cougar – September 10 to March 31, April 1 to June 15 • dusky, ruffed and spruce grouse – September 10 to December 15, Bow only September 1 to September 9 • ptarmigan – September 10 to December 15, Bow only September 1 to September 9 • band-tailed pigeons – September 15 to September 20 • coots, common snipe – October 12, 2013 to January 24, 2014 • ducks – October 12, 2013 to January 24, 2014 • snow and Ross's geese – October 12, 2013 to January 5, 2014 and February 20, 2014 to March 10, 2014 • white-fronted geese – October 12, 2013 to January 24, 2013 • Canada and cackling geese – September 7, 2013 to September 15, 2013, October 12, 2013 to November 24, 2013, December 21, 2013 to January 12, 2014 and February 10, 2014 to March 10, 2014 	<ul style="list-style-type: none"> • beaver – October 1 to April 30 • bobcat – November 15 to February 15 • coyote – September 10 to June 15 • fox – October 15 to February 28 • marten – November 1 to February 15 • mink – November 15 to February 15 • muskrat – November 15 to February 15 • raccoon – October 1 to March 31 • river otter – November 15 to February 28 • skunk – October 15 to February 28 • squirrel – November 1 to March 15 • weasel – November 1 to February 15 (no open season on long-tailed weasel) 	RK 1049.8 to RK 1081 and RK 1103.3 to RK 1103.9

TABLE B-15 Cont'd

MU	Hunting Seasons	Trapping Seasons	RK
2-4	<ul style="list-style-type: none"> mule deer (bucks) – September 10 to December 15, Bow only September 1 to September 9 black bear – September 10 to November 30, April 1 to June 15, Bow only September 1 to September 9 coyote – September 10 to June 15 raccoon, skunk – September 1 to March 31 bobcat – November 15 to February 15 cougar – September 10 to March 31, April 1 to June 15 dusky, ruffed and spruce grouse – September 10 to December 15, Bow only September 1 to September 9 band-tailed pigeons – September 15 to September 20 coots, common snipe – October 12, 2013 to January 24, 2014 ducks – October 12, 2013 to January 24, 2014 snow and Ross's geese – October 12, 2013 to January 5, 2014 and February 20, 2014 to March 10, 2014 white-fronted geese – October 12, 2013 to January 24, 2013 Canada and cackling geese – September 7, 2013 to September 15, 2013, October 12, 2013 to November 24, 2013, December 21, 2013 to January 12, 2014 and February 10, 2014 to March 10, 2014 	<ul style="list-style-type: none"> beaver – October 1 to April 30 bobcat – November 15 to February 15 coyote – September 10 to June 15 fox – October 15 to February 28 marten – November 1 to February 15 mink – November 15 to February 15 muskrat – November 15 to February 15 raccoon – October 1 to March 31 river otter – November 15 to February 28 skunk – October 15 to February 28 squirrel – November 1 to March 15 weasel – November 1 to February 15 (no open season on long-tailed weasel) 	RK 1080.9 to RK 1103.4 and RK 1103.8 to RK 1137.4
METRO VANCOUVER REGION			
2-4	<ul style="list-style-type: none"> see above 	<ul style="list-style-type: none"> see above 	RK 1137.4 to RK 1169.1
2-8	<ul style="list-style-type: none"> mule deer (bucks) – September 10 to December 15, Bow only September 1 to September 9 black bear – September 10 to November 30, April 1 to June 15, Bow only September 1 to September 9 coyote – September 10 to June 15 raccoon, skunk – September 1 to March 31 snowshoe hare – August 1 to April 30 bobcat – November 15 to February 15 cougar – September 10 to March 31, April 1 to June 15 dusky, ruffed and spruce grouse – September 10 to December 15, Bow only September 1 to September 9 ptarmigan – September 10 to December 15, Bow only September 1 to September 9 band-tailed pigeons – September 15 to September 20 coots, common snipe – October 12, 2013 to January 24, 2014 ducks – October 12, 2013 to January 24, 2014 snow and Ross's geese – October 12, 2013 to January 5, 2014 and February 20, 2014 to March 10, 2014 white-fronted geese – October 12, 2013 to January 24, 2013 Canada and cackling geese – September 7, 2013 to September 15, 2013, October 12, 2013 to November 24, 2013, December 21, 2013 to January 12, 2014 and February 10, 2014 to March 10, 2014 	<ul style="list-style-type: none"> beaver – October 1 to April 30 bobcat – November 15 to February 15 coyote – September 10 to June 15 fox – October 15 to February 28 marten – November 1 to February 15 mink – November 15 to February 15 muskrat – November 15 to February 15 raccoon – October 1 to March 31 river otter – October 15 to April 30 skunk – October 15 to February 28 squirrel – November 1 to March 15 weasel – November 1 to February 15 	RK 1169.1 to RK 1180.6

Sources: BC MFLNRO 2012c

TABLE B-16

**REGISTERED TRAPPING AREAS CROSSED BY THE PROPOSED PIPELINE
CORRIDOR AND HUMAN OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA IN BC**

Trapping Tenure	Spatial Boundary	Location ¹
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION		
TR0702T006	Proposed pipeline corridor	RK 489.6 to RK 526.8
TR0703T002	HORU LSA	0.2 km from RK 494.3
TR0703T001	Proposed pipeline corridor	RK 498.8 to RK 499.6
TR0702T005	Proposed pipeline corridor	RK 526.7 to RK 548.2
TR0343T001	Proposed pipeline corridor	RK 548.0 to RK 569.4
TR0343T002	Proposed pipeline corridor	RK 569.4 to RK 581.2
TR0344T001	HORU LSA	0.2 km from RK 572.4
TR0344T002	Proposed pipeline corridor	RK 581.1 to RK 604.1
TR0344T003	Proposed pipeline corridor	RK 604.1 to RK 620.0, RK 625.1 to RK 625.2
TR0343T003	Proposed pipeline corridor	RK 619.8 to RK 630.5
TR0342T001	Proposed pipeline corridor	RK 630.4 to RK 669.9, RK 683.3 to RK 685.5
TR0340T004	Proposed pipeline corridor	RK 669.9 to RK 683.4
TR0341T002	HORU LSA	0.2 km from RK 678.7
TR0340T001	proposed pipeline corridor	RK 685.5 to RK 719.7
TR0341T003	HORU LSA	0.2 km from RK 703.5
TR0340T006	proposed pipeline corridor	RK 719.7 to RK 725.6
TR0339T001	proposed pipeline corridor	RK 725.4 to RK 739.4, RK 739.7 to RK 739.7, RK 740.3 to RK 749.3
TR0339T002	proposed pipeline corridor	RK 739.3 to RK 741.9, RK 747.5 to RK 747.6, RK 749.2 to RK 752.1, RK 990.4 to RK 992.3
TR0328T001	proposed pipeline corridor	RK 752.1 to RK 768.5
TR0338T003	HORU LSA	0.5 km from RK 767.1
TR0328T004	proposed pipeline corridor	RK 768.5 to RK 769.0
TR0329T002	proposed pipeline corridor	RK 811.9 to RK 846.8
TR0319T001	proposed pipeline corridor	RK 846.8 to RK 850.5
TR0320T001	proposed pipeline corridor	RK 846.8 to RK 848.8, RK 849.7 to RK 864.4
TR0320T003	proposed pipeline corridor	RK 864.3 to RK 867.8
TR0319T002	proposed pipeline corridor	RK 867.7 to RK 887.2
TR0320T004	proposed pipeline corridor	RK 887.2 to RK 894.7
TR0319T004	proposed pipeline corridor	RK 894.7 to RK 921.4
TR0319T003	proposed pipeline corridor	RK 921.2 to RK 921.9
TR0318T006	proposed pipeline corridor	RK 921.8 to RK 928.1
TR0312T005	proposed pipeline corridor	RK 928.1 to RK 931.1
TR0313T004	proposed pipeline corridor	RK 931.0 to RK 931.7, RK 932.7 to RK 947.2, RK 947.5 to RK 948.0, RK 948.2 to RK 946.8
TR0313T002	proposed pipeline corridor	RK 931.5 to RK 932.8, RK 946.9 to RK 948.7, RK 948.8 to RK 948.8, RK 951.2 to RK 952.8, RK 952.9 to RK 953.5
TR0313T005	proposed pipeline corridor	RK 955.8 to RK 956.0, RK 956.8 to RK 980.2
TR0313T003	proposed pipeline corridor	RK 980.1 to RK 990.9
FRASER VALLEY REGION		
TR0202T008	proposed pipeline corridor	RK 999.5 to RK 1035.5
TR0202T007	proposed pipeline corridor	RK 1035.3 to RK 1043.2
TR0202T006	HORU LSA	0.8 km from RK 1043.7
TR0202T005	proposed pipeline corridor	RK 1045.2 to RK 1050.0
TR0210T018	HORU LSA	0.9 km from RK 1046.9
TR0203T005	proposed pipeline corridor	RK 1050.0 to RK 1070.2
TR0203T004	proposed pipeline corridor	RK 1070.2 to RK 1083.2
TR0203T001	HORU LSA	1.0 km from RK 1105.2
METRO VANCOUVER REGION		
There are no trapping tenures in the proposed pipeline corridor or the HORU LSA in the Metro Vancouver Region		

Source: IHS Inc. 2012

Note: 1 RKs are approximate.

TABLE B-17

**GUIDE OUTFITTERS OPERATING IN THE CORRIDOR AND
HUMAN OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA IN BC**

Resource Management Region	Spatial Boundary	Tenure Holder	RK
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION			
Omineca	Proposed pipeline corridor	Colin Niemeyer	RK 489.7 to RK 526.9, RK 531.3 to RK 549.1
FRASER VALLEY REGION			
Okanagan	Proposed pipeline corridor	David Wabnegger	RK 991.4 to RK 1049.7
Lower Mainland	Proposed pipeline corridor	Hai Peng Yang	RK 1051.6 to RK 1052.6, RK 1054.4 to RK 1054.6, RK 1062.6 to RK 1063.1, RK 1067.1 to RK 1067.1, RK 1067.2 to RK 1067.7, RK 1067.9 to RK 1068.2
METRO VANCOUVER REGION			
There are no guide outfitter tenures in the proposed pipeline corridor or the HORU LSA in the Metro Vancouver Region			

Source: BC MOE, Fish and Wildlife Branch 2006

Note: All numbers are approximate.

TABLE B-18

**FISHING OPPORTUNITIES CROSSED BY THE PROPOSED PIPELINE CORRIDOR
AND HUMAN OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA IN BC**

Name	Nearest RK	MU ¹	Description of Fishing Opportunity	Exceptions to Regional Regulations
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION				
Fraser River	RK 499.7	7-2	<ul style="list-style-type: none"> Good fishing for rainbow trout, bull trout and whitefish. Best fishing locations are near tributary creek mouths and pools near Rearguard Falls and Overlander Falls. 	<ul style="list-style-type: none"> Exempt from Spring Closure Exempt from bait ban above Cottonwood River
Canoe River	RK 531.3	7-2	<ul style="list-style-type: none"> Fishing opportunities for rainbow trout, bull trout and whitefish. 	<ul style="list-style-type: none"> None.
Camp Creek	RK 534.5, RK 545.9, RK 547.6	7-2	<ul style="list-style-type: none"> Small creek with good fishing for bull trout and whitefish. Best fishing after spring runoff. 	<ul style="list-style-type: none"> None.
North Thompson River	RK 581.1, RK 594.3, RK 651.6	3-44, 3-40	<ul style="list-style-type: none"> Good fishing for Chinook salmon, Dolly Varden, rainbow trout and other salmon species. 	<ul style="list-style-type: none"> Exempt from Spring Closure; no trout under 30 cm; daily bull trout quota
Blue River	RK 613.8	3-44	<ul style="list-style-type: none"> Good fishing for bull trout. Best fishing in spring or fall. 	<ul style="list-style-type: none"> None.
Clearwater River	RK 699.2	3-40	<ul style="list-style-type: none"> Popular fishing location for Chinook in August and early September. Good fishing for rainbow trout, Dolly Varden and whitefish. 	<ul style="list-style-type: none"> Below old Clearwater Bridge, open July 1 to April 30 Bait ban from Falls Creek to Mahood River, all year, and from Mahood River to North Thompson River, September 1 to July 31 No angling from powered boats below Falls Creek Trout/char release
Dutch Lake	0.5 km from RK 723.1	3-40	<ul style="list-style-type: none"> Fair fishing for stocked rainbow and brook trout. 	<ul style="list-style-type: none"> Engine power restriction - 7.5 Kw (10 hp)
Lemieux Lake	0.02 km from RK 740.8	3-39	<ul style="list-style-type: none"> Good fishing for rainbow and brook trout. 	<ul style="list-style-type: none"> None.
Thompson River	RK 846.8	3-29	<ul style="list-style-type: none"> Popular fishing location for steelhead. Good fishing for rainbow trout, five species of salmon, sturgeon, Dolly Varden and whitefish. 	<ul style="list-style-type: none"> Major tributary to the Fraser River Exempt from Spring Closure, an exception to the regional regulations

TABLE B-18 Cont'd

Name	Nearest RK	MU ¹	Description of Fishing Opportunity	Exceptions to Regional Regulations
Jacko Lake	0.5 km from RK 856.6	3-19	<ul style="list-style-type: none"> Good fishing for stocked rainbow trout. 	<ul style="list-style-type: none"> No ice fishing.
Moore Creek	RK 892.8	3-19	<ul style="list-style-type: none"> Unknown. 	<ul style="list-style-type: none"> Exempt from Spring Closure
Nicola River	RK 928.0	3-12	<ul style="list-style-type: none"> Good fishing for rainbow trout, Dolly Varden, steelhead and salmon. Best fishing in summer and fall. 	<ul style="list-style-type: none"> Open below Nicola Lake June 1 to February 28 Trout/char release below Nicola Lake January 1 to February 28 No trout under 25 cm below Nicola Lake No fishing for bull trout all year (any caught must be released)
Coldwater River	RK 957.9, RK 970.3, RK 980.0, RK 990.0	3-13	<ul style="list-style-type: none"> Best fishing locations on the river are closer to Merritt. 	<ul style="list-style-type: none"> Open June 1 to December 31 No trout under 25 cm No fishing for bull trout all year (any caught must be released)
FRASER VALLEY REGION				
Coquihalla Lakes	0.3 km from RK 991.9, 0.2 km from RK 992.6, 0.6 km from RK 993.8	2-17	<ul style="list-style-type: none"> Good fishing for rainbow trout. Best fishing in summer and fall. 	<ul style="list-style-type: none"> None.
Coquihalla River	RK 1021.8, RK 1026.5, RK 1028.6, RK 1032.6, RK 1043.2	2-17	<ul style="list-style-type: none"> Good fishing for Dolly Varden and steelhead, with some Coho salmon. 	<ul style="list-style-type: none"> Upstream of the lower entrance to the lower railway tunnel: no fishing November 1 to June 30; fly fishing only, single barless hook and bait ban No fishing downstream of the lower entrance to the lower railway tunnel, April 1 to October 31 Trout/char (including steelhead) release and bait ban, below the downstream entrance to the lower railway tunnel, November 1 to March 31
Kawkawa Lake	0.4 km from RK 1041.4	2-17	<ul style="list-style-type: none"> Popular fishing location for kokanee. Good fishing for cutthroat trout and Dolly Varden. 	<ul style="list-style-type: none"> No fishing December 1 to February 28 Kokanee daily quota = 4
Silverhope Creek	RK 1047.2	2-2	<ul style="list-style-type: none"> Fishing opportunities for steelhead and some salmon, cutthroat trout and Dolly Varden. 	<ul style="list-style-type: none"> No fishing above Silver Lake, October 1 to July 31 Closed all year from Silver Lake to the bailey bridge situated 8 km above Highway 1 Above Silver Lake, fly fishing only and bait ban, August 1 to September 30 Bait ban below bailey bridge situated 8 km above Highway 1
Hunter Creek	RK 1055.5	2-3	<ul style="list-style-type: none"> Good fishing for Chinook, with some cutthroat trout and steelhead. 	<ul style="list-style-type: none">
Sardis Pond	0.7 km from RK 1096.2	2-4	<ul style="list-style-type: none"> Good fishing for stocked rainbow trout and cutthroat trout. 	<ul style="list-style-type: none"> Age restriction (limited to BC Seniors, BC Disabled and under 16 years of age)
Chilliwack/Vedder River	RK 1102.3	2-4	<ul style="list-style-type: none"> Popular fishing location with excellent steelhead in spring. Good fishing for Chum, Coho, cutthroat trout and Chinook. The river is heavily regulated due to its popularity. 	<ul style="list-style-type: none"> Closed all year north of and including Slesse Creek Below Slesse Creek to Vedder Crossing bridge: (a) no fishing May 1 to June 30; (b) hatchery rainbow trout of any length 50 cm or less, daily quota = 4, July 1 to April 30; (c) hatchery steelhead daily quota = 1, year round Below Vedder Crossing bridge: (a) fly fishing only, bait ban, hatchery rainbow trout release (50 cm or less) and hatchery cutthroat release, May 1 to May 31; (b) no fishing June 1 to June 30; (c) hatchery rainbow trout of any length 50 cm or less: daily quota = 4, July 1 to April 30; (d) hatchery steelhead daily quota = 1, year round
Sumas River	RK 1114.6	2-4	<ul style="list-style-type: none"> Good fishing for cutthroat trout, Dolly Varden, Coho and steelhead. 	<ul style="list-style-type: none"> None.

TABLE B-18 Cont'd

Name	Nearest RK	MU ¹	Description of Fishing Opportunity	Exceptions to Regional Regulations
METRO VANCOUVER REGION				
Nathan Creek	RK 1138.0	2-4	<ul style="list-style-type: none"> Unknown. 	<ul style="list-style-type: none"> Closed all year north of 272nd Street (Jackman Road)
Salmon River	RK 1147.4	2-4	<ul style="list-style-type: none"> Good fishing for cutthroat trout, Dolly Vader, Coho and steelhead. 	<ul style="list-style-type: none"> Closed all year north of 232nd Street (Livingstone Road)
Fraser River	RK 1168.9	2-4	<ul style="list-style-type: none"> Popular fishing location for Pacific salmon and sturgeon. Busiest fishing occurs in summer. 	<ul style="list-style-type: none"> Dead fin fish may be used for bait only when fishing for sturgeon No fishing in the area bounded by a line commencing at a fishing boundary sign located at the eastern end of Landstrom Bar (Scale Bar) to a fishing boundary sign on the opposite bank of the river, to a fishing boundary sign at the southern end of Croft Island, to a fishing boundary sign on the nearest bank of the river in a westerly direction, following the bank of the river in a westerly direction to the Point of Commencement, May 1 to October 31

Source: Backroad Mapbooks 2009, 2010, BC MFLNRO 2013b

Notes: 1 MUs determined by watercourse crossing location or waterbody location.

TABLE B-19

ACTIVE MINERAL AND AGGREGATE TENURES CROSSED IN THE PROPOSED PIPELINE CORRIDOR AND HUMAN OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA OF ALBERTA

Tenure	Tenure Holder	Spatial Boundary	RK ¹
EDMONTON REGION			
Coal Mine	TransAlta Corporation-Whitewood Mine (decommissioned)	Proposed pipeline corridor	RK 104.4 to RK 105.0
Pit	Unknown	Proposed pipeline corridor	RK 12.5 to RK 12.6
Pit	Unknown	Proposed pipeline corridor	RK 18.2 to RK 18.3
Pit	Unknown	HORU LSA	0.6 km from RK 32.7
Pit	Unknown	HORU LSA	0.8 km from RK33.1
Pit	Unknown	HORU LSA	0.3 km from RK 85.0
Mine	Unknown	Proposed pipeline corridor	RK 97.5 to RK 99.2
Pit	Unknown	HORU LSA	0.7 km from RK 118.2
Pit	Unknown	HORU LSA	0.3 km from RK 132.6
Pit	Unknown	Proposed pipeline corridor	RK 132.9 to RK 133.1
Pit	Unknown	Proposed pipeline corridor	RK 133.4 to RK 133.4
Pit	Unknown	HORU LSA	0.3 km from RK 134.1
RURAL ALBERTA REGION			
Pit	Unknown	HORU LSA	0.9 km from RK 244.7
Pit	Unknown	HORU LSA	0.7 km from RK 245.0
Pit	Unknown	HORU LSA	0.8 km from RK 259.2
Pit	Unknown	HORU LSA	0.5 km from RK 274.6
Metallic and Industrial Minerals Permit	Athabasca Minerals Inc.	Proposed pipeline corridor	RK 310.5 to RK 318.9
Pit	Unknown	HORU LSA	0.2 km from RK 311.2
Metallic and Industrial Minerals Permit	Graymont Western Canada Inc.	HORU LSA	0.8 km from RK 339.4
JASPER NATIONAL PARK REGION			
There are no active mineral or aggregate tenures in the existing TMPL right-of-way in the Jasper National Park Region			

Sources: Alberta Energy, Government of Alberta 2013a,b, IHS Inc. 2011a,b

Notes: 1 Locations are approximate.

TABLE B-20

**ACTIVE MINERAL TENURES IN THE PROPOSED PIPELINE CORRIDOR
AND HUMAN OCCUPANCY AND RESOURCE USE LOCAL STUDY AREA IN BC**

Tenure	Tenure Holder	Tenure Number	Spatial Boundary	RK ¹
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION				
Placer Claim	Lucky Marilyn	1012577	HORU LSA	0.2 km from RK 496.3
Mineral Claim	Unknown	987802	HORU LSA	0.5 km from RK 498.3
Placer Claim	Lucky Lexy	1013407	Proposed pipeline corridor	RK 496.4 to RK 500.2, RK 500.7 to RK 500.8
Placer Claim	Uhler	893089	Proposed pipeline corridor	RK 498.1 to RK 498.9, RK 502.4 to RK 502.7, RK 503.3 to RK 503.3
Placer Claim	Brothers Rock	897249	Proposed pipeline corridor	RK 498.3 to RK 498.3
Placer Claim	City Slickers	985982	Proposed pipeline corridor	RK 522.5 to RK 523.0
Mineral Claim	Unknown	1012406	Proposed pipeline corridor	RK 544.1 to RK 544.9
Mineral Claim	Champion	567177	Proposed pipeline corridor	RK 552.2 to RK 552.2
Mineral Claim	Unknown	506428	Proposed pipeline corridor	RK 574.1 to RK 576.8
Mineral Claim	Unknown	506423	Proposed pipeline corridor	RK 576.7 to RK 577.5, RK 578.1 to RK 578.2
Mineral Claim	Unknown	506427	Proposed pipeline corridor	RK 576.8 to RK 577.2
Mineral Claim	Unknown	506426	Proposed pipeline corridor	RK 577.2 to RK 578.2
Mineral Claim	Unknown	506262	Proposed pipeline corridor	RK 578.2 to RK 579.3
Mineral Claim	Mara 5	380034	Proposed pipeline corridor	RK 578.2 to RK 578.5
Mineral Claim	Unknown	506393	Proposed pipeline corridor	RK 579.2 to RK 579.3
Mineral Claim	Unknown	506395	Proposed pipeline corridor	RK 579.2 to RK 579.8
Mineral Claim	Unknown	506397	Proposed pipeline corridor	RK 579.8 to RK 580.6, RK 579.8 to RK 580.2
Mineral Claim	Unknown	506392	HORU LSA	0.8 km from RK 579.9
Mineral Claim	Unknown	506387	HORU LSA	0.2 km from RK 580.2
Mineral Claim	Unknown	506391	HORU LSA	0.2 km from RK 580.2
Mineral Claim	Unknown	506429	Proposed pipeline corridor	RK 580.5 to RK 580.8
Mineral Claim	Unknown	506430	Proposed pipeline corridor	RK 581.1 to RK 582.5
Mineral Claim	Unknown	506273	HORU LSA	0.2 km from RK 587.5
Mineral Claim	Unknown	506433	HORU LSA	0.2 km from RK 587.5
Mineral Claim	Unknown	506267	HORU LSA	0.3 km from RK 589.3
Mineral Claim	Fir 8	374670	HORU LSA	0.6 km from RK 589.7
Mineral Claim	Unknown	506403	HORU LSA	0.5 km from RK 590.9
Mineral Claim	Unknown	506402	HORU LSA	0.4 km from RK 591.4
Mineral Claim	Unknown	506265	HORU LSA	0.8 km from RK 591.5
Mineral Claim	Fir 11	382164	HORU LSA	0.5 km from RK 591.6
Mineral Claim	Unknown	506399	HORU LSA	0.8 km from RK 591.8
Mineral Claim	Unknown	506401	HORU LSA	0.4 km from RK 591.8
Mineral Claim	Unknown	506445	HORU LSA	0.4 km from RK 592.2
Mineral Claim	Lightning 3	530513	Proposed pipeline corridor	RK 592.2 to RK 593.7
Mineral Claim	Lightning	530510	HORU LSA	0.7 km from RK 593.3
Mineral Claim	Join	798362	Proposed pipeline corridor	RK 593.5 to RK 593.8
Mineral Claim	Lightning 2	530511	HORU LSA	0.2 km from RK 595.7
Mineral Claim	Hellroar	550886	Proposed pipeline corridor	RK 596.7 to RK 596.9, RK 597.8 to RK 598.0
Mineral Claim	Hellroars	550887	Proposed pipeline corridor	RK 599.2 to RK 599.5

TABLE B-20 Cont'd

Tenure	Tenure Holder	Tenure Number	Spatial Boundary	RK ¹
Mineral Claim	Bat out of hell	550888	Proposed pipeline corridor	RK 600.2 to RK 600.9, RK 601.2 to RK 602.1, RK 602.2 to RK 603.1
Mineral Claim	Prosper 29	565160	Proposed pipeline corridor	RK 603.8 to RK 604.4
Mineral Claim	Prosper 37	565170	Proposed pipeline corridor	RK 604.7 to RK 605.4, RK 605.9 to RK 606.0
Mineral Claim	Falkor 1	565187	Proposed pipeline corridor	RK 606.5 to RK 606.7, RK 607.1 to RK 607.5, RK 608.2 to RK 608.6
Mineral Claim	Falkor 3	565189	HORU LSA	0.6 km from RK 609.0
Mineral Claim	Falkor 5	565191	Proposed pipeline corridor	RK 612.1 to RK 612.3
Mineral Claim	BRM1	855221	HORU LSA	0.7 km from RK 613.2
Mineral Claim	Blue river marble	855220	HORU LSA	1.0 km from RK 613.5
Mineral Claim	Falkor 8	565194	HORU LSA	0.5 km from RK 613.3
Mineral Claim	Falkor 17	565205	Proposed pipeline corridor	RK 616.7 to RK 618.7
Mineral Claim	Falkor 22	565211	Proposed pipeline corridor	RK 618.7 to RK 619.3
Mineral Claim	Avola belle II	1015887	HORU LSA	0.8 km from RK 639.8
Mineral Claim	Avola bell	1015881	HORU LSA	0.2 km from RK 640.0
Mineral Claim	Avola queen	1015884	HORU LSA	0.3 km from RK 641.5
Mineral Claim	LL5	381897	HORU LSA	0.5 km from RK 642.7
Mineral Claim	LL6	381898	HORU LSA	0.5 km from RK 643.7
Mineral Claim	LL7	381899	HORU LSA	0.4 km from RK 644.2
Mineral Claim	LL8	381900	HORU LSA	0.2 km from RK 644.8
Mineral Claim	Leo 1	381891	HORU LSA	0.6 km from RK 644.9
Mineral Claim	Leo 2	381892	Proposed pipeline corridor	RK 646.2 to RK 646.7
Mineral Claim	Vista A	380891	HORU LSA	0.7 km from RK 649.5
Mineral Claim	Praxis 1	1015844	Proposed pipeline corridor	RK 650.1 to RK 650.4, RK 650.6 to RK 651.6
Mineral Claim	D5	937034	Proposed pipeline corridor	RK 686.1 to RK 686.7
Mineral Claim	D4	937030	Proposed pipeline corridor	RK 686.6 to RK 686.6, RK 686.6 to RK 687.1
Mineral Claim	Unknown	538963	HORU LSA	0.6 km from RK 691.1
Mineral Claim	Unknown	538970	Proposed pipeline corridor	RK 691.3 to RK 693.7
Mineral Claim	Unknown	538966	Proposed pipeline corridor	RK 693.7 to RK 695.6
Mineral Claim	Unknown	538962	HORU LSA	0.5 km from RK 695.0
Mineral Claim	Unknown	538996	Proposed pipeline corridor	RK 695.5 to RK 696.5
Mineral Claim	Spinning gold	1012469	Proposed pipeline corridor	RK 696.4 to RK 697.0
Mineral Claim	Rocking chair	989528	HORU LSA	0.5 km from RK 697.3
Mineral Claim	Acceptance 2	855458	Proposed pipeline corridor	RK 696.9 to RK 698.0
Mineral Claim	Mine	1013062	HORU LSA	0.6 km from RK 697.5
Mineral Claim	Oh my	1013053	HORU LSA	0.3 km from RK 697.7
Mineral Claim	Mine 2	1013063	Proposed pipeline corridor	RK 698.0 to RK 698.0
Mineral Claim	Unknown	538997	Proposed pipeline corridor	RK 698.0 to RK 699.7, RK 699.8 to RK 700.2
Mineral Claim	Unknown	538999	Proposed pipeline corridor	RK 700.0 to RK 702.2
Mineral Claim	Unknown	1012087	HORU LSA	0.4 km from RK 700.5
Mineral Claim	Unknown	538968	HORU LSA	0.7 km from RK 701.4
Mineral Claim	Unknown	539000	Proposed pipeline corridor	RK 702.2 to RK 704.4
Mineral Claim	Unknown	539001	Proposed pipeline corridor	RK 704.4 to RK 705.7
Mineral Claim	Unknown	539002	Proposed pipeline corridor	RK 705.7 to RK 707.1
Mineral Claim	Unknown	539004	Proposed pipeline corridor	RK 707.0 to RK 708.9

TABLE B-20 Cont'd

Tenure	Tenure Holder	Tenure Number	Spatial Boundary	RK ¹
Mineral Claim	Fab 6	981449	HORU LSA	0.3 km from RK 708.5
Mineral Claim	On call 2	1018573	HORU LSA	0.3 km from RK 727.2
Mineral Claim	On call 2	1018572	HORU LSA	0.7 km from RK 727.4
Mineral Claim	On call 1	1018566	HORU LSA	0.6 km from RK 727.4
Mineral Claim	On call 1	1018567	HORU LSA	0.2 km from RK 727.4
Mineral Claim	On call 1	1018568	HORU LSA	0.2 km from RK 727.4
Mineral Claim	On call 1	1018569	HORU LSA	0.6 km from RK 727.4
Mineral Claim	On call 3	1018574	Proposed pipeline corridor	RK 726.0 to RK 728.2
Mineral Claim	On call 2	1018571	Proposed pipeline corridor	RK 726.9 to RK 727.1
Mineral Claim	On call 4	1018575	Proposed pipeline corridor	RK 728.2 to RK 728.7
Mineral Claim	Unknown	690383	HORU LSA	0.9 km from RK 733.9
Mineral Claim	Unknown	690365	HORU LSA	1.0 km from RK 734.0
Mineral Claim	Ext #2	876909	HORU LSA	0.7 km from RK 738.5
Mineral Claim	Ext #3	876949	Proposed pipeline corridor	RK 738.7 to RK 740.9
Mineral Claim	CF#3	692137	Proposed pipeline corridor	RK 740.8 to RK 743.1
Mineral Claim	CF#4	692163	Proposed pipeline corridor	RK 743.1 to RK 745.0
Mineral Claim	CF#5	692189	HORU LSA	0.3 km from RK 741.2
Mineral Claim	CF#1	692104	HORU LSA	1.0 km from RK 742.0
Mineral Claim	CF#6	699883	Proposed pipeline corridor	RK 745.0 to RK 746.4
Mineral Claim	GL north 3	1015331	HORU LSA	0.6 km from RK 749.8
Mineral Claim	GL north 2	1015328	HORU LSA	1.0 km from RK 751.5
Mineral Claim	Bor 4	531891	HORU LSA	0.4 km from RK 751.6
Placer Claim	Cliff/nord	853666	HORU LSA	0.4 km from RK 752.6
Placer Claim	Chiko	367602	HORU LSA	0.8 km from RK 752.9
Mineral Claim	Unknown	507892	HORU LSA	0.5 km from RK 755.1
Mineral Claim	G 1	538405	HORU LSA	0.2 km from RK 756.0
Mineral Claim	G 2	538435	Proposed pipeline corridor	RK 756.5 to RK 757.0
Mineral Claim	G 3	538403	Proposed pipeline corridor	RK 757.0 to RK 757.2
Mineral Claim	Golden loon 2	538399	HORU LSA	0.2 km from RK 757.5
Mineral Claim	GL south 2	953141	Proposed pipeline corridor	RK 757.6 to RK 758.2, RK 758.7 to RK 759.0
Mineral Claim	GL south 1	953138	Proposed pipeline corridor	RK 760.1 to RK 760.7
Mineral Claim	GL south 3	953144	Proposed pipeline corridor	RK 760.7 to RK 760.8
Mineral Claim	Mill north	704383	HORU LSA	0.7 km from RK 767.6
Mineral Claim	Mill stone	766882	HORU LSA	0.7 km from RK 768.2
Mineral Claim	Mill Lisa	704372	HORU LSA	0.9 km from RK 769.0
Mineral Claim	Homestake west	933289	HORU LSA	0.3 km from RK 818.9
Mineral Claim	DDH LS5 LS6	1018083	Proposed pipeline corridor	RK 820.1 to RK 820.3
Mineral Claim	Unknown	820342	HORU LSA	0.1 km from RK 822.2
Mineral Claim	Omega	748082	Proposed pipeline corridor	RK 843.8 to RK 844.9
Mineral Claim	OR11	705924	Proposed pipeline corridor	RK 847.4 to RK 848.9
Mineral Claim	Unknown	510019	Proposed pipeline corridor	RK 848.9 to RK 849.8
Mineral Claim	Afton gold	1000982	HORU LSA	0.9 km from RK 849.6
Mineral Claim	Unknown	513980	Proposed pipeline corridor	RK 850.8 to RK 853.3
Mineral Claim	Sugar 4	398537	HORU LSA	0.8 km from RK 852.7
Mineral Claim	Fay 1 Fr	221488	Proposed pipeline corridor	RK 852.8 to RK 853.1
Mineral Claim	Line no.3	220275	Proposed pipeline corridor	RK 852.9 to RK 853.5
Mineral Claim	Sugar 3	398536	HORU LSA	0.3 km from RK 853.1
Mineral Claim	Unknown	504878	Proposed pipeline corridor	RK 853.2 to RK 856.3

TABLE B-20 Cont'd

Tenure	Tenure Holder	Tenure Number	Spatial Boundary	RK ¹
Mineral Claim	Python no. 16 fr.	220090	HORU LSA	0.3 km from RK 853.3
Mineral Claim	Sugar 2	398535	HORU LSA	0.2 km from RK 853.4
Mineral Claim	Ajax	517259	HORU LSA	0.9 km from RK 853.4
Mineral Claim	DOT no.5	220169	Proposed pipeline corridor	RK 853.4 to RK 853.6
Mineral Claim	Sugar 1	398534	HORU LSA	0.5 km from RK 853.6
Mineral Claim	Dot no. 3	220168	HORU LSA	0.2 km from RK 853.7
Mineral Claim	Unknown	517263	HORU LSA	0.4 km from RK 853.8
Mineral Claim	Python no.15	220089	HORU LSA	0.6 km from RK 853.9
Mineral Claim	Dot no.2	220167	HORU LSA	0.3 km from RK 854.2
Mineral Claim	Dianna 1	1016435	HORU LSA	0.8 km from RK 854.2
Mineral Claim	Dianna 2	1016434	HORU LSA	0.3 km from RK 854.9
Mineral Claim	DCE 1	398532	HORU LSA	0.5 km from RK 856.0
Mineral Claim	DCE 2	398533	Proposed pipeline corridor	RK 855.8 to RK 857.6
Mineral Claim	AJ P East	604603	HORU LSA	0.4 km from RK 856.5
Mineral Claim	X #16	220551	HORU LSA	0.9 km from RK 857.1
Mineral Claim	Ink 2	324309	HORU LSA	0.8 km from RK 857.3
Mineral Claim	Ink 3	324310	HORU LSA	0.3 km from RK 857.3
Mineral Claim	GM-18	385260	Proposed pipeline corridor	RK 857.6 to RK 859.0
Mineral Claim	GM-70	406651	HORU LSA	0.2 km from RK 857.8
Mineral Claim	Ink 4	324311	HORU LSA	0.8 km from RK 857.8
Mineral Claim	Ink 5	324312	HORU LSA	0.3 km from RK 857.8
Mineral Claim	GM-69	406650	HORU LSA	0.7 km from RK 857.9
Mineral Claim	Unknown	515570	HORU LSA	0.6 km from RK 858.1
Mineral Claim	GM-21	408976	HORU LSA	0.7 km from RK 858.4
Mineral Claim	Ajax	517214	Proposed pipeline corridor	RK 858.8 to RK 859.5
Mineral Claim	Unknown	514050	HORU LSA	0.2 km from RK 859.3
Mineral Claim	New gold option	559160	Proposed pipeline corridor	RK 859.4 to RK 859.9
Mineral Claim	Ajax	514055	Proposed pipeline corridor	RK 859.7 to RK 861.0
Mineral Claim	Ajax	514069	HORU LSA	0.7 km from RK 863.0
Mineral Claim	Unknown	513829	HORU LSA	1.0 km from RK 863.4
Mineral Claim	Ajax	521725	Proposed pipeline corridor	RK 861.0 to RK 863.2, RK 863.3 to RK 863.7
Mineral Claim	Ajax	521726	Proposed pipeline corridor	RK 863.2 to RK 865.1
Mineral Claim	Unknown	513830	HORU LSA	0.6 km from RK 864.8
Mineral Claim	IVY 4	519609	HORU LSA	0.4 km from RK 865.0
Mineral Claim	Link	836889	HORU LSA	0.5 km from RK 865.2
Mineral Claim	IVY 2	506003	Proposed pipeline corridor	RK 865.1 to RK 866.6
Mineral Claim	IVY 7	836775	Proposed pipeline corridor	RK 866.3 to RK 867.6
Mineral Claim	Unknown	506002	Proposed pipeline corridor	RK 867.6 to RK 867.7
Mineral Claim	IVY 8	837552	Proposed pipeline corridor	RK 867.6 to RK 868.1
Mineral Claim	Shum 2	1013527	Proposed pipeline corridor	RK 868.5 to RK 871.5
Mineral Claim	Shum 5	1013530	HORU LSA	0.5 km from RK 865.2
Mineral Claim	Shum 3	1013528	Proposed pipeline corridor	RK 871.5 to RK 872.5
Mineral Claim	Unknown	987689	HORU LSA	0.1 km from RK 872.4
Mineral Claim	LGLKRD PIPRLINE	987422	Proposed pipeline corridor	RK 873.4 to RK 874.4
Mineral Claim	Stump 5	845120	Proposed pipeline corridor	RK 877.8 to RK 878.7
Mineral Claim	Stump 4	845119	HORU LSA	0.5 km from RK 880.5
Mineral Claim	Stump 3	845115	Proposed pipeline corridor	RK 878.7 to RK 880.6
Mineral Claim	Stump	836726	Proposed pipeline corridor	RK 880.6 to RK 883.0

TABLE B-20 Cont'd

Tenure	Tenure Holder	Tenure Number	Spatial Boundary	RK ¹
Mineral Claim	Micro 4	532245	Proposed pipeline corridor	RK 882.9 to RK 884.1
Mineral Claim	West 6	1013965	HORU LSA	0.7 km from RK 883.1
Mineral Claim	Micro 3	532244	Proposed pipeline corridor	RK 883.8 to RK 886.5
Mineral Claim	KCE	1015833	HORU LSA	0.2 km from RK 884.4
Mineral Claim	Unknown	1015009	HORU LSA	0.6 km from RK 884.7
Mineral Claim	Micro 6	533258	Proposed pipeline corridor	RK 886.1 to RK 887.4
Mineral Claim	Micro 7	533260	Proposed pipeline corridor	RK 887.4 to RK 890.0
Mineral Claim	Micro 8	533809	HORU LSA	0.6 km from RK 887.7
Mineral Claim	Tic tac toe	786802	Proposed pipeline corridor	RK 890.0 to RK 891.2
Mineral Claim	Dough	786804	HORU LSA	0.2 km from RK 892.4
Mineral Claim	Cuagmo 3	986926	HORU LSA	0.4 km from RK 893.4
Mineral Claim	Cuagmo 1	983002	HORU LSA	0.5 km from RK 894.4
Mineral Claim	Cuagmo 2	983003	HORU LSA	0.1 km from RK 897.3
Mineral Claim	Cuagmo 4	986927	Proposed pipeline corridor	RK 897.4 to RK 898.3
Mineral Claim	Stump 1	774962	Proposed pipeline corridor	RK 912.5 to RK 913.2
Mineral Claim	Stump	774942	HORU LSA	0.2 km from RK 912.9
Mineral Claim	Copperado 3	670703	HORU LSA	0.4 km from RK 913.7
Mineral Claim	Peacock	670804	Proposed pipeline corridor	RK 913.0 to RK 915.1
Mineral Claim	Unknown	855772	HORU LSA	0.1 km from RK 925.7
Mineral Claim	Unknown	851831	HORU LSA	0.4 km from RK 926.1
Mineral Claim	Unknown	855270	HORU LSA	0.9 km from RK 926.2
Mineral Claim	Unknown	1011561	Proposed pipeline corridor	RK 925.1 to RK 926.6
Coal Application	Unknown	389549	Proposed pipeline corridor	RK 926.1 to RK 929.8
Coal Application	Unknown	389548	Proposed pipeline corridor	RK 929.7 to RK 932.5
Mineral Claim	PB	1014834	HORU LSA	0.5 km from RK 938.8
Mineral Claim	PBE	1014836	HORU LSA	0.9 km from RK 938.8
Mineral Claim	Unknown	933449	HORU LSA	0.9 km from RK 938.8
Mineral Claim	WOG - GOW	777882	HORU LSA	0.7 km from RK 948.2
Coal Licence	Unknown	417538	HORU LSA	0.6 km from RK 958.3
Mineral Claim	GIL9	590818	HORU LSA	0.6 km from RK 960.2
Mineral Claim	GIL10	590819	Proposed pipeline corridor	RK 959.3 to RK 962.1
Mineral Claim	GIL11	590820	HORU LSA	0.5 km from RK 962.1
Mineral Claim	GIL12	590821	Proposed pipeline corridor	RK 963.8 to RK 964.5
Mineral Claim	BM12	740644	Proposed pipeline corridor	RK 966.6 to RK 968.7
Mineral Claim	BM10	740622	HORU LSA	0.1 km from RK 969.0
Mineral Claim	BM13	740662	Proposed pipeline corridor	RK 971.7 to RK 973.5
Mineral Claim	BM14	740663	HORU LSA	0.7 km from RK 973.9
Mineral Claim	Unknown	997864	HORU LSA	0.6 km from RK 984.7
Mineral Claim	Unknown	997862	HORU LSA	0.1 km from RK 984.8
Mineral Claim	Unknown	997863	Proposed pipeline corridor	RK 984.8 to RK 985.7
Mineral Claim	Unknown	997856	HORU LSA	0.2 km from RK 985.7
Mineral Claim	Unknown	997802	HORU LSA	0.3 km from RK 988.1
FRASER VALLEY REGION				
Mineral Claim	Gpex Cv Silver Salam	537127	HORU LSA	0.3 km from RK 1020.2
Mineral Claim	Ladner Junction	599445	Proposed pipeline corridor	RK 1019.8 to RK 1020.7
Mineral Claim	Coq 6	1012492	Proposed pipeline corridor	RK 1020.6 to RK 1021.9
Mineral Claim	Lower Road	866307	HORU LSA	0.7 km from RK 1020.8
Mineral Claim	Perl 2	1014441	HORU LSA	0.2 km from RK 1021.9

TABLE B-20 Cont'd

Tenure	Tenure Holder	Tenure Number	Spatial Boundary	RK ¹
Mineral Claim	Perl	594435	HORU LSA	0.2 km from RK 1021.9
Mineral Claim	CGB-N1	706306	HORU LSA	0.4 km from RK 1022.6
Mineral Claim	Emancipation East	1012491	Proposed pipeline corridor	RK 1020.7 to RK 1020.8
Mineral Claim	Module XX	568965	Proposed pipeline corridor	RK 1021.7 to RK 1022.8
Mineral Claim	Emancipation 1	570904	Proposed pipeline corridor	RK 1022.6 to RK 1023.3
Mineral Claim	CGB-N FR	739202	Proposed pipeline corridor	RK 1022.8 to RK 1023.0
Mineral Claim	McGrazer's Cache	848189	HORU LSA	0.1 km from RK 1023.8
Mineral Claim	CGB-N	705889	HORU LSA	0.1 km from RK 1024.2
Mineral Claim	Perl 3	1014442	HORU LSA	0.3 km from RK 1024.4
Mineral Claim	Serp#2	551364	HORU LSA	0.7 km from RK 1025.3
Mineral Claim	West Hozameen	961169	HORU LSA	0.3 km from RK 1025.5
Mineral Claim	Jade king	572442	Proposed pipeline corridor	RK 1023.3 to RK 1026.0
Mineral Claim	JK 2	1018081	Proposed pipeline corridor	RK 1025.2 to RK 1025.3
Mineral Claim	Halla one	1018659	Proposed pipeline corridor	RK 1025.8 to RK 1026.0
Mineral Claim	JK west	738502	Proposed pipeline corridor	RK 1025.9 to RK 1026.5
Mineral Claim	Jade king 3	843032	HORU LSA	0.6 km from RK 1026.0
Mineral Claim	JK 1	1018080	HORU LSA	1.0 km from RK 1026.1
Mineral Claim	Unknown	970009	HORU LSA	0.3 km from RK 1026.1
Mineral Claim	Rock Breaker 2	1017775	HORU LSA	0.9 km from RK 1026.7
Mineral Claim	Unknown	600299	Proposed pipeline corridor	RK 1026.5 to RK 1027.1
Mineral Claim	Crossing property	998902	Proposed pipeline corridor	RK 1027.0 to RK 1027.6
Mineral Claim	Steepore	919149	Proposed pipeline corridor	RK 1027.5 to RK 1028.0
Mineral Claim	Coq Bedrock C	1012294	Proposed pipeline corridor	RK 1027.5 to RK 1028.6
Mineral Claim	Coq 5	1012293	Proposed pipeline corridor	RK 1028.6 to RK 1029.1
Mineral Claim	Coq B2	1018013	Proposed pipeline corridor	RK 1029.1 to RK 1029.7
Mineral Claim	Vengeance	995265	HORU LSA	0.9 km from RK 1030.1
Mineral Claim	Shady Lane	1018014	Proposed pipeline corridor	RK 1029.6 to RK 1030.1
Mineral Claim	Coq B1	1018012	Proposed pipeline corridor	RK 1030.1 to RK 1030.4
Mineral Claim	Coq 4	1012290	Proposed pipeline corridor	RK 1030.1 to RK 1031.5
Mineral Claim	Magnum	995266	HORU LSA	1.0 km from RK 1032.5
Mineral Claim	Coq 3	1012286	Proposed pipeline corridor	RK 1031.2 to RK 1032.1
Mineral Claim	Coq Bedrock A	1012285	Proposed pipeline corridor	RK 1032.1 to RK 1033.2
Mineral Claim	Unknown	970189	HORU LSA	0.2 km from RK 1033.5
Mineral Claim	Coq 2	1012282	Proposed pipeline corridor	RK 1033.1 to RK 1034.1
Mineral Claim	Coq 1	1012283	Proposed pipeline corridor	RK 1034.1 to RK 1035.2
Mineral Claim	Unknown	970169	HORU LSA	0.4 km from RK 1035.0
Mineral Claim	Crom1	780662	HORU LSA	1.0 km from RK 1035.1
Mineral Claim	Coqgold 1	990682	Proposed pipeline corridor	RK 1035.1 to RK 1035.8
Mineral Claim	Hugerichnuggets	1017839	HORU LSA	0.1 km from RK 1035.8
Mineral Claim	Eureka stockade	852512	Proposed pipeline corridor	RK 1036.2 to RK 1037.2
Mineral Claim	Othello Granite 2	1016389	HORU LSA	0.3 km from RK 1036.8
Mineral Claim	Othello Granite	1014110	HORU LSA	0.6 km from RK 1037.2
Mineral Claim	On top of things 2	865403	HORU LSA	0.1 km from RK 1037.2
Mineral Claim	Coquihalla	985942	HORU LSA	0.1 km from RK 1037.8
Mineral Claim	On top of things	865401	Proposed pipeline corridor	RK 1037.2 to RK 1037.8
Mineral Claim	Bedrockriches	1016707	Proposed pipeline corridor	RK 1037.6 to RK 1038.2
Mineral Claim	Gotcha	982502	Proposed pipeline corridor	RK 1038.2 to RK 1038.7
Placer Claim	581093	746622	HORU LSA	0.5 km from RK 1038.7

TABLE B-20 Cont'd

Tenure	Tenure Holder	Tenure Number	Spatial Boundary	RK ¹
Mineral Claim	Right beside ya	982509	HORU LSA	0.5 km from RK 1038.7
Mineral Claim	Coke	1016577	HORU LSA	1.0 km from RK 1040.6
Mineral Claim	Coke mine	1016584	HORU LSA	0.9 km from RK 1040.7
Mineral Claim	Coke bottle	1017208	HORU LSA	0.9 km from RK 1040.7
Mineral Claim	Coquihalla gold	1016590	HORU LSA	0.3 km from RK 1041.8
Mineral Claim	Coke bedrock	1016765	HORU LSA	0.8 km from RK 1041.8
Mineral Claim	JM1	986829	HORU LSA	0.3 km from RK 1046.5
Placer Claim	Robsriver	1013364	HORU LSA	0.5 km from RK 1048.4
Placer Claim	Getaway island	594234	HORU LSA	1.0 km from RK 1048.4
Placer Claim	Bristol Island (Hope)	991891	HORU LSA	1.0 km from RK 1048.4
Mineral Claim	CMP four	854332	HORU LSA	0.8 km from RK 1059.6
Mineral Claim	Unknown	1016181	HORU LSA	0.2 km from RK 1060.9
Mineral Claim	Fun #1	236656	HORU LSA	0.3 km from RK 1062.2
Mineral Claim	Fun #2	236657	HORU LSA	0.6 km from RK 1062.3
Mineral Claim	Fun #4	236659	HORU LSA	1.0 km from RK 1062.4
Mineral Claim	Amy Lou	1016511	Proposed pipeline corridor	RK 1072.3 to RK 1072.8
Mineral Claim	Mufasa	1016516	Proposed pipeline corridor	RK 1072.8 to RK 1073.3
Mineral Claim	Rosedale granite	784582	Proposed pipeline corridor	RK 1078.5 to RK 1078.8
Mineral Claim	Unknown	534087	HORU LSA	0.8 km from RK 1102.9
Mineral Claim	Unknown	512638	HORU LSA	1.0 km from RK 1103.4
Mineral Claim	Ward 1	517155	Proposed pipeline corridor	RK 1115.0 to RK 1116.0
Mineral Claim	Unknown	979272	HORU LSA	0.2 km from RK 1116.0
Mineral Lease	Unknown	376708	HORU LSA	0.2 km from RK 1116.8
Mineral Claim	On top of things	509817	Proposed pipeline corridor	RK 1115.9 to RK 1118.0
METRO VANCOUVER REGION				
There are no active mineral or aggregate tenures in the proposed pipeline corridor or the HORU LSA in the Metro Vancouver Region				

Sources: BC Ministry of Energy and Mines 2005

Notes: 1 Locations are approximate.

TABLE B-21

**NOISE REGULATIONS FOR COMMUNITIES IN
THE PROPOSED PIPELINE CORRIDOR IN ALBERTA**

Community	Hours during which construction noise is permitted	Bylaw	Notes
EDMONTON REGION			
Strathcona County	<u>July 1 to August 31</u> <ul style="list-style-type: none"> Monday to Friday 7 AM to 10 PM; and Saturday, Sunday and Holidays 10 AM to 10 PM. <u>September 1 to June 30</u> <ul style="list-style-type: none"> Monday to Thursday 7 AM to 9 PM; Friday and Saturday 7 AM to 10 PM; and Sunday and Holidays 10am to 9 PM. 	Noise Control Bylaw No. 66-99	n/a
City of Edmonton	<ul style="list-style-type: none"> Monday to Saturday 7 AM to 10 PM; Sunday and Holidays 9 AM to 7 PM. 	Community Standards Bylaw No. 14600	<u>Vehicle noise</u> - owners can be ticketed for exceeding the sound level limits, Engine Retarder Brakes are not allowed in the City of Edmonton. <u>Trucks</u> - oversized trucks must use established truck routes.

TABLE B-21 Cont'd

Community	Hours during which construction noise is permitted	Bylaw	Notes
City of Spruce Grove	<ul style="list-style-type: none"> Monday to Saturday 7 AM to 10 PM; and Sundays and Holidays 10 AM to 10 PM. 	Noise Control Bylaw No. C-475-03	The use of Engine Retarder Brakes is prohibited within the City Limits, including that portion of Highway 16A, which passes through the city. Construction Equipment noise is permitted. Persons owning or controlling Construction Equipment, and Persons owning or controlling land on which Construction Equipment is being operated shall be exempt from the provisions of the Noise Control By-Law.
Parkland County	<ul style="list-style-type: none"> N/A 	Community Standards Bylaw No. 03-2012	Outlines maximum continuous and non-continuous sound levels in residential districts, activities prohibited during night time hours. Trucks are prohibited from idling for longer than 20 minutes within 150 m of a Residential District. Applies to all areas of Parkland County.
Town of Stony Plain	<ul style="list-style-type: none"> Daily 7 AM to 10 PM 	Noise Control Bylaw No. 2220/G/05	n/a
Village of Wabamun	<ul style="list-style-type: none"> Monday to Saturday 7 AM to 10 PM; and Sundays and Holidays 10 AM to 10 PM. 	Community Standards Bylaw No. 03-2012	n/a
RURAL ALBERTA REGION			
Yellowhead County	<ul style="list-style-type: none"> Daily 7 AM to 10 PM 	Noise Control Bylaw No. 21.01	Only applies to Hamlets within Yellowhead County.
Town of Edson	<ul style="list-style-type: none"> Monday to Friday 7 AM to 11 PM; and Saturdays, Sundays and Holidays 9 AM to 11 PM. 	Noise Bylaw No. 1614	n/a
Town of Hinton	<ul style="list-style-type: none"> Monday to Saturday 7 AM to 10 PM; and Sundays 10 AM to 7 PM. 	Nuisance By-law No. 1009	No person shall indulge in the use of Engine Retarder Brakes when operating a vehicle within the corporate limits of Hinton.
JASPER NATIONAL PARK REGION			
Municipality of Jasper	<ul style="list-style-type: none"> Daily 7:30 AM to 9 PM Not permitted at any time on any Holiday 	Noise Bylaw No. 108	n/a

Sources: Strathcona County 2013, City of Edmonton 2013, City of Spruce Grove 2013, Parkland County 2013, Town of Stony Plain 2013, Village of Wabamun 2013, Yellowhead County 2013, Town of Edson 2013, Town of Hinton 2013, Municipality of Jasper 2013.

Notes: See specific bylaw for details related to permitting and exceptions.

TABLE B-22

NOISE REGULATIONS FOR COMMUNITIES IN THE PROPOSED PIPELINE CORRIDOR IN BC

Community	Hours during which Construction noise is permitted	Bylaw	Notes
FRASER-FORT GEORGE/THOMPSON- NICOLA REGION			
Fraser-Fort George Regional District	n/a	n/a	n/a
Village of Valemount	n/a	n/a	n/a
Thompson-Nicola Regional District	n/a	n/a	n/a
District of Clearwater	<ul style="list-style-type: none"> Daily 6 AM to 9 PM. 	Noise Bylaw No. 14	Applies to the erection, demolition, construction, reconstruction, alteration or repair of any building or other structure.
City of Kamloops	<ul style="list-style-type: none"> Daily 7 AM to 10 PM. 	Noise Control By-law, No. 24-42	n/a
City of Merritt	<ul style="list-style-type: none"> Daily 7 AM to 10 PM. 	Noise Abatement Bylaw No. 1866	n/a

TABLE B-22 Cont'd

Community	Hours during which Construction noise is permitted	Bylaw	Notes
FRASER VALLEY REGION			
Fraser Valley Regional District	n/a	n/a	n/a
District of Hope	<ul style="list-style-type: none"> Daily 7 AM to 9 PM. 	Good Neighbour Bylaw No. 1240	n/a
City of Chilliwack	<ul style="list-style-type: none"> Monday to Saturday 7 AM to 9 PM; and Not permitted at any time on Sundays. 	Noise Control Bylaw No. 2420	n/a
City of Abbotsford	<ul style="list-style-type: none"> Monday to Saturday 7 AM to 9 PM; and Sundays and Holidays 9 AM to 9 PM. 	Good Neighbour Bylaw No. 1256	n/a
METRO VANCOUVER REGION			
Township of Langley	<ul style="list-style-type: none"> Daily 7 AM to 10 PM. 	Noise Control Bylaw No. 2573	n/a
City of Surrey	<ul style="list-style-type: none"> Monday to Saturday 7 AM to 10 PM; and Not permitted at any time on Sundays. 	Noise Control Bylaw No. 7044	n/a
City of Coquitlam	<ul style="list-style-type: none"> Monday to Saturday 7 AM to 10 PM; and Not permitted at any time on Sundays. 	Noise Regulation Bylaw No. 1233	Pile driving is not permitted on Saturdays before 9 AM or after 5 PM.
City of Burnaby	<ul style="list-style-type: none"> Monday to Friday 7AM to 8 PM; Saturday 9 AM to 8 PM; and Not permitted at any time on Sundays or Holidays. 	Noise or Sound Abatement Bylaw No. 1979	n/a

Sources: District of Clearwater 2013, City of Kamloops 2013, City of Merritt 2013, District of Hope 2013, City of Chilliwack 2013, City of Abbotsford 2013, Township of Langley 2013, City of Surrey 2013, City of Coquitlam 2013, City of Burnaby 2013.

Notes: See specific bylaw for details related to permitting and exceptions.

APPENDIX C
INFRASTRUCTURE AND SERVICES TABLES

TABLE C-1

MONTHLY AVERAGE DAILY TRAFFIC VOLUMES FOR SELECT LOCATIONS ON KEY HIGHWAYS CROSSED BY THE PROPOSED PIPELINE CORRIDOR IN ALBERTA

Alberta Provincial Highway No. 16 (Yellowhead)	2010 MADT	2011 MADT	2012 MADT
Edmonton Region			
ATR- 50161860- 1.0 km W of 16 & 21 Sherwood Park			
January	28,887	28,189	30,324
February	30,809	31,067	32,720
March	34,083	32,118	33,798
April	36,422	34,228	35,698
May	35,711	36,631	39,165
June	37,439	38,151	39,723
July	36,114	36,316	37,943
August	36,967	38,363	39,216
September	36,845	37,874	38,786
October	36,198	37,288	37,022
November	34,611	33,671	32,952
December	31,216	31,912	30,807
Annual Average Daily Traffic (AADT)	34,621	34,665	35,683
ATR- 51604259- 2.8 km E of 16 & 60 Winterburn			
January	33,388	32,797	38,475
February	35,768	35,975	41,252
March	38,567	37,879	43,132
April	39,974	39,480	43,298
May	40,978	42,374	49,186
June	45,127	41,220	51,739
July	45,263	43,105	51,159
August	43,880	44,245	53,297
September	43,311	44,180	50,722
October	42,020	44,016	49,271
November	39,615	41,549	42,731
December	35,159	39,406	38,409
AADT	40,272	40,544	46,070
ATR- 51604019- 2.1 km W of 16 & 779 Stony Plain			
January	19,186	17,870	19,891
February	20,334	19,664	21,621
March	21,496	20,433	22,466
April	22,581	21,776	22,504
May	24,631	24,328	25,869
June	27,669	25,348	27,991
July	28,817	27,577	28,888
August	28,171	28,573	30,713
September	25,622	27,234	27,612
October	24,618	24,987	25,331
November	22,067	21,880	21,542
December	19,822	21,340	20,428
AADT	23,771	23,442	24,584
ATR- 50161210- 1.0 km W of 16 & 43 Carvel Corner			
January	10,972	10,503	11,267
February	11,741	11,451	12,323
March	12,498	11,797	12,952
April	13,588	12,721	12,961
May	14,586	14,605	15,481
June	16,701	15,721	17,205
July	18,918	16,891	19,395

TABLE C-1 Cont'd

Alberta Provincial Highway No. 16 (Yellowhead)	2010 MADT	2011 MADT	2012 MADT
August	18,661	19,097	20,358
September	15,587	17,294	17,204
October	14,510	14,813	14,957
November	12,781	12,752	12,774
December	11,684	12,376	12,074
AADT	14,370	14,186	14,925
ATR- 50161250-2.8 km E of 16 & 22 Entwistle EJ			
January	5,847	5,758	6,394
February	6,417	6,292	6,968
March	6,798	6,629	7,347
April	7,087	7,174	7,297
May	7,532	7,685	8,161
June	8,435	8,268	8,838
July	10,574	10,356	10,452
August	10,355	10,751	11,279
September	8,440	9,351	8,925
October	7,760	8,131	7,672
November	6,931	7,168	6,717
December	6,568	7,116	6,774
AADT	7,739	7,902	8,076
RURAL ALBERTA REGION			
ATR- 50160810- 11.6 km E of 16 & 32 Carrot Creek			
January	5,413	5,440	6,032
February	5,993	6,005	6,614
March	6,351	6,332	6,764
April	6,180	6,398	6,492
May	6,430	6,605	6,869
June	7,342	7,212	7,487
July	9,244	9,329	8,851
August	9,168	9,713	9,834
September	7,548	8,475	7,863
October	6,905	7,360	6,799
November	6,099	6,410	5,927
December	5,968	6,513	6,099
AADT	6,895	7,159	7,141
ATR- 50160650- 1.6 km E of 16 & 47 Edson			
January	6,679	7,293	8,058
February	7,499	7,890	8,492
March	8,052	8,082	8,669
April	7,433	7,649	7,904
May	7,674	7,863	8,312
June	8,949	8,710	9,136
July	10,807	10,940	10,819
August	10,758	11,649	11,671
September	9,264	10,405	9,727
October	8,516	9,327	8,578
November	7,677	8,255	7,529
December	7,549	8,110	7,524
AADT	8,413	8,857	8,873
ATR- 50160610- 5.8 km W of 16 & 32 Edson			
January	5,875	6,039	6,726
February	6,482	6,593	7,306
March	6,950	6,877	7,493

TABLE C-1 Cont'd

Alberta Provincial Highway No. 16 (Yellowhead)	2010 MADT	2011 MADT	2012 MADT
April	6,569	6,804	6,902
May	6,808	6,931	7,312
June	7,847	7,721	8,043
July	9,859	10,083	9,478
August	9,802	10,435	10,593
September	8,054	9,117	8,456
October	7,464	7,968	7,365
November	6,685	6,939	6,538
December	6,565	7,163	6,718
AADT	7,423	7,731	7,749
ATR- 50160260- 10 km E of 16 & 40 Hinton EJ			
January	4,293	4,288	4,697
February	4,803	4,653	5,090
March	5,077	4,945	5,414
April	5,029	5,204	5,251
May	5,178	5,299	5,527
June	5,913	5,851	6,110
July	7,814	7,748	7,489
August	7,817	7,962	8,295
September	6,221	6,642	6,328
October	5,395	5,595	5,315
November	4,548	4,659	4,322
December	4,648	4,931	4,555
AADT	5,569	5,657	5,705
Jasper National Park Region			
ATR- 50160210- Jasper Park Gates			
January	2,640	2,684	2,928
February	2,950	2,783	3,116
March	3,275	3,055	3,495
April	3,646	3,754	3,893
May	3,939	4,021	4,217
June	4,564	4,614	4,829
July	7,004	7,183	6,636
August	6,843	6,948	7,415
September	4,599	5,012	5,002
October	3,511	3,630	3,595
November	2,727	2,723	2,651
December	3,070	3,400	3,258
AADT	4,075	4,163	4,260
ATR- 50160010- 19 km W of 16 & 93 Jasper			
January	1,165	1,797	1,840
February	1,773	1,798	1,943
March	2,110	2,014	2,295
April	2,484	2,528	2,652
May	2,803	2,816	2,873
June	3,245	3,413	3,421
July	4,835	4,992	4,600
August	4,832	4,926	5,207
September	3,290	3,470	3,401
October	2,440	2,520	2,507
November	1,823	1,929	1,666
December	2,051	2,238	2,321
AADT	2,785	2,789	2,900

Sources: Alberta Transportation 2010, 2011, 2012

- Notes: 1 Average of the MADT for January, February, March, April and December 2009.
2 Average of the MADT for January, February, March, April and November 2010.
3 Average of the MADT for January and February 2011.

Annual Average Daily Traffic (AADT) uses two way data

All numbers are approximate.

TABLE C-2

AIRPORTS IN THE PROJECT VICINITY IN ALBERTA

Airport Name	Location	Runway Description	Instrument Flight Rules FR (yes or no) ¹	Comments
EDMONTON REGION				
Edmonton City Centre Airport	10.9 km from RK 0.0	One asphalt runway: • 1,789 m	Yes	• Training, military, industrial and medevac flights as well as small charters, private and corporate aircraft (Edmonton International Airport 2012).
Cooking Lake Airport	14.4 km from RK 11.1	One asphalt runway: • 900 m	No	• Only facility in Alberta with both a conventional runway and a floatplane base. Recreational flying facility for small aircraft and floatplanes (Edmonton International Airport 2012).
Edmonton International Airport	10.6 km from RK 33.7	Two asphalt runways: • 3,351 m • 3,109 m	Yes	• Commercial flights. Owned and operated by Edmonton Airports, a financially independent, community-based, non-share corporation. Has non-stop service to over 50 national and international destinations and serves over 6 million passengers per year (Edmonton International Airport 2012).
Stony Plain (Lichtner Farms) Airport	1.5 km from RK 62.6	One clay runway: • 715 m	No	• No scheduled airline service (Stony Plain Airport 2012).
Villeneuve Airport	14.6 km from RK 64.1	Two asphalt runways: • 1,066 m • 1,066 m	Yes	• Primary flight-training facility for the Edmonton Capital Region (Edmonton International Airport 2012).
RURAL ALBERTA REGION				
Wildwood/Loche Mist Farms Airstrip	Approximately 5 km from RK 151	One turf runways: • 701 m	No	• Local airport (light traffic) with no scheduled airline service (Wildwood Airstrip 2012).
Edson Airport	1.5 km from RK 235.8	One asphalt runway: • 1,829 m	No	• No scheduled airline service (Edson Airport 2012).
Hinton/Entrance Airport	4.1 km from RK 329.2	One turf runway: • 1,128 m	No	• Hangers, fuel and minimal rest facilities (Town of Hinton 2013).
Jasper-Hinton Airport	2.9 km from RK 335.2	One asphalt runway: • 1,375 m	No	• Unmanned with maintenance staff keeping the runways safe and clear of debris, ice and snow (Town of Hinton 2013).
Jasper Airport	37.6 km from RK 339.4	One turf runway: • 1,216 m	No	• Private airport operated by Jasper National Park.

Sources: Edmonton International Airport 2012, Edson Airport 2012, Nav Canada 2013

- Notes: 1 Does airport have official instrument approach procedures? Yes - indicates that instrument approach procedure is published. No - indicates instrument flight procedure is not published and that the airport is not suitable for traffic during bad weather or darkness.
All numbers are approximate.

TABLE C-3

SELECT RAILWAY STATIONS AND LOCATIONS IN ALBERTA

Station	Carrier
EDMONTON REGION	
East Edmonton	CN
Lambton Park	CPR
Lambton Park TFR	CPR
Weiss	CN
Bretona	CN
Spruce Grove	CN
Stony Plain	CN
Carvel	CN
Sundance	CN
Keephills	CN
Wabamun	CN
Fallis	CN
Gainford	CN
Entwistle	CN
RURAL ALBERTA REGION	
Evansburg	CN
Wildwood	CN
Leaman	CN
Mackay	CN
Niton	CN
Peers	CN
Rosevear	CN
Wolf Creek	CN
Edseofspu	CN
Edson	CN
Ansell	CN
Bickerdike	CN
Galloway	CN
Medicine Lodge	CN
Hargwen	CN
Obed	CN
Dalehurst	CN
Pedley	CN
Hinton	CN
Entrance	CN
Solomon	CN
Swan Landing	CN
Solomon	CN
Yellowhead	CN
Lucerne	CN
Fitzwilliam	CN
Grant Brook	CN
Red Pass JCT	CN
Foster	CN
Alpland	CN
Brule	CN
JASPER NATIONAL PARK REGION	
Miette	CN
Devona	CN
Snaring	CN
Henry House	CN
English	CN

TABLE C-3 Cont'd

Station	Carrier
Jasper	CN
Wynd	CN
Geikie	CN

Sources: CN 2012, CPR 2012

TABLE C-4

**MONTHLY AVERAGE DAILY TRAFFIC VOLUMES FOR SELECT LOCATIONS
 ON HIGHWAYS CROSSED BY THE PROPOSED PIPELINE CORRIDOR IN BC**

Highway No. 16 (Southern Yellowhead)	2010 MADT	2011 MADT	2012 MADT
Fraser-Fort George/Thompson-Nicola Region			
Site- P-23-3Ns- Route 5 Just South of Tete Jaune Cache I/C			
January	1,353	1,523	1,413
February	1,536	1,500	1,662
March	1,741	1,640	1,875
April	2,030	2,125	2,198
May	2,350	2,359	2,483
June	2,736	2,826	3,035
July	4,122	4,248	3,977
August	4,246	4,298	n/a
September	2,860	2,973	n/a
October	2,144	2,610	n/a
November	1,521	n/a	n/a
December	1,664	n/a	n/a
AADT	2,358	2,610	n/a
Site- P-23-1EW- Route 16 Just West of Tete Jaune Cache I/C			
January	636	612	591
February	730	681	762
March	806	729	787
April	868	910	916
May	1,008	1,007	989
June	1,253	1,314	1,165
July	1,679	1,628	1,501
August	1,638	1,594	n/a
September	1,211	1,200	n/a
October	974	1,182	n/a
November	698	n/a	n/a
December	770	n/a	n/a
AADT	1,023	1,086	n/a
Site- P-23-2EW- Route 16 Just East of Tete Jaune Cache I/C			
January	1,470	1,646	1,572
February	1,664	1,657	1,827
March	2,012	1,885	2,164
April	2,430	2,505	2,614
May	2,792	2,808	2,930
June	3,249	3,418	3,527
July	4,918	5,113	4,742
August	4,994	5,088	5,346
September	3,301	3,485	3,511
October	2,464	3,058	2,577
November	1,723	n/a	1,736
December	1,898	n/a	2,113

TABLE C-4 Cont'd

Highway No. 16 (Southern Yellowhead)	2010 MADT	2011 MADT	2012 MADT
AA DT	2,743	3,066	2,888
British Columbia Highway 5 (Coquihalla Hwy)	2010 MADT	2011 MADT	2012 MADT
Ironmask – P-21-3NS – C – just south of Afton I/C, west of Kamloops			
January	5,972	5,930	5,412
February	6,836	6,335	6,351
March	7,735	7,468	6,725
April	8,616	8,802	8,713
May	9,442	7,916	8,943
June	10,103	10,076	10,830
July	12,886	12,835	n/a
August	13,167	13,215	13,537
September	10,363	10,982	10,113
October	9,209	n/a	8,134
November	6,756	6,206	n/a
December	7,176	6,973	n/a
AA DT	9,022	8,794	8,968
Fraser Valley Region			
Coquihalla – P-17-8NS – N – 12 km N of 3, Hope			
January	6,337	6,156	5,456
February	7,633	6,980	6,807
March	8,835	8,427	7,478
April	10,083	10,318	10,148
May	11,718	11,531	12,084
June	12,474	12,532	12,441
July	16,765	16,628	15,907
August	17,284	17,409	18,476
September	13,056	13,216	13,057
October	10,923	10,775	10,663
November	7,382	6,860	7,411
December	7,510	7,629	6,904
AA DT	10,833	10,705	10,569
British Columbia Highway 1 (Trans-Canada Hwy)	2010 MADT	2011 MADT	2012 MADT
Lorenzetta – P-17-1EW – N – 14.4 km W of Hope			
January	10,746	10,130	9,436
February	12,422	11,312	11,281
March	14,444	13,620	13,017
April	16,286	16,240	15,955
May	18,937	16,039	18,840
June	19,881	n/a	19,546
July	26,865	n/a	24,994
August	27,960	n/a	29,121
September	21,317	20,379	20,784
October	17,542	17,016	17,040
November	12,141	12,016	12,399
December	12,466	12,546	11,776
AA DT	17,584	14,817	17,016
Vedder – P-17-9EW – N – 1.3 km west of Vedder Road, Chilliwack			
January	n/a	n/a	n/a
February	n/a	n/a	30,478
March	n/a	n/a	32,726
April	n/a	n/a	35,566
May	n/a	n/a	38,427

TABLE C-4 Cont'd

Highway No. 16 (Southern Yellowhead)	2010 MADT	2011 MADT	2012 MADT
June	n/a	n/a	39,205
June	n/a	n/a	39,205
July	n/a	n/a	44,430
August	n/a	n/a	48,688
September	n/a	n/a	40,590
October	n/a	n/a	36,546
November	n/a	n/a	n/a
December	n/a	n/a	28,908
AADT	n/a	n/a	37,051
Bradner – P-17-4EW-N – just east of Bradner Road, Abbotsford			
January	61,414	59,616	56,981
February	65,267	63,214	64,435
March	68,151	67,441	66,344
April	70,062	69,026	69,139
May	71,882	70,507	71,582
June	73,311	73,185	72,836
July	76,047	76,169	76,105
August	77,664	78,846	79,246
September	73,311	74,393	73,942
October	71,040	71,338	70,981
November	63,179	64,820	65,892
December	62,542	62,973	60,380
AADT	69,489	69,294	68,989
Metro Vancouver Region			
Trinity – P-16-7EW – N – at Glover Rd underpass			
January	60,314	58,293	55,432
February	63,836	61,490	62,448
March	66,548	65,182	64,302
April	68,395	66,920	66,451
May	70,303	68,180	68,562
June	71,717	70,719	n/a
July	74,117	72,920	n/a
August	75,080	75,606	n/a
September	70,374	71,236	n/a
October	68,831	68,096	n/a
November	61,301	62,352	n/a
December	60,596	60,579	n/a
AADT	67,618	66,798	n/a
200th Street East – P-70-1EW-N – 0.3 km east of the 200th Street overpass, Langley			
January	56,705	n/a	n/a
February	59,372	n/a	n/a
March	61,939	n/a	n/a
April	63,134	n/a	n/a
May	64,667	n/a	n/a
June	66,830	n/a	n/a
July	70,973	n/a	n/a
August	72,923	n/a	n/a
September	n/a	n/a	n/a
October	n/a	n/a	n/a
November	n/a	n/a	n/a
December	n/a	n/a	n/a
AADT	n/a	n/a	n/a

TABLE C-4 Cont'd

Highway No. 16 (Southern Yellowhead)	2010 MADT	2011 MADT	2012 MADT
200th Street West – P-71-1EW-C – 0.3 km west of the 200th Street overpass, Langley			
January	66,870	n/a	n/a
February	69,512	n/a	n/a
March	71,866	n/a	n/a
April	72,454	n/a	n/a
May	73,669	n/a	n/a
June	75,212	n/a	n/a
July	76,771	n/a	n/a
August	75,950	n/a	n/a
September	n/a	n/a	n/a
October	n/a	n/a	n/a
November	n/a	n/a	n/a
December	n/a	n/a	n/a
AADT	n/a	n/a	n/a
Port Mann – P16-2EW-N – at the west end of the Port Mann Bridge, Coquitlam			
January	109,342	102,283	97,636
February	110,677	106,460	104,685
March	116,127	109,756	106,666
April	116,794	110,053	108,850
May	117,969	111,867	n/a
June	118,625	114,781	n/a
July	116,287	113,329	n/a
August	114,249	116,313	n/a
September	112,942	112,641	n/a
October	111,897	110,908	n/a
November	104,918	105,890	n/a
December	106,188	105,451	n/a
AADT	113,001	109,978	n/a

Source: British Columbia Ministry of Transportation and Infrastructure 2012b

- Notes:
- 1 Average of the MADT for January, February, March, April and December 2009.
 - 2 Average of the MADT for January, February, March, April and November 2010.
 - 3 Average of the MADT for January and February 2011.

All numbers are approximate.

TABLE C-5

AIRPORTS IN THE PROJECT VICINITY IN BC

Airport Name	Location	Runway Description	Instrument Flight Rules (yes or no) ¹	Comments
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION				
Valemount Airport (CAH4)	3.3 km from RK 519.5	One asphalt runway: • 1,200 m	Yes	• Local airport (light traffic) with no scheduled airline service.
Blue River Airstrip	0.9 km from RK 613.0	Single runway	No	• Private use, refill area for forestry use, federal weather station. • Emergency use. • Does not receive a lot of summer use. No one manages, was built by Highway Department.
Kamloops Airport (CYKA)	0.1 km from RK 846.3	Two asphalt runways: • 2,400 m • 800 m	Yes	• Owned and operated by Kamloops Airport Ltd. Serves the Kamloops Region and offers regular air service to Vancouver and Prince George, BC, and Calgary, Alberta. • Serves passenger travel, air cargo traffic and houses aviation-related industrial operations.

TABLE C-5 Cont'd

Airport Name	Location	Runway Description	Instrument Flight Rules (yes or no) ¹	Comments
Merritt Airport (Saunders Field)	Crosses at RK 926.9	One asphalt runway: • 1,200 m	No	• Private use.
Princeton Regional Airport (CYDC)	40.3 km from RK 992.3	One asphalt runway: • 1,200 m	Yes	• Owned and operated by the Town of Princeton, BC. • No scheduled airline service.
FRASER VALLEY REGION				
Hope Airpark	0.3 km from RK 1049.5	Single turn runway	No	• Owned by the FVRD.
Chilliwack Municipal Airport	3.0 km from RK 1094.8	1,200 m, paved Grass landing strips adjacent to paved runway	No	• Operated by the City of Chilliwack and Magnum Management Inc. • The airport houses 75 private and commercial fixed and rotary wing aircraft with available maintenance facilities.
Abbotsford International Airport (CYXX)	7.6 km from RK 1127.1	Two asphalt runways: • 2,900 m • 1,600 m	Yes	• Owned and operated by the Abbotsford Airport Authority on behalf of the City of Abbotsford. The airport processes approximately 475,000 passengers per year. • Scheduled flights to Victoria and Nanaimo, BC and Calgary and Edmonton, Alberta.
METRO VANCOUVER REGION				
Langley Regional Airport (CYNJ)	6.2 km from RK 1147.9	Two asphalt runways: • 800 m • 640 m	Yes	• Owned by the Township of Langley and managed by CYNJ Airport Management. • No regularly scheduled air service.
Pitt Meadows Airport (CYPK)	2.5 km from RK 1161.5	Three asphalt runways: • 1,500 m • 760 m • 760 m	Yes	• Owned and operated by the Pitt Meadows Airport Society. • No regularly scheduled air service.
Vancouver/Boundary Bay Airport (CZBB)	20.1 km from RK 1172.9	Two asphalt runways: • 1,700 m • 1,100 m	Yes	
Vancouver International Airport (YVR)	17.6 km from RK 1178.5	Three asphalt runways: • 3,500 m • 3,000 m • 2,200 m	Yes	• Managed by the Vancouver Airport Authority. • YVR is the second busiest airport in Canada, transporting approx. 17 million passengers per year with regularly scheduled flights to provincial, national and international destinations.

Sources: Abbotsford International Airport 2012, Chilliwack Airport 2012, FVRD 2012, Kamloops Airport Ltd. 2012, Langley Regional Airport 2012, Nav Canada 2013, Pitt Meadows Airport n.d., Princeton Airport n.d., Valemount Airport 2012, YVR 2012, Madden, Wiegele pers. comm.

Notes: 1 Does airport have an official instrument approach procedures: Yes - indicates that instrument approach procedure is published. No - indicates instrument flight procedure is not published and that the airport is not suitable for traffic during bad weather or darkness.

All numbers are approximate.

TABLE C-6

SELECT RAILWAY STATIONS AND LOCATIONS IN THE PROJECT VICINITY IN BC

Station	Carrier
FRASER-FORT GEORGE / THOMPSON-NICOLA REGION	
Spur Tete Jaune	CN
Morey	CN
Swiftwater	CN
Taverna	CN
Tete Jaune	CN
Haver Bros	CN
Harvey	CN
Jackman	CN
Peterson	CN
Spicer	CN
Swift Creek	CN
Valemount	CN
Lebans Mills Yellow	CN
Cedarside	CN
Canoe River	CN
Albreda	CN
Clemina	CN
Gosnell	CN
Lempriere	CN
Pyramid	CN
Thunder River	CN
Redsand	CN
Blue River	CN
Wolfenden	CN
Messiter	CN
Avola	CN
Wire Cache	CN
McMurphy	CN
Wabron	CN
Irvine	CN
Vavenby	CN
Birch Island	CN
Clearwater	CN
Black Pool	CN
Boulder	CN
Chu Chua	CN
Chinook Cove	CN
Barriere	CN
Louis Creek	CN
Exlou	CN
McLure	CN
Vinsulla	CN
Heffley	CN
Kamloops	CN
Tranquille	CPR
Benledi	CPR
Chuwahls	CPR
Frederick	CPR
Kamloops IMS	CN
Kamloops IMS	CPR
Kamloops East	CPR

TABLE C-6 Cont'd

Station	Carrier
FRASER VALLEY REGION	
Hope	CN
Floods	CN
Laidlaw	CN
Cheam View	CN
Popkum	CN
Rosedale	CN
Magellan	CPR
Chilliwack	CN
Sardis	SRY
Arnold	CN
Reclaim	SRY
Clayburn	SRY
Bradner	SRY
Cox	CN
Matsqui	CN
Matsqui Jct	CPR
Matsqui	CPR
Page	CN
Page	CPR
Huntingdon	CN
Huntingdon	BNSF
Huntingdon	UP
Huntingdon	CPR
Langley	SRY
Abbotsford	CPR
Abbotsford	SRY
Sperling	SRY
Glen Valley	CN
Glen Valley	CPR
Lundgren	CN
Gloucester	SRY
METRO VANCOUVER REGION	
Fraser Surrey Impex	BNSF
Hydro (Yale Sub)	CN
Hydro	CPR
Rawlison	CN
Livingstone	CN
New Westminster	CPR
Milner	SRY
Fort Langley	CN
Cloverdale	SRY
Livingstone	CPR
North Van Barge	UP
Tide Water Forest	CN
Colebrook	BNSF
Newton	SRY
Kings	SRY
Vancouver Intermodal Terminal	CN
Westlang	CN
Vancouver	AMTK
Vancouver Thornton Yard	CN

TABLE C-6 Cont'd

Station	Carrier
Thornton Line Cont'l	CN
Vancouver Thornton Yard	BNSF
Vancouver Thornton Diesel	CN
Fraser Mills	CPR
Brownsville Branch	CN
Brownsville	BNSF
Fraser Surrey	CN
Fraser Surrey Impex	CN
South Westminster	SRY
Woodwards Landing	CN
Brunette	CN
Fraser Mills	CN
Booth	CPR
Vancouver IMS	CPR
Macaulay	CPR
Mayfair Ind Park	CPR
Seto	CPR
Trapp Yard	SRY
South Burnaby	CN
Byrne Road	CPR
Ardley	BNSF
Willingdon Junction	CN
Second Narrows	CN
Stanovan	CN
Lake City	BNSF
Lake City	CN
Burnaby	BNSF
Burnaby	CN
Barnet	CN
Westridge	CN
Shellburn	CN

Sources: CN 2012, CPR 2012, Southern Railway of British Columbia 2012.

Notes: CN: Canadian National; CPR: Canadian Pacific Railway; SRY: Southern Railway of BC; BNSF: Burlington Northern Santa Fe Railway; UP: Union Pacific; AMTK: Amtrak

TABLE C-7

TRANSMISSION LINES CROSSED BY THE PROPOSED PIPELINE CORRIDOR IN ALBERTA

Location
EDMONTON REGION
RK 11.0
RK 15.3
RK 33.5
RK 89.0
RK 89.9
RK 90.5
RK 96.6
RK 99.8
RK 112.1
RK 112.8
RK 124.7
RK 131.7

TABLE C-7 Cont'd

Location
RK 133.3
RURAL ALBERTA REGION
RK 135.6
RK 145.4
RK 164.6
RK 248.5
RK 249.2
RK 255.4
RK 260.0
RK 263.1
RK 266.0
RK 267.3
RK 269.4
RK 269.7
RK 270.9
RK 271.2
RK 275.3
RK 294.7
RK 296.0
RK 298.1
RK 298.7
RK 312.5
RK 321.8
JASPER NATIONAL PARK REGION
N/A

Source: IHS Inc. 2013c

Note: All numbers are approximate.

TABLE C-8

TRANSMISSION LINES CROSSED BY THE PROPOSED PIPELINE CORRIDOR IN BC

RK	Circuit Name	Circuit Description
FRASER-FORT GEORGE / THOMPSON-NICOLA REGION		
RK 535.6; RK 606.5, RK 625.2, RK 633.4, RK 634.5, RK 636.7	1L211	AVO - Avola -> VLM - Valemount
RK 663.0, RK 663.6, RK 685.1, RK 686.0	1L210	BKL - Brockhurst -> AVO - Avola
RK 850.2	1L206	SVA - Savona -> BKL - Brocklehurst
RK 850.2	1L204	SVA - Savona -> DUG - Douglas Street
RK 850.6	1L204TMT	1L204TMT -> Trans Mtn Oil (Cust)
RK 892.9	5L087	KLY - Kelly Lake -> NIC - Nicola
RK 899.5	1L243	HLD - Highland -> NIC - Nicola
RK 956.0	5L082	NIC - Nicola -> MDN - Meridian
RK 956.1	5L081	NIC - Nicola -> ING - Ingledow
FRASER VALLEY REGION		
RK 1044.1, RK 1046.0, RK 1047.4, RK 1047.7, RK 1048.4, RK 1067.2, RK 1067.3, RK 1068.3, RK 1069.2, RK 1069.7, RK 1071.2, RK 1071.8	60L095	WAH - Wahleach - HOP - Hope

TABLE C-8 Cont'd

RK	Circuit Name	Circuit Description
RK 1064.8, RK 1067.1, RK 1067.3, RK 1068.3, RK 1069.2, RK 1069.7, RK 1071.2, RK 1071.8	60L010	WAH - Wahleach -> BBR - Boston Bar
RK 1071.8, RK 1075.8, RK 1079.0, RK 1088.5	60L093WAH	60L093WAH Tap -> WAH - Wahleach
RK 1071.9, RK 1075.8, RK 1079.0	3L003	ROS - Rosedale -> WAH - Wahleach
RK 1082.2	60L093KEN	60L093KEN Tap -> Kent
RK 1082.3	3L002	BRT - Bridge River -> ROS - Rosedale
RK 1082.3, RK 1097.9, RK 1112.9	5L041	KLY - Kelly Lake -> CBN - Clayburn
RK 1082.3, RK 1097.8, RK 1113.0	5L081	NIC - Nicola -> ING - Ingledow
RK 1098.0	2L078	ALZ - Atchelitz -> ROS - Rosedale
RK 1104.8, RK 1104.8	60L048	ALZ - Atchelitz -> ABB - Abbotsford
RK 1112.8	2L077	CBN - Clayburn -> ALZ - Atchelitz
METRO VANCOUVER REGION		
RK 1145.7, RK 1145.7	60L008BAL	60L008BAL Tap -> BAL - Balfour
RK 1150.4	60L008	RUS - Ruskin -> 19-11
RK 1150.4	60L007	RUS - Ruskin -> 19-8
RK 1168.0	5L044	MDN - Meridian -> ING - Ingledow
RK 1168.1	2L022	MDN - Meridian -> WHY - Whalley
RK 1172.2	60L017NRG	60L017NRG Tap -> Newsteck
RK 1173.0	2L039	MDN - Meridian -> NEL - Newell
RK 1173.0	60L017NWR	60L017NWR Tap - New Westminster
RK 1176.4, RK 1176.4	60L036	NEL - Newell -> BND - Barnard
RK 1176.4	2L040	BUT - Burrard -> NEL - Newell
RK 1176.4	2L050	BUT - Burrard -> MUR - Murrin (UG HPN)
RK 1178.7, RK 1178.7	60L039	HPN - Horne Payne -> BND - Barnard
RK 1178.8	2L051	UG - Horne Payne to Meridian
RK 1183.4	60L005	LB1 - Buntzen #1 -> SHL - Shellburn

Source: BC Hydro 2011

Note: All numbers are approximate.

TABLE C-9

**PRIVATE HOUSING MARKET FOR COMMUNITIES
IN THE PROPOSED PIPELINE CORRIDOR IN ALBERTA**

Community	Total Occupied Private Dwellings (No.)	Owned Dwellings (%)	Rented Dwellings (%)	Band Housing (%)	Average Rooms per House (No.)	Average Value of Dwellings (\$)
EDMONTON REGION						
City of Edmonton	324,760	64.9	35.1	0.0	6.1	379,968
City of Spruce Grove	9,620	80.9	19.0	0.0	6.9	365,815
Town of Stony Plain	5,820	77.0	23.1	0.0	6.5	351,274
Village of Wabamun	Data for this area has been suppressed for data quality or confidentiality reasons.					
RURAL ALBERTA REGION						
Town of Edson	3,390	68.0	32.0	0.0	6.8	281,272
Town of Hinton	3,780	75.9	24.1	0.0	6.6	301,772
JASPER NATIONAL PARK REGION						
Municipality of Jasper	1,460	42.8	57.2	0.0	6.0	544,124

Source: Statistics Canada 2013a

Note: All numbers are approximate.

TABLE C-10

**PRIVATE HOUSING MARKET FOR
COMMUNITIES IN THE PROPOSED PIPELINE CORRIDOR IN BC**

Community	Total Occupied Private Dwellings (No.)	Owned Dwellings (%)	Rented Dwellings (%)	Band Housing (%)	Average Rooms per House (No.)	Average Value of Dwellings (\$)
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION						
Village of Valemount	475	73.7	27.4	0.0	5.9	195,177
District of Clearwater	1,015	85.2	15.3	0.0	7.1	445,990
District of Barriere	Data for this area has been suppressed for data quality or confidentiality reasons.					
City of Kamloops	35,020	73.7	26.3	0.0	6.9	361,030
City of Merritt	2,905	74.2	25.8	0.0	6.8	263,414
FRASER VALLEY REGION						
District of Hope	2,635	76.5	23.5	0.0	6.7	290,138
City of Chilliwack	30,460	74.7	25.3	0.0	6.8	358,341
City of Abbotsford	46,455	74.2	25.8	0.0	6.8	405,802
METRO VANCOUVER REGION						
Township of Langley	37,240	84.7	15.3	0.0	7.3	548,062
City of Surrey	152,850	73.1	26.9	0.0	6.5	544,819
City of Coquitlam	45,550	74.4	25.6	0.0	6.5	588,265
City of Burnaby	86,840	63.5	36.5	0.0	5.4	648,217

Source: Statistics Canada 2013a

Note: All numbers are approximate.

TABLE C-11

**RENTAL ACCOMMODATIONS FOR COMMUNITIES
IN THE PROPOSED PIPELINE CORRIDOR IN ALBERTA**

Community	No. Rental Units	Vacancy Rate (%)	Rents by Rental Type (\$/month)			
			Bachelor	One Bedroom	Two Bedroom	Three Bedroom +
EDMONTON REGION						
City of Edmonton	60,031	1.7	744	822	1,075	1,221
City of Spruce Grove	860	1.5	**	894	1,059	1,141
Town of Stony Plain	435	3.9	**	808	1,024	1,107
RURAL ALBERTA REGION						
Town of Edson	626	9.4	761	739	909	1,132
Town of Hinton	613	7.7	561	765	943	1,002
JASPER NATIONAL PARK REGION						
Municipality of Jasper	511	0.4	645	734	902	1,067

Sources: CMHC 2012a, Alberta Municipal Affairs 2011

Note: All numbers are approximate

** Data suppressed to protect confidentiality or data not statistically reliable.

TABLE C-12
RENTAL ACCOMMODATIONS FOR
COMMUNITIES IN THE PROPOSED PIPELINE CORRIDOR IN BC

Community	No. Rental Units	Vacancy Rate (%)	Rents by Rental Type (\$/month)			
			Bachelor	One Bedroom	Two Bedroom	Three Bedroom +
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION						
Kamloops (Census agglomeration) ¹	3,629	3.9	613	709	882	1,122
FRASER VALLEY REGION						
Chilliwack (Census agglomeration) ²	3,051	5.5	497	623	770	897
City of Abbotsford	3,562	3.7	563	667	826	990
METRO VANCOUVER REGION						
Langley ³	2,326	4.3	638	757	920	1,107
City of Surrey	5,907	5.7	614	723	887	1,105
Tri-Cities ⁴	4,941	3.2	677	794	1,009	1,355
City of Burnaby	12,954	2.2	757	888	1,124	1,377

Sources: CMHC 2012b,c,d

Notes: All numbers are approximate.

n/a = information is unknown

CMHC presents data for Kamloops (Census agglomeration) which consists of the City of Kamloops, Village of Chase, Kamloops 1 Indian Reserve (IR), District of Logan Lake, Sahhalkum 4 IR, Sun Peaks Mountain Resort, Whispering Pines 4 IR and Thompson-Nicola Electoral Areas J and P (Statistics Canada 2013a).

CMHC presents data for Chilliwack (Census agglomeration) which consists of the City of Chilliwack, Village of Harrison Hot Spring, District of Kent, Fraser Valley Electoral Area E, Airchelitch 9 IR, Kwawkwawapilt 6 IR, Schelawat 1 IR, Scowlitz 1 IR, Seabird Island IR, Skowkale IR, Skwah 4 IR, Skahla 2 IR, Skwali 3 IR, Skway 5 IR, Soowahlie 4 IR, Squiaala IR, Tseatah 2 IR, Tzeachten 13 IR and Yakwekwioose 12 IR.

CMHC presents data for Langley which consists of the City of Langley and the Township of Langley.

CMHC presents data for Tri-Cities which consists of the City of Coquitlam, City of Port Coquitlam and City of Port Moody.

TABLE C-13
COMMERCIAL ACCOMMODATIONS FOR
COMMUNITIES IN THE PROPOSED PIPELINE CORRIDOR IN ALBERTA

Community	Hotels/Motel/Lodging		Campgrounds and RV Parks		
	Number of Hotels/Motels	Number of Units	Number of Campgrounds and RV Parks	Number of Sites	Season
EDMONTON REGION					
City of Edmonton	50	13,000	5	700	All
City of Spruce Grove	2	>100	1*	247	All
Town of Stony Plain	6	800	2	130	All
Village of Wabamun	4	50	1	275	Summer (mid-May to mid-October)
RURAL ALBERTA REGION					
Town of Edson	20	1,000	20	300	Summer
Town of Hinton	20	800	14	Unknown	Summer
JASPER NATIONAL PARK REGION					
Municipality of Jasper	20	1,500	10	1,800	Summer (mid-May to mid-October)

Sources: City of Edmonton 2013; Edmonton Tourism 2013; Reid pers. comm.; City of Spruce Grove 2013; Town of Stony Plain 2013; Village of Wabamun 2011; ATPR 2012, Evansburg & Entwistle 2012; Where to Camp 2009; Frostad pers. comm.; Clause pers. comm.; Town of Edson 2013; Town of Hinton 2013, Pagely pers. comm.; Waterworth pers. comm.

Notes: All numbers are approximate

* scheduled to open in mid 2013

TABLE C-14
COMMERCIAL ACCOMMODATIONS FOR
COMMUNITIES IN THE PROPOSED PIPELINE CORRIDOR IN BC

Community	Hotels/Motel/Lodging		Campgrounds and RV Parks		
	Number of Hotels/Motels	Number of Units	Number of Campgrounds and RV Parks	Number of Sites	Season
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION					
Village of Valemount	25	540	10	N/A	• Summer (late-June to mid-September)
Community of Blue River	5	Unknown	1	42	• Summer (early May to mid-October)
Community of Vavenby	Unknown	Unknown	0	0	
District of Clearwater	10	231	4	330	• Summer
City of Kamloops	50	3000	4	> 180	• Summer
City of Merritt	15-17	300	3 RV parks	75-80 sites each	• Unknown
FRASER VALLEY REGION					
District of Hope	20	422	6	459 (includes full and partial hookups for RVs and tenting sites)	<ul style="list-style-type: none"> • Year round • Coquihalla Campground operates from April to November. • Whistletop RV/Tent Park operates from May to September.
City of Chilliwack	9	> 400	15	> 320 ¹	• Year round
City of Abbotsford	9	> 500	Unknown	Unknown	• Unknown
METRO VANCOUVER REGION					
City and Township of Langley	16	> 800	5	> 60	• Year round.
City of Surrey	34	> 1,000	9	> 380	• Year round.
City of Coquitlam	5	> 300	0	0	
City of Burnaby	10	1,200	1	217	• Year round

Sources: Blue River Campground 2011, Blue River 2013, City of Coquitlam 2013, City of Kamloops 2012c, Destination BC 2013, Tourism Abbotsford 2012, Tourism Chilliwack 2013, Tourism Langley 2013, Tourism Surrey 2013, Village of Valemount 2012, Groulx, Hannigan, Matheis, Latimer, Roline, Umpherson, Wilson pers. comm.

Notes: All numbers are approximate.
1 The number of units does not account for all 15 campgrounds.

APPENDIX D
EMPLOYMENT AND ECONOMY TABLES

TABLE D-1

KEY INDUSTRIAL ACTIVITY IN SOCIO-ECONOMIC REGIONAL STUDY AREA IN ALBERTA (LABOUR FORCE BY INDUSTRY) (2011)

Location	Total Labour force (no.)	Agriculture, forestry, fishing and hunting (%)	Mining, quarrying, and oil and gas extraction (%)	Utilities (%)	Construction (%)	Manufacturing (%)	Wholesale Trade (%)	Retail Trade (%)	Transportation and warehousing (%)	Information and cultural industries (%)	Finance and insurance (%)	Real estate, rental and leasing (%)	Professional, scientific and technical services (%)	Management of companies and enterprises (%)	Administrative and support, waste management and remediation services (%)	Educational Services (%)	Health Care and social assistance (%)	Arts, entertainment and recreation (%)	Accommodation and food services (%)	Other Services (%)	Public Administration (%)
EDMONTON REGION																					
Municipal Areas																					
City of Edmonton*	480,645	0.2	2.1	1.0	8.9	6.5	4.6	11.6	4.5	2.0	3.6	2.0	7.3	0.1	3.7	7.8	11.1	1.8	6.8	4.9	8.1
City of Spruce Grove*	15,470	0.4	5.2	2.4	14.7	5.8	5.9	10.4	4.6	1.1	2.1	2.4	4.4	0.2	3.1	5.2	10.5	1.4	6.2	5.8	7.2
Town of Stony Plain*	8,255	1.0	6.7	3.3	13.7	6.8	6.1	10.7	4.2	1.6	4.0	1.8	3.7	0.0	2.4	6.3	10.1	1.5	4.7	4.2	5.9
Village of Wabamun*	Data for this area has been suppressed for data quality or confidentiality reasons.																				
City of Fort Saskatchewan	10,915	0.3	6.0	1.2	13.4	10.0	2.8	13.3	3.7	0.9	2.7	1.0	6.7	0.0	3.9	6.2	8.3	1.3	5.6	4.1	7.7
Village of Spring Lake	285	0.0	8.8	0.0	15.8	0.0	0.0	10.5	0.0	0.0	0.0	0.0	12.3	0.0	0.0	0.0	5.3	0.0	19.3	0.0	0.0
Town of Mayerthorpe	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Town of Oneway	455	0.0	0.0	0.0	14.3	7.7	2.2	2.2	9.9	0.0	0.0	0.0	9.9	0.0	0.0	4.4	8.8	0.0	8.8	5.5	12.1
Village of Alberta Beach	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Town of Morinville	5,090	0.0	2.7	0.8	12.4	7.9	4.2	12.3	5.4	1.7	2.2	2.8	2.1	0.0	2.6	5.3	9.4	1.5	2.9	7.0	16.1
Town of Bon Accord	835	0.0	1.8	0.0	18.6	3.0	4.2	6.6	6.0	0.0	0.0	0.0	1.8	0.0	5.4	6.6	10.2	0.0	1.8	3.0	26.3
Town of Gibbons	1,640	1.2	4.9	0.6	12.8	7.3	2.4	8.5	5.5	0.9	1.8	0.0	4.6	0.0	0.6	3.0	9.1	2.4	2.4	4.6	24.4
Town of Legal	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Town of Redwater	Data for this area has been suppressed for data quality or confidentiality reasons.																				
City of St. Albert	36,430	0.6	1.6	0.7	9.8	4.5	5.1	11.0	4.5	2.0	4.6	2.4	7.2	0.1	2.5	9.5	11.3	1.7	4.3	4.5	11.4
Town of Drayton Valley	4,060	0.0	19.5	1.7	7.1	5.3	4.4	11.1	3.3	0.0	3.1	1.0	2.8	0.0	5.3	6.3	10.2	1.5	7.4	5.2	2.0
Village of Breton	185	0.0	10.8	0.0	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9	0.0	8.1	24.3	0.0
City of Leduc	14,560	0.8	9.0	1.1	11.4	8.5	6.9	10.0	7.5	1.5	2.3	2.9	4.4	0.0	2.6	4.8	8.0	1.0	6.3	4.5	5.6
Town of Beaumont	7,560	0.8	6.3	0.5	11.2	8.3	7.7	8.9	5.2	1.3	4.2	1.7	7.9	0.0	3.8	6.9	8.5	1.0	3.3	5.4	6.0
Town of Calmar	1,145	4.8	9.6	0.0	6.1	19.2	9.2	11.8	6.6	0.0	1.3	0.0	0.0	0.0	1.3	0.9	7.0	0.0	5.7	5.2	7.0
Town of Devon	3,690	1.5	6.4	1.1	9.3	8.4	7.3	10.6	10.7	0.7	2.4	2.3	3.8	0.0	4.7	3.3	7.9	1.1	4.7	5.6	6.4
Village of Thorsby	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Village of Warburg	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Sub-Total Municipal Areas	591,220	0.3	2.7	1.0	9.4	6.5	4.8	11.4	4.6	1.9	3.6	2.0	7.0	0.1	3.5	7.6	10.9	1.7	6.5	4.9	8.2
Rural Areas																					
Strathcona County*	54,775	1.5	3.3	1.2	11.6	7.1	5.8	10.1	4.6	1.4	3.6	1.7	7.8	0.2	2.8	7.9	9.8	1.5	3.8	5.0	8.4
Parkland County*	18,360	4.3	6.3	2.2	16.0	4.3	5.2	9.4	6.9	1.1	2.8	1.9	6.2	0.1	2.8	5.4	7.0	1.6	4.0	6.5	5.5
Summer Village of Betula Beach	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Summer Village of Kapasiwin	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Summer Village of Lakeview	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Summer Village of Point Alison	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Summer Village of Seba Beach	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.7	0.0	0.0	0.0	0.0	40.0
Lac Ste Anne County	6,100	10.7	5.2	2.5	12.0	6.1	3.9	9.3	7.8	0.7	2.6	1.3	4.4	0.0	5.1	5.2	7.7	0.6	2.4	7.2	4.8
Summer Village of Birch Cove	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Summer Village of Castle Island	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Summer Village of Nakamun Park	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Summer Village of Ross Haven	75	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Summer Village of Silver Sands	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Summer Village of South View	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Summer Village of Sunrise Beach	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Summer Village of Sunset Point	80	0.0	0.0	0.0	25.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Summer Village of Val Quentin	35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE D-1 Cont'd

Location	Total Labour force (no.)	Agriculture, forestry, fishing and hunting(%)	Mining, quarrying, and oil and gas extraction (%)	Utilities (%)	Construction (%)	Manufacturing (%)	Wholesale Trade (%)	Retail Trade (%)	Transportation and warehousing (%)	Information and cultural industries (%)	Finance and insurance (%)	Real estate, rental and leasing (%)	Professional, scientific and technical services (%)	Management of companies and enterprises(%)	Administrative and support, waste management and remediation services (%)	Educational Services (%)	Health Care and social assistance (%)	Arts, entertainment and recreation (%)	Accommodation and food services (%)	Other Services (%)	Public Administration (%)
Summer Village of West Cove	40	0.0	0.0	0.0	0.0	0.0	0.0	37.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Summer Village of Yellowstone	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Sturgeon County	11,480	5.8	3.1	0.5	13.9	5.7	5.1	9.3	4.1	2.1	2.8	1.8	5.9	0.0	2.3	5.7	9.0	1.0	2.8	6.6	11.9
Brazeau County	4,450	10.2	19.7	0.4	9.8	3.1	1.7	8.1	9.2	0.9	0.9	2.8	6.7	0.0	3.3	4.4	4.0	0.0	5.2	5.1	3.1
Leduc County	8,535	14.8	7.3	1.4	11.1	7.6	5.2	6.4	5.4	0.7	1.7	2.6	4.4	0.0	2.7	5.4	7.5	1.9	2.8	7.0	4.0
Summer Village of Golden Days	55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Summer Village of Itaska Beach	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Summer Village of Sundance Beach	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-Total Rural Areas	104,120	4.4	5.0	1.4	12.5	6.3	5.3	9.4	5.4	1.3	3.0	1.8	6.8	0.1	2.9	6.7	8.6	1.4	3.6	5.7	7.5
Indian Reserves																					
Stony Plain 135	380	0.0	0.0	0.0	9.2	0.0	0.0	3.9	2.6	0.0	0.0	2.6	0.0	0.0	3.9	6.6	9.2	11.8	3.9	2.6	34.2
Alexander 134	410	2.4	0.0	0.0	8.5	7.3	0.0	2.4	2.4	0.0	0.0	0.0	2.4	0.0	3.7	6.1	20.7	2.4	2.4	2.4	29.3
Wabamun 133b	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Wabamun 133a	295	0.0	0.0	0.0	6.8	3.4	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0	5.1	6.8	6.8	6.8	3.4	0.0	28.8
Stony Plain 135a	Statistics Canada does not provide information for this community.																				
Alexis 133	175	0.0	0.0	0.0	5.7	0.0	0.0	0.0	0.0	5.7	0.0	0.0	5.7	0.0	0.0	0.0	11.4	5.7	0.0	0.0	31.4
Sub-Total Indian Reserves	1,260	0.8	0.0	0.0	7.9	3.2	0.0	2.0	2.8	0.8	0.0	0.8	1.6	0.0	3.6	5.6	12.7	6.7	2.8	1.6	31.0
Edmonton Region Total	696,600	0.9	3.0	1.1	9.8	6.5	4.8	11.1	4.7	1.8	3.5	2.0	6.9	0.1	3.4	7.4	10.5	1.7	6.1	5.0	8.1
RURAL ALBERTA REGION																					
Municipal Areas																					
Town of Edson*	4,960	1.1	12.7	0.5	7.2	6.4	3.4	14.0	6.3	2.7	2.0	0.9	6.8	0.0	1.8	4.7	5.7	1.3	11.0	5.2	4.3
Town of Hinton*	5,825	1.9	17.7	0.0	6.4	9.8	1.9	13.2	6.4	0.3	1.5	2.4	3.4	0.0	1.4	5.1	7.0	1.5	9.7	4.6	3.9
Sub-Total Municipal Areas	10,785	1.5	15.4	0.2	6.7	8.2	2.6	13.6	6.3	1.4	1.8	1.7	5.0	0.0	1.6	4.9	6.4	1.4	10.3	4.9	4.1
Rural Areas																					
Yellowhead County*	6,095	12.0	19.0	1.6	11.5	5.4	2.4	7.1	10.9	0.8	1.2	1.1	3.4	0.0	2.5	4.2	5.8	1.4	2.7	4.7	1.9
Sub-Total Rural Areas	6,095	12.0	19.0	1.6	11.5	5.4	2.4	7.1	10.9	0.8	1.2	1.1	3.4	0.0	2.5	4.2	5.8	1.4	2.7	4.7	1.9
Indian Reserves																					
O'Chiese 203	100	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	25.0	0.0	0.0	0.0	35.0
Alexis Elk River 233	Statistics Canada does not provide information for this community.																				
Alexis Cardinal River 234	Statistics Canada does not provide information for this community.																				
Sub-Total Indian Reserves	100	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	25.0	0.0	0.0	0.0	35.0
Rural Alberta Region Total	16,980	5.3	16.6	0.7	8.5	7.2	2.5	11.2	7.9	1.2	1.6	1.5	4.4	0.0	1.9	4.7	6.3	1.4	7.5	4.8	3.5
JASPER NATIONAL PARK REGION																					
Municipal Areas																					
Municipality of Jasper*	2,495	0.0	0.0	0.0	4.6	0.0	0.0	8.8	13.2	0.4	0.8	0.0	2.4	0.0	3.8	2.8	9.6	9.2	28.9	7.2	2.8
Sub-Total Municipal Areas	2,495	0.0	0.0	0.0	4.6	0.0	0.0	8.8	13.2	0.4	0.8	0.0	2.4	0.0	3.8	2.8	9.6	9.2	28.9	7.2	2.8
Rural Areas																					
ID No 12*	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Sub-Total Rural Areas																					
Jasper National Park Region Total	2,495	0.0	0.0	0.0	4.6	0.0	0.0	8.8	13.2	0.4	0.8	0.0	2.4	0.0	3.8	2.8	9.6	9.2	28.9	7.2	2.8

Sources: Statistics Canada 2013a

Notes: * Denotes incorporated communities, counties/regions and IRs crossed by the proposed pipeline corridor, a pump station or a reactivated pipeline segment.

Percentages may not add up to 100% as a result of rounding, and because the inexperienced labour force (unemployed persons aged 15 years and over who have never worked for pay or in self-employment or who had last worked prior to January 1, 2010 only) were not included in any industrial category.

TABLE D-2

KEY INDUSTRIAL ACTIVITY IN THE SOCIO-ECONOMIC REGIONAL STUDY AREA IN BC (LABOUR FORCE BY INDUSTRY) (2011)

Location	Total Labour force (no.)	Agriculture, forestry, fishing and hunting (%)	Mining, quarrying, and oil and gas extraction (%)	Utilities (%)	Construction (%)	Manufacturing (%)	Wholesale Trade (%)	Retail Trade (%)	Transportation and warehousing (%)	Information and cultural industries (%)	Finance and insurance (%)	Real estate, rental and leasing (%)	Professional, scientific and technical services (%)	Management of companies and enterprises (%)	Administrative and support, waste management and remediation services (%)	Educational Services (%)	Health Care and social assistance (%)	Arts, entertainment and recreation (%)	Accommodation and food services (%)	Other Services (%)	Public Administration (%)
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION																					
Municipal Areas																					
Village of Valemount*1	465	5.4	0.0	0.0	6.5	4.3	0.0	7.5	17.2	0.0	0.0	0.0	0.0	0.0	2.2	6.5	7.5	0.0	19.4	6.5	4.3
District of Clearwater*	1,260	9.1	2.4	0.0	12.7	0.0	1.6	9.5	4.4	0.0	1.6	1.6	2.0	0.0	3.2	8.3	12.7	0.0	14.7	3.6	7.5
City of Kamloops*	46,740	1.6	3.1	0.4	7.2	5.0	3.5	13.4	5.8	1.5	2.6	2.0	5.5	0.1	3.4	7.6	13.1	2.9	8.7	4.1	6.5
City of Merritt*	3,275	6.3	4.1	0.0	6.6	10.4	0.3	15.3	5.5	2.3	2.7	0.0	2.1	0.0	2.7	11.1	10.5	1.5	6.6	2.4	5.3
Village of McBride	275	0.0	0.0	0.0	7.3	5.5	0.0	18.2	9.1	0.0	5.5	0.0	0.0	0.0	0.0	0.0	7.3	0.0	14.5	0.0	5.5
District of Barriere*	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Municipality of Sun Peaks	245	0.0	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.4	26.5	0.0	0.0
Village of Chase	1,045	0.0	1.0	0.0	6.7	11.5	4.3	20.6	2.4	0.0	0.0	3.3	2.9	0.0	2.9	1.4	16.7	4.3	10.5	3.3	4.8
District of Logan Lake	740	2.7	39.9	0.0	6.1	0.0	0.0	10.1	4.7	0.0	0.0	0.0	0.0	0.0	0.0	3.4	10.1	0.0	4.1	3.4	5.4
Town of Princeton	1,100	8.6	1.4	0.0	4.1	22.7	2.7	9.5	0.0	0.0	0.0	1.8	0.9	0.0	0.0	17.3	8.6	2.3	4.5	4.1	3.2
Sub-Total Municipal Areas	55,145	2.2	3.5	0.3	7.2	5.6	3.2	13.3	5.6	1.4	2.4	1.8	4.9	0.1	3.2	7.7	12.8	2.8	8.8	4.0	6.3
Rural Areas																					
Electoral Area H, Regional District of Fraser-Fort George*	1,025	24.4	0.0	3.4	4.9	8.3	2.0	6.3	4.4	0.0	0.0	0.0	2.4	0.0	3.9	9.8	5.9	4.4	6.8	3.4	9.3
Electoral Area A, Thompson-Nicola Regional District*	710	19.7	7.7	0.0	7.0	0.0	0.0	9.9	9.2	0.0	0.0	0.0	0.0	0.0	4.9	4.2	4.9	0.0	11.3	0.0	8.5
Electoral Area B, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Electoral Area O, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Electoral Area P, Thompson-Nicola Regional District*	2,000	12.8	3.3	0.0	13.5	2.5	8.0	6.8	6.0	0.5	1.8	0.8	4.8	0.0	2.8	4.3	10.0	1.8	6.3	6.0	3.8
Electoral Area J, Thompson-Nicola Regional District*	775	19.4	5.8	0.0	16.8	6.5	11.0	3.9	2.6	0.0	0.0	0.0	4.5	0.0	3.2	3.2	6.5	0.0	5.2	1.3	5.8
Electoral Area M, Thompson-Nicola Regional District*	955	11.5	8.4	0.0	16.2	6.8	0.0	7.3	3.1	0.0	0.0	1.6	1.6	0.0	1.6	5.8	12.6	0.0	6.8	3.1	5.2
Electoral Area N, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Electoral Area L, Thompson-Nicola Regional District	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Electoral Area H, Regional District of Okanagan-Similkameen	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Sub-Total Rural Areas	5,465	16.6	4.5	0.6	12.0	4.6	4.8	6.8	5.1	0.2	0.6	0.5	3.1	0.0	3.1	5.4	8.5	1.5	7.0	3.6	5.9
Indian Reserves																					
Kamloops 4	Statistics Canada does not provide information for this community.																				
Whispering Pines 4	35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.9
Zoht 5*	Statistics Canada does not provide information for this community.																				
Zoht 4*	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Joeyaksa 2*	Statistics Canada does not provide information for this community.																				
Coldwater 1	155	9.7	0.0	0.0	6.5	6.5	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	6.5	6.5	12.9	0.0	0.0	6.5	29.0
Boulder Creek 5	Statistics Canada does not provide information for this community.																				
Nekalliston 2	Statistics Canada does not provide information for this community.																				

TABLE D-2 Cont'd

Location	Total Labour force (no.)	Agriculture, forestry, fishing and hunting (%)	Mining, quarrying, and oil and gas extraction (%)	Utilities (%)	Construction (%)	Manufacturing (%)	Wholesale Trade (%)	Retail Trade (%)	Transportation and warehousing (%)	Information and cultural industries (%)	Finance and insurance (%)	Real estate, rental and leasing (%)	Professional, scientific and technical services (%)	Management of companies and enterprises (%)	Administrative and support, waste management and remediation services (%)	Educational Services (%)	Health Care and social assistance (%)	Arts, entertainment and recreation (%)	Accommodation and food services (%)	Other Services (%)	Public Administration (%)
North Thompson 1	125	8.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	8.0	0.0	0.0	0.0	40.0
Louis Creek 4	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Squam 2	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Hustalen 1	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Marshy Lake 1	Statistics Canada does not provide information for this community.																				
Toops 3	Statistics Canada does not provide information for this community.																				
Hihium Lake 6a	Statistics Canada does not provide information for this community.																				
Hihium Lake 6b	Statistics Canada does not provide information for this community.																				
Quaaout 1	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	15.0	35.0	0.0	20.0
Kamloops 5	Statistics Canada does not provide information for this community.																				
Sahhalkum 4	115	8.7	0.0	0.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	13.0	0.0	8.7	0.0	43.5
Meadow Creek 3	Statistics Canada does not provide information for this community.																				
Neskonlith ²	110	0.0	0.0	0.0	0.0	0.0	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.4
Skeetchesln	130	7.7	7.7	0.0	7.7	0.0	0.0	7.7	0.0	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.3
Kamloops 1	1,375	1.5	1.8	0.0	13.5	2.2	3.6	8.4	6.9	1.5	2.2	2.5	8.4	0.0	4.7	3.3	10.5	2.2	4.4	4.7	13.1
Kamloops 2	Statistics Canada does not provide information for this community.																				
Kamloops 3	Statistics Canada does not provide information for this community.																				
Pipseul 3	Statistics Canada does not provide information for this community.																				
Salmon Lake 7	Statistics Canada does not provide information for this community.																				
Douglas Lake 3	60	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0	0.0	16.7
Chapperon Lake 5	Statistics Canada does not provide information for this community.																				
Chapperon Creek 6	Statistics Canada does not provide information for this community.																				
Nicola Lake 1	70	14.3	0.0	0.0	0.0	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.4	0.0	0.0	0.0	28.6
Zoht 14	Statistics Canada does not provide information for this community.																				
Nicola Mameet 1	215	27.9	0.0	0.0	7.0	4.7	0.0	4.7	4.7	0.0	0.0	0.0	0.0	0.0	0.0	7.0	7.0	0.0	4.7	4.7	20.9
Hamilton Creek 2	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Spahomin Creek 8	Statistics Canada does not provide information for this community.																				
Spahomin Creek 4	Statistics Canada does not provide information for this community.																				
Hamilton Creek 7	Statistics Canada does not provide information for this community.																				
Antko 21	Statistics Canada does not provide information for this community.																				
Nooaitch Grass 9	Statistics Canada does not provide information for this community.																				
Logan's 6	Statistics Canada does not provide information for this community.																				
Nooaitch 10	70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	14.3	0.0	0.0	14.3	35.7
Speous 8	Statistics Canada does not provide information for this community.																				
Gwen Lake 3	Statistics Canada does not provide information for this community.																				
Paul's Basin 2	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
One Mile 6	Statistics Canada does not provide information for this community.																				
Nine Mile Creek 4	Statistics Canada does not provide information for this community.																				
Lulu 5	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Wolf Creek 3	Statistics Canada does not provide information for this community.																				
Sub-Total Indian Reserves	2,570	5.6	1.4	0.0	9.3	1.9	1.9	6.0	4.5	0.8	1.2	1.4	4.9	0.0	2.9	4.1	9.7	1.8	4.5	3.7	21.6
Fraser-Fort George/Thompson-Nicola Region Total	63,180	3.6	3.5	0.3	7.7	5.4	3.3	12.5	5.5	1.3	2.2	1.7	4.8	0.1	3.2	7.4	12.3	2.6	8.4	3.9	6.9
FRASER VALLEY REGION																					
Municipal Areas																					
District of Hope*	2,590	2.3	0.6	0.0	9.7	6.2	2.7	13.5	6.4	0.6	1.5	1.9	4.2	0.0	4.2	5.6	14.7	1.7	10.8	4.6	4.8
City of Chilliwack*	38,950	4.6	0.6	0.3	9.2	7.7	3.7	12.8	4.9	0.9	2.7	1.6	4.1	0.0	5.4	6.9	11.5	1.6	6.8	5.4	7.3

TABLE D-2 Cont'd

Location	Total Labour force (no.)	Agriculture, forestry, fishing and hunting (%)	Mining, quarrying, and oil and gas extraction (%)	Utilities (%)	Construction (%)	Manufacturing (%)	Wholesale Trade (%)	Retail Trade (%)	Transportation and warehousing (%)	Information and cultural industries (%)	Finance and insurance (%)	Real estate, rental and leasing (%)	Professional, scientific and technical services (%)	Management of companies and enterprises (%)	Administrative and support, waste management and remediation services (%)	Educational Services (%)	Health Care and social assistance (%)	Arts, entertainment and recreation (%)	Accommodation and food services (%)	Other Services (%)	Public Administration (%)
City of Abbotsford*	70,530	7.5	0.3	0.3	9.5	9.0	4.1	10.8	6.7	1.3	2.9	2.0	4.7	0.0	4.1	6.8	9.3	1.4	6.4	5.3	5.3
City of Abbotsford*	70,530	7.5	0.3	0.3	9.5	9.0	4.1	10.8	6.7	1.3	2.9	2.0	4.7	0.0	4.1	6.8	9.3	1.4	6.4	5.3	5.3
District of Kent	2,395	13.4	0.0	0.0	11.3	6.9	1.0	7.9	5.6	0.6	1.5	2.9	1.7	0.0	2.9	9.0	5.8	1.9	10.4	3.1	12.5
Village of Harrison Hot Springs	580	1.7	0.0	0.0	4.3	4.3	0.0	6.0	0.0	0.0	0.0	4.3	5.2	0.0	0.0	7.8	6.9	0.0	22.4	4.3	19.0
District of Mission	19,165	2.6	0.5	0.7	12.6	8.9	3.8	13.1	6.7	1.4	2.7	1.6	4.4	0.0	3.0	6.5	10.0	2.2	5.7	5.0	6.5
Sub-Total Municipal Areas	134,210	5.9%	0.4%	0.3%	9.9%	8.5%	3.8%	11.7%	6.1%	1.2%	2.7%	1.8%	4.4%	0.0%	4.3%	6.8%	10.1%	1.6%	6.6%	5.2%	6.2%
Rural Areas																					
Electoral Area B, Fraser Valley Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Electoral Area D, Fraser Valley Regional District*	645	6.2	0.0	0.0	14.0	10.9	5.4	15.5	11.6	0.0	3.1	0.0	0.0	0.0	2.3	7.8	9.3	0.0	0.0	0.0	0.0
Electoral Area E, Fraser Valley Regional District*	1,750	6.0	0.0	0.0	10.6	8.3	5.1	8.3	4.9	1.7	5.4	2.3	7.1	0.0	3.1	8.6	8.6	2.9	4.6	6.6	4.6
Electoral Area G, Fraser Valley Regional District	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Sub-Total Rural Areas	2,395	6.1	0.0	0.0	11.5	9.0	5.2	10.2	6.7	1.3	4.8	1.7	5.2	0.0	2.9	8.4	8.8	2.1	3.3	4.8	3.3
Indian Reserves																					
Ohamil 1* (Shxw'owhamel 1)	15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7
Peters 1*	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Peters 1A*	Statistics Canada does not provide information for this community.																				
Popkum 1*	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Grass 15*	Statistics Canada does not provide information for this community.																				
Tzeachten 13*	295	0.0	0.0	0.0	8.5	11.9	6.8	11.9	10.2	0.0	0.0	0.0	0.0	0.0	3.4	3.4	10.2	0.0	6.8	5.1	13.6
Matsqui Main 2*	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0
Teequaloose 3	Statistics Canada does not provide information for this community.																				
Skuet	Statistics Canada does not provide information for this community.																				
Papsilqua 2b	Statistics Canada does not provide information for this community.																				
Papsilqua 2	Statistics Canada does not provide information for this community.																				
Papsilqua 2a	Statistics Canada does not provide information for this community.																				
Spuzzum 1	Statistics Canada does not provide information for this community.																				
Spuzzum 1a	Statistics Canada does not provide information for this community.																				
Spuzzum 7	Statistics Canada does not provide information for this community.																				
Stout 8	Statistics Canada does not provide information for this community.																				
Saddle Rock 9	Data for this area has been suppressed for data quality or confidentiality reasons.																				
4 1/2 Mile 2	Statistics Canada does not provide information for this community.																				
Yale 25	Statistics Canada does not provide information for this community.																				
Yale 23	Statistics Canada does not provide information for this community.																				
Yale 22	Statistics Canada does not provide information for this community.																				
Yale 21	Statistics Canada does not provide information for this community.																				
Yale 20	Statistics Canada does not provide information for this community.																				
Yale 19	Statistics Canada does not provide information for this community.																				
Kuthlath 3	Statistics Canada does not provide information for this community.																				
Yale 18	Statistics Canada does not provide information for this community.																				
Yale Town 1	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Albert Flat 5	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Qualark 4	Statistics Canada does not provide information for this community.																				
Squeah 6	Statistics Canada does not provide information for this community.																				

TABLE D-2 Cont'd

Location	Total Labour force (no.)	Agriculture, forestry, fishing and hunting (%)	Mining, quarrying, and oil and gas extraction (%)	Utilities (%)	Construction (%)	Manufacturing (%)	Wholesale Trade (%)	Retail Trade (%)	Transportation and warehousing (%)	Information and cultural industries (%)	Finance and insurance (%)	Real estate, rental and leasing (%)	Professional, scientific and technical services (%)	Management of companies and enterprises (%)	Administrative and support, waste management and remediation services (%)	Educational Services (%)	Health Care and social assistance (%)	Arts, entertainment and recreation (%)	Accommodation and food services (%)	Other Services (%)	Public Administration (%)
Kaykaip 7	Statistics Canada does not provide information for this community.																				
Stullawheets 8	15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7
Skawahlum 10	Statistics Canada does not provide information for this community.																				
Puckatholetchin 11	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Swahliseah 14	Statistics Canada does not provide information for this community.																				
Klakkacum 12	Statistics Canada does not provide information for this community.																				
Trafalgar Flat 13	Statistics Canada does not provide information for this community.																				
Kawkawa Lake 16	Statistics Canada does not provide information for this community.																				
Ayawawwis 15	Statistics Canada does not provide information for this community.																				
Tunnel 6	Statistics Canada does not provide information for this community.																				
Hope 1	Statistics Canada does not provide information for this community.																				
Schkam 2	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3
Greenwood Island 3	Statistics Canada does not provide information for this community.																				
Chawathil 4	60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	41.7
Skawahlook 1	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Ruby Creek 2	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Lukseetsissum 9	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Wahleach Island 2	Statistics Canada does not provide information for this community.																				
Peters 2	Statistics Canada does not provide information for this community.																				
Seabird Island	225	4.4	0.0	0.0	8.9	4.4	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	4.4	6.7	6.7	0.0	0.0	4.4	40.0
Popkum 2	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Tseatah 2	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Cheam 1	70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	0.0	0.0	0.0	14.3	0.0	28.6
Schelawat 1	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Chehalis 6	Statistics Canada does not provide information for this community.																				
Chehalis 5	230	8.7	4.3	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	15.2	4.3	6.5	0.0	34.8
Scowlitz 1	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Williams 2	Statistics Canada does not provide information for this community.																				
Skwahla 2	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Yakweakwoose 12	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Skowkale ³	230	8.7	4.3	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	15.2	4.3	6.5	0.0	34.8
Soowahlie 14	70	0.0	0.0	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.4	0.0	0.0	0.0	21.4
Skwali 3	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Skwah 4	90	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	11.1	0.0	11.1	0.0	0.0	0.0	27.8
Kwawkwapilt 6	50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Squiaala ⁴	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0
Aitchelitch 9	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Skway 5	35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.6	0.0	0.0	42.9
Holachten 8	130	0.0	0.0	0.0	11.5	15.4	0.0	7.7	11.5	0.0	0.0	0.0	0.0	0.0	7.7	0.0	7.7	0.0	7.7	0.0	11.5
Skumalasp 16	Statistics Canada does not provide information for this community.																				
Zailscullachan 9	Statistics Canada does not provide information for this community.																				
Lakway Cemetery 3	Statistics Canada does not provide information for this community.																				
Lackaway 2	Statistics Canada does not provide information for this community.																				
Yaalstrick 1	Statistics Canada does not provide information for this community.																				
Skweahm 10	140	21.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lakahahmen 11	65	0.0	0.0	0.0	15.4	0.0	0.0	15.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4	0.0
Papekwatchin 4	Statistics Canada does not provide information for this community.																				

TABLE D-2 Cont'd

Location	Total Labour force (no.)	Agriculture, forestry, fishing and hunting (%)	Mining, quarrying, and oil and gas extraction (%)	Utilities (%)	Construction (%)	Manufacturing (%)	Wholesale Trade (%)	Retail Trade (%)	Transportation and warehousing (%)	Information and cultural industries (%)	Finance and insurance (%)	Real estate, rental and leasing (%)	Professional, scientific and technical services (%)	Management of companies and enterprises (%)	Administrative and support, waste management and remediation services (%)	Educational Services (%)	Health Care and social assistance (%)	Arts, entertainment and recreation (%)	Accommodation and food services (%)	Other Services (%)	Public Administration (%)
Sumas Cemetery 12	Statistics Canada does not provide information for this community.																				
Aylechootlook 5	Statistics Canada does not provide information for this community.																				
Upper Sumas 6	85	0.0	0.0	0.0	11.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	0.0	23.5
PekwXe:les	Statistics Canada does not provide information for this community.																				
Sahhucum 1	Statistics Canada does not provide information for this community.																				
Three Islands 3	Statistics Canada does not provide information for this community.																				
Langley 4	Statistics Canada does not provide information for this community.																				
Langley 3	Statistics Canada does not provide information for this community.																				
Langley 2	Statistics Canada does not provide information for this community.																				
Sub-Total Indian Reserves	1,875	3.7	0.5	0.0	6.1	5.3	1.6	4.5	3.2	0.0	0.0	1.1	0.5	0.0	3.2	3.2	7.7	1.1	4.5	2.4	22.7
Fraser Valley Region Total	138,480	5.9%	0.4%	0.3%	9.9%	8.5%	3.8%	11.6%	6.1%	1.2%	2.7%	1.8%	4.4%	0.0%	4.2%	6.8%	10.0%	1.6%	6.6%	5.2%	6.4%
METRO VANCOUVER REGION																					
Municipal Areas																					
Township of Langley*	58,540	3.3	0.3	0.6	10.2	7.8	6.4	11.4	5.8	1.9	3.6	2.2	5.2	0.1	3.5	7.1	9.1	1.9	6.4	4.9	6.3
City of Surrey*	245,640	2.1	0.2	0.5	8.8	9.1	5.0	11.4	8.1	2.1	3.9	2.0	5.9	0.1	5.0	5.6	9.6	1.7	6.6	5.0	4.7
City of Coquitlam*	69,720	0.3	0.4	1.0	8.2	6.5	5.6	11.9	4.7	3.5	5.4	2.4	8.6	0.1	3.7	7.6	9.3	1.7	6.4	5.1	5.2
City of Burnaby*	120,285	0.4	0.2	0.8	5.8	6.0	5.0	11.0	4.5	4.4	5.4	2.6	10.2	0.1	4.8	7.0	9.8	2.2	7.9	5.0	4.6
District of Maple Ridge	42,315	1.1	0.2	0.8	10.8	6.5	5.8	12.3	5.2	2.3	4.6	1.7	5.1	0.1	4.0	6.1	10.9	2.5	6.3	5.3	6.6
City of Langley	13,505	1.0	0.0	0.5	10.5	9.3	6.8	13.8	5.5	1.6	2.7	1.1	4.1	0.2	4.2	6.7	9.7	3.0	6.6	5.7	5.3
City of Pitt Meadows	10,415	3.2	0.1	0.9	8.6	8.3	4.3	12.2	5.6	3.1	3.9	1.9	5.5	0.2	3.9	6.1	12.1	2.9	4.5	4.1	6.4
City of White Rock	10,050	0.5	0.4	0.9	8.4	3.6	4.5	12.0	5.1	1.8	3.4	4.6	7.9	0.0	3.6	8.7	11.3	3.0	7.4	2.8	8.4
City of Port Coquitlam	32,500	0.4	0.3	0.7	8.3	7.4	6.4	12.3	5.8	3.5	4.6	2.0	7.5	0.0	4.2	6.9	10.3	2.0	6.0	4.4	5.2
City of New Westminster	39,360	0.6	0.2	0.6	7.1	6.0	5.1	9.1	6.5	4.5	4.2	2.3	8.8	0.0	5.1	7.2	11.2	2.1	6.3	5.0	5.7
Corporation of Delta	54,005	1.7	0.5	0.6	7.0	7.9	5.0	9.7	8.1	2.7	4.6	2.4	7.3	0.1	4.1	7.5	10.2	1.9	6.6	4.7	5.7
Tsawwassen First Nation	360	0.0	0.0	0.0	15.3	5.6	0.0	15.3	4.2	0.0	0.0	0.0	0.0	0.0	9.7	8.3	2.8	4.2	0.0	2.8	12.5
City of Richmond	99,910	0.7	0.3	0.5	4.1	6.3	5.8	12.3	6.8	3.1	6.9	2.9	9.2	0.2	4.6	5.9	7.9	2.0	9.0	4.4	4.2
City of Port Moody	19,130	0.2	0.7	0.9	6.7	5.1	4.6	10.2	3.4	5.3	5.0	2.9	11.5	0.1	4.0	9.5	9.6	1.8	5.6	4.6	6.8
Village of Anmore	1,200	1.7	0.0	0.0	8.3	6.7	2.9	7.9	5.8	2.9	6.7	2.5	8.3	0.0	7.9	10.0	9.6	0.8	5.0	3.3	6.7
Village of Belcarra	370	0.0	0.0	0.0	17.6	0.0	12.2	6.8	0.0	0.0	0.0	0.0	10.8	0.0	0.0	17.6	9.5	0.0	0.0	0.0	5.4
District of North Vancouver	46,520	1.2	98.8	0.2	0.7	0.8	6.2	3.6	4.1	10.8	3.0	4.3	6.1	3.1	14.4	0.1	4.1	8.7	9.8	3.0	5.4
City of Vancouver	349,145	0.4	0.5	0.5	4.4	5.0	3.7	8.9	3.7	4.8	5.1	2.9	12.6	0.2	4.4	8.5	10.5	3.2	9.7	4.9	4.0
City of North Vancouver	29,415	0.3	0.6	0.6	6.5	3.7	2.8	11.8	3.3	4.0	5.7	2.9	12.3	0.2	5.5	6.9	11.2	3.0	7.5	5.0	4.6
District of West Vancouver	19,315	0.4	1.5	0.6	3.9	3.4	3.7	8.4	2.1	3.9	7.5	7.1	17.1	0.4	3.3	9.5	8.7	3.6	5.0	3.5	4.0
Village of Lions Bay	785	0.0	0.0	0.0	3.2	6.4	1.9	6.4	0.0	8.9	3.2	4.5	20.4	0.0	5.1	10.2	2.5	6.4	1.9	0.0	11.5
Bowen Island, Island Municipality	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Sub-Total Municipal Areas	1,262,485	1.0	4.0	0.6	6.5	6.3	4.8	10.4	5.4	3.8	4.8	2.6	9.1	0.2	4.8	6.9	9.7	2.6	7.8	4.8	4.8
Rural Areas																					
Electoral Area A, Metro Vancouver	5,360	0.3	0.3	0.0	1.7	2.6	3.6	6.4	1.8	2.1	3.4	2.9	16.7	0.4	1.9	32.3	7.0	1.4	5.0	3.1	3.6
Sub-Total Rural Areas	5,360	0.3	0.3	0.0	1.7	2.6	3.6	6.4	1.8	2.1	3.4	2.9	16.7	0.4	1.9	32.3	7.0	1.4	5.0	3.1	3.6
Indian Reserves																					
Whonnock 1	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Matsqui 4	35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Langley 5	Data for this area has been suppressed for data quality or confidentiality reasons.																				
McMillan Island 6	25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0
Pitt Lake 4	Statistics Canada does not provide information for this community.																				
Katzie 2	Data for this area has been suppressed for data quality or confidentiality reasons.																				

TABLE D-2 Cont'd

Location	Total Labour force (no.)	Agriculture, forestry, fishing and hunting (%)	Mining, quarrying, and oil and gas extraction (%)	Utilities (%)	Construction (%)	Manufacturing (%)	Wholesale Trade (%)	Retail Trade (%)	Transportation and warehousing (%)	Information and cultural industries (%)	Finance and insurance (%)	Real estate, rental and leasing (%)	Professional, scientific and technical services (%)	Management of companies and enterprises (%)	Administrative and support, waste management and remediation services (%)	Educational Services (%)	Health Care and social assistance (%)	Arts, entertainment and recreation (%)	Accommodation and food services (%)	Other Services (%)	Public Administration (%)
Graveyard 5	Statistics Canada does not provide information for this community.																				
Katzie 1	100	10.0	0.0	0.0	25.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	20.0
Barnston Island 3	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Coquitlam 1	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Coquitlam 2	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Semiahmoo	55	0.0	0.0	0.0	18.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	0.0	18.2
Inlailawatash 4A	Statistics Canada does not provide information for this community.																				
Burrard Inlet 3	990	0.0	0.0	0.0	5.6	3.5	4.5	10.1	2.0	3.5	8.6	1.0	8.6	0.0	7.1	6.6	11.6	3.5	1.5	5.6	10.1
Seymour Creek 2	45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.2	0.0	0.0	0.0	0.0	33.3
Mission 1	295	0.0	0.0	0.0	6.8	3.4	3.4	8.5	5.1	0.0	0.0	0.0	3.4	0.0	3.4	5.1	6.8	8.5	10.2	5.1	27.1
Capilano 5	1,240	0.0	0.0	0.0	7.3	4.0	2.0	13.3	2.0	3.6	4.0	3.2	11.3	0.0	6.0	5.2	6.5	3.2	6.5	5.6	12.1
Kitsilano 6	Statistics Canada does not provide information for this community.																				
Musqueam 2	800	1.9	0.0	0.0	6.3	1.9	1.3	7.5	1.9	2.5	3.1	5.0	9.4	0.0	5.0	12.5	6.9	5.0	5.0	1.9	16.9
Sea Island 3	Statistics Canada does not provide information for this community.																				
Musqueam 4	Data for this area has been suppressed for data quality or confidentiality reasons.																				
Sub-Total Indian Reserves	3,585	0.7	0.0	0.0	7.0	3.1	2.5	9.8	2.4	2.8	4.5	2.5	8.6	0.0	5.4	7.1	7.5	3.9	5.2	4.3	14.5
Metro Vancouver Region Total	1,271,431	1.0	4.0	0.6	6.4	6.3	4.8	10.4	5.4	3.8	4.8	2.6	9.2	0.2	4.8	7.0	9.6	2.6	7.8	4.8	4.8

Sources: Statistics Canada 2013a

Notes: * Denotes incorporated communities, counties/regions and IRs crossed by the proposed pipeline corridor, a pump station or a reactivated pipeline segment.

Percentages may not add up to 100% as a result of rounding, and because the inexperienced labour force (unemployed persons aged 15 years and over who have never worked for pay or in self-employment or who had last worked prior to January 1, 2010 only) were not included in any industrial category.

- 1 The Village of Valemount is not located in the proposed pipeline corridor; however, it lies in close proximity (400 m) and is anticipated to be a hub for construction activities, and, therefore is considered a corridor community.
- 2 Data for Neskonlith 1 and Neskonlith 2 is amalgamated and presented as Neskonlith.
- 3 Data for Skowkale 10 and Skowkale 11 is amalgamated and presented as Skowkale.
- 4 Data for Squiaala 7 and Squiaala 8 is amalgamated and presented as Squiaala.

TABLE D-3

SELECTED LABOUR FORCE CHARACTERISTICS IN THE SOCIO-ECONOMIC REGIONAL STUDY AREA IN ALBERTA (2011)

Location	Population (no.) ¹⁾	Total population aged 15 years and over by labour force status (no.)	In the Labour Force (no.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
EDMONTON REGION						
Municipal Areas						
City of Edmonton*	795,675	660,815	480,650	72.7	68.3	6.1
City of Spruce Grove*	26,000	20,290	15,470	76.2	72.5	4.9
Town of Stony Plain*	14,680	11,825	8,255	69.8	66.4	4.9
Village of Wabamun*	Data for this area has been suppressed for data quality or confidentiality reasons.					
City of Fort Saskatchewan	18,795	15,135	10,915	72.1	68.5	5.0
Village of Spring Lake	525	425	285	67.1	65.9	n/a ²
Town of Mayerthorpe	Data for this area has been suppressed for data quality or confidentiality reasons.					
Town of Onoway	1,010	750	450	60.0	56.7	5.6
Village of Alberta Beach	Data for this area has been suppressed for data quality or confidentiality reasons.					
Town of Morinville	8,465	6,570	5,090	77.5	73.7	4.8
Town of Bon Accord	1,460	1,160	835	72.0	68.1	6.0
Town of Gibbons	2,985	2,260	1,645	72.8	68.8	5.2
Town of Legal	Data for this area has been suppressed for data quality or confidentiality reasons.					
Town of Redwater	Data for this area has been suppressed for data quality or confidentiality reasons.					
City of St. Albert	60,480	49,190	36,430	74.1	70.9	4.3
Town of Drayton Valley	6,975	5,425	4,060	74.8	71.2	5.0
Village of Breton	475	380	185	48.7	43.4	n/a ²
City of Leduc	24,090	19,095	14,555	76.2	72.4	5.0
Town of Beaumont	13,285	9,880	7,565	76.6	72.8	4.8
Town of Calmar	2,005	1,590	1,145	72.0	68.9	4.4
Town of Devon	6,425	5,005	3,685	73.6	69.5	5.6
Village of Thorsby	Data for this area has been suppressed for data quality or confidentiality reasons.					
Village of Warburg	Data for this area has been suppressed for data quality or confidentiality reasons.					
Sub-Total Municipal Areas	983,330	809,795	591,220	73.0	94.2	5.8
Rural Areas						
Strathcona County*	91,495	73,665	54,780	74.4	71.2	4.2
Parkland County*	30,435	24,625	18,360	74.6	71.3	4.4
Summer Village of Betula Beach	Data for this area has been suppressed for data quality or confidentiality reasons.					
Summer Village of Kapasiwin	Data for this area has been suppressed for data quality or confidentiality reasons.					

TABLE D-3 Cont'd

Location	Population (no.) ¹	Total population aged 15 years and over by labour force status (no.)	In the Labour Force (no.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
Summer Village of Lakeview	Data for this area has been suppressed for data quality or confidentiality reasons.					
Summer Village of Point Alison	Data for this area has been suppressed for data quality or confidentiality reasons.					
Summer Village of Seba Beach	140	125	75	60.0	64.0	n/a ²
Lac Ste Anne County	10,375	8,555	6,105	71.4	66.9	6.1
Summer Village of Birch Cove	Data for this area has been suppressed for data quality or confidentiality reasons.					
Summer Village of Castle Island	Data for this area has been suppressed for data quality or confidentiality reasons.					
Summer Village of Nakamun Park	Data for this area has been suppressed for data quality or confidentiality reasons.					
Summer Village of Ross Haven	180	115	80	69.6	52.2	n/a ²
Summer Village of Silver Sands	70	45	30	66.7	33.3	n/a ²
Summer Village of South View	Data for this area has been suppressed for data quality or confidentiality reasons.					
Summer Village of Sunrise Beach	Data for this area has been suppressed for data quality or confidentiality reasons.					
Summer Village of Sunset Point	120	115	80	69.6	60.9	n/a ²
Summer Village of Val Quentin	95	85	35	41.2	35.3	n/a ²
Summer Village of West Cove	75	65	40	61.5	53.8	n/a ²
Summer Village of Yellowstone	Data for this area has been suppressed for data quality or confidentiality reasons.					
Sturgeon County	19,230	15,135	11,480	75.9	72.8	4.1
Brazeau County	7,190	5,690	4,450	78.2	74.3	5.1
Leduc County	13,610	11,080	8,530	77.0	75.3	2.2
Summer Village of Golden Days	80	85	55	64.7	64.7	n/a ²
Summer Village of Itaska Beach	Data for this area has been suppressed for data quality or confidentiality reasons.					
Summer Village of Sundance Beach	45	40	25	62.5	62.5	n/a ²
Sub-Total Rural Areas	173,140	139,425	104,125	74.7	95.7	4.2
Indian Reserves						
Stony Plain 135	985	655	380	58.0	51.1	10.5
Alexander 134	1,025	700	415	59.3	49.3	15.7
Wabamun 133b	Data for this area has been suppressed for data quality or confidentiality reasons.					
Wabamun 133a	1,085	645	295	45.7	27.1	39.0
Stony Plain 135a	Statistics Canada does not provide information for this community.					
Stony Plain 135	805	545	175	32.1	17.4	42.9
Alexis 133	805	545	175	32.1	17.4	42.9
Sub-Total Indian Reserves	3,900	2,545	1,265	49.7	75.1	23.3
Edmonton Region Total	1,160,370	951,765	696,610	73.2	94.4	5.6

TABLE D-3 Cont'd

Location	Population (no.) ¹	Total population aged 15 years and over by labour force status (no.)	In the Labour Force (no.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
RURAL ALBERTA REGION						
Municipal Areas						
Town of Edson*	8,335	6,685	4,960	74.2	70.4	5.1
Town of Hinton*	9,545	7,650	5,825	76.1	71.0	6.7
Sub-Total Municipal Areas	17,880	14,335	10,785	75.2	94.0	5.7
Rural Areas						
Yellowhead County*	10,340	8,425	6,095	72.3	67.7	6.3
Sub-Total Rural Areas	10,340	8,425	6,095	72.3	93.6	6.3
Indian Reserves						
O'Chiese 203	750	455	105	23.1	19.8	n/a ²
Alexis Elk River 233	Statistics Canada does not provide information for this community.					
Alexis Cardinal River 234	Statistics Canada does not provide information for this community.					
Sub-Total Indian Reserves	750	455	105	23.1	85.7	n/a²
Rural Alberta Region Total	28,970	23,215	16,985	73.2	93.8	5.9
JASPER NATIONAL PARK REGION						
Municipal Areas						
Municipality of Jasper*	3,460	2,955	2,490	84.3	82.9	1.6
Sub-Total Municipal Areas	3,460	2,955	2,490	84.3	82.9	1.6
Rural Areas						
ID No 12*	Data for this area has been suppressed for data quality or confidentiality reasons.					
Sub-Total Rural Areas	No data available for sub-total Rural Areas.					
Jasper National Park Region Total	3,460	2,955	2,490	84.3	98.4	1.6

Sources: Statistics Canada 2013a

Notes: * Denotes incorporated communities, counties/regions and IRs crossed by the proposed pipeline corridor, a pump station or a reactivated pipeline segment.

- Underlying population counts in the NHS may differ from those provided by the Census of Canada due to differing survey methods (see Section 3.7 Data Context and Limitations). Census of Canada is used as the source of population and demographic information in this report. However, NHS population counts are noted here as they are the basis of labour force estimates. Labour force metrics based on the NHS are the best available at the community/municipality level.
- Data for this area has been suppressed and/or rounded to zero.

TABLE D-4

SELECTED LABOUR FORCE CHARACTERISTICS IN THE SOCIO-ECONOMIC REGIONAL STUDY AREA IN BC (2011)

Location	Population (no.) ²	Total population aged 15 years and over by labour force status (no.)	In the Labour Force (no.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION						
Municipal Areas						
Village of Valemount* ¹	970	810	470	58.0	53.7	8.5
District of Clearwater*	2,475	2,040	1,260	61.8	52.9	14.3
City of Kamloops*	83,725	70,390	46,740	66.4	60.8	8.5
City of Merritt*	6,890	5,665	3,275	57.8	51.2	11.5
Village of McBride	570	455	280	61.5	47.3	21.4
District of Barriere*	Data for this area has been suppressed for data quality or confidentiality reasons.					
Municipality of Sun Peaks	355	305	240	78.7	73.8	n/a ³
Village of Chase	2,345	2,145	1,045	48.7	45.0	5.7
District of Logan Lake	2,065	1,810	735	40.6	38.1	6.8
Town of Princeton	2,665	2,435	1,095	45.0	40.0	11.4
Sub-Total Municipal Areas	102,060	86,055	55,140	64.1	91.2	8.8
Rural Areas						
Electoral Area H, Regional District of Fraser-Fort George*	1,650	1,445	1,025	70.9	63.0	11.2
Electoral Area A, Thompson-Nicola Regional District*	1,410	1,295	710	54.8	42.9	21.8
Electoral Area B, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.					
Electoral Area O, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.					
Electoral Area P, Thompson-Nicola Regional District*	3,655	3,195	1,995	62.4	56.8	9.3
Electoral Area J, Thompson-Nicola Regional District*	1,530	1,320	780	59.1	54.9	6.4
Electoral Area M, Thompson-Nicola Regional District*	1,805	1,555	960	61.7	53.7	12.5
Electoral Area N, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.					
Electoral Area L, Thompson-Nicola Regional District	Data for this area has been suppressed for data quality or confidentiality reasons.					
Electoral Area H, Regional District of Okanagan- Similkameen	Data for this area has been suppressed for data quality or confidentiality reasons.					
Sub-Total Rural Areas	10,050	8,810	5,470	62.1	88.5	11.4
Indian Reserves						
Kamloops 4	Statistics Canada does not provide information for this community.					
Whispering Pines 4	60	45	35	77.8	66.7	0.0
Zoht 5*	Statistics Canada does not provide information for this community.					
Zoht 4*	Data for this area has been suppressed for data quality or confidentiality reasons.					

TABLE D-4 Cont'd

Location	Population (no.) ²	Total population aged 15 years and over by labour force status (no.)	In the Labour Force (no.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
Joeyaska 2*	Statistics Canada does not provide information for this community.					
Coldwater 1	350	275	155	56.4	40.0	32.3
Boulder Creek 5	Statistics Canada does not provide information for this community.					
Nekalliston 2	Data for this area has been suppressed for data quality or confidentiality reasons.					
North Thompson 1	245	190	125	65.8	50.0	24.0
Louis Creek 4	Data for this area has been suppressed for data quality or confidentiality reasons.					
Squaam 2	Data for this area has been suppressed for data quality or confidentiality reasons.					
Hustalen 1	Data for this area has been suppressed for data quality or confidentiality reasons.					
Marshy Lake 1	Statistics Canada does not provide information for this community.					
Toops 3	Statistics Canada does not provide information for this community.					
Hihium Lake 6a	Statistics Canada does not provide information for this community.					
Hihium Lake 6b	Statistics Canada does not provide information for this community.					
Quaaout 1	235	185	105	56.8	45.9	19.0
Kamloops 5	Statistics Canada does not provide information for this community.					
Sahhaltkum 4	325	235	115	48.9	40.4	13.0
Meadow Creek 3	Statistics Canada does not provide information for this community.					
Neskonlith ⁴	235	175	105	60.0	40.0	38.1
Skeetchestn	250	205	125	61.0	51.2	16.0
Kamloops 1	2,540	2,225	1,375	61.8	54.8	11.3
Kamloops 2	Statistics Canada does not provide information for this community.					
Kamloops 3	Statistics Canada does not provide information for this community.					
Pipseul 3	Statistics Canada does not provide information for this community.					
Salmon Lake 7	Statistics Canada does not provide information for this community.					
Douglas Lake 3	160	125	60	48.0	38.0	25.0
Chapperon Lake 5	Statistics Canada does not provide information for this community.					
Chapperon Creek 6	Statistics Canada does not provide information for this community.					
Nicola Lake 1	140	110	70	63.6	40.9	35.7
Zoht 14	Statistics Canada does not provide information for this community.					
Nicola Mameet 1	585	420	215	51.2	35.7	30.2
Hamilton Creek 2	Data for this area has been suppressed for data quality or confidentiality reasons.					
Spahomin Creek 8	Statistics Canada does not provide information for this community.					
Spahomin Creek 4	Statistics Canada does not provide information for this community.					
Hamilton Creek 7	Statistics Canada does not provide information for this community.					

TABLE D-4 Cont'd

Location	Population (no.) ²	Total population aged 15 years and over by labour force status (no.)	In the Labour Force (no.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
Antko 21	Statistics Canada does not provide information for this community.					
Nooaitch Grass 9	Statistics Canada does not provide information for this community.					
Logan's 6	Statistics Canada does not provide information for this community.					
Nooaitch 10	130	105	70	66.7	47.6	28.6
Speous 8	Statistics Canada does not provide information for this community.					
Gwen Lake 3	Statistics Canada does not provide information for this community.					
Paul's Basin 2	35	25	10	40.0	40.0	10.0
One Mile 6	Statistics Canada does not provide information for this community.					
Nine Mile Creek 4	Statistics Canada does not provide information for this community.					
Lulu 5	Data for this area has been suppressed for data quality or confidentiality reasons.					
Wolf Creek 3	Statistics Canada does not provide information for this community.					
Sub-Total Indian Reserves	5,290	4,320	2,565	59.4	82.3	17.7
Fraser-Fort George/Thompson-Nicola Region Total	117,400	99,185	63,175	63.7	90.6	9.4
FRASER VALLEY REGION						
Municipal Areas						
District of Hope*	5,800	4,990	2,590	51.9	46.8	9.8
City of Chilliwack*	76,925	61,760	38,950	63.1	59.1	6.3
City of Abbotsford*	130,950	105,630	70,535	66.8	61.1	8.5
District of Kent	4,825	3,950	2,390	60.5	56.5	6.7
Village of Harrison Hot Springs	1,500	1,315	580	44.1	40.3	7.8
District of Mission	35,465	28,550	19,165	67.1	62.5	6.9
Sub-Total Municipal Areas	255,465	206,195	134,210	65.1	92.4	7.6
Rural Areas						
Electoral Area B, Fraser Valley Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.					
Electoral Area D, Fraser Valley Regional District*	1,285	970	645	66.5	65.5	n/a ³
Electoral Area E, Fraser Valley Regional District*	3,180	2,790	1,750	62.7	56.1	10.6
Electoral Area G, Fraser Valley Regional District	Data for this area has been suppressed for data quality or confidentiality reasons.					
Sub-Total Rural Areas	4,465	3,760	2,395	63.7	91.9	7.7
Indian Reserves						
Ohamil 1*	80	50	15	30.0	30.0	n/a ³
Peters 1*	Data for this area has been suppressed for data quality or confidentiality reasons.					
Peters 1A*	Statistics Canada does not provide information for this community.					
Popkum 1*	Data for this area has been suppressed for data quality or confidentiality reasons.					

TABLE D-4 Cont'd

Location	Population (no.) ²	Total population aged 15 years and over by labour force status (no.)	In the Labour Force (no.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
Grass 15*	Statistics Canada does not provide information for this community.					
Tzeachten 13*	1,380	300	280	23.4	21.9	6.7
Matsqui Main 2*	80	60	25	41.7	33.3	40.0
Teequaloose 3	Statistics Canada does not provide information for this community.					
Skuet	Statistics Canada does not provide information for this community.					
Papsilqua 2b	Statistics Canada does not provide information for this community.					
Papsilqua 2	Statistics Canada does not provide information for this community.					
Papsilqua 2a	Statistics Canada does not provide information for this community.					
Spuzzum 1	Statistics Canada does not provide information for this community.					
Spuzzum 1a	Statistics Canada does not provide information for this community.					
Spuzzum 7	Statistics Canada does not provide information for this community.					
Stout 8	Statistics Canada does not provide information for this community.					
Saddle Rock 9	Data for this area has been suppressed for data quality or confidentiality reasons.					
4 1/2 Mile 2	Statistics Canada does not provide information for this community.					
Yale 25	Statistics Canada does not provide information for this community.					
Yale 23	Statistics Canada does not provide information for this community.					
Yale 22	Statistics Canada does not provide information for this community.					
Yale 21	Statistics Canada does not provide information for this community.					
Yale 20	Statistics Canada does not provide information for this community.					
Yale 19	Statistics Canada does not provide information for this community.					
Kuthlaith 3	Statistics Canada does not provide information for this community.					
Yale 18	Statistics Canada does not provide information for this community.					
Yale Town 1	Data for this area has been suppressed for data quality or confidentiality reasons.					
Albert Flat 5	Data for this area has been suppressed for data quality or confidentiality reasons.					
Qualark 4	Statistics Canada does not provide information for this community.					
Squeah 6	Statistics Canada does not provide information for this community.					
Kaykaip 7	Statistics Canada does not provide information for this community.					
Stullawheets 8	45	40	10	25.0	37.5	n/a ³
Skawahlum 10	Statistics Canada does not provide information for this community.					
Puckatholetchin 11	Data for this area has been suppressed for data quality or confidentiality reasons.					
Swahliseah 14	Statistics Canada does not provide information for this community.					
Klklacum 12	Statistics Canada does not provide information for this community.					
Trafalgar Flat 13	Statistics Canada does not provide information for this community.					

TABLE D-4 Cont'd

Location	Population (no.) ²	Total population aged 15 years and over by labour force status (no.)	In the Labour Force (no.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
Kawkawa Lake 16	Statistics Canada does not provide information for this community.					
Aywawwis 15	Statistics Canada does not provide information for this community.					
Tunnel 6	Statistics Canada does not provide information for this community.					
Hope 1	Statistics Canada does not provide information for this community.					
Schkam 2	130	80	25	31.2	24.0	40.0
Greenwood Island 3	Statistics Canada does not provide information for this community.					
Chawathil 4	165	110	60	54.5	31.8	33.3
Skawahlook 1	Data for this area has been suppressed for data quality or confidentiality reasons.					
Ruby Creek 2	Data for this area has been suppressed for data quality or confidentiality reasons.					
Lukseetsissum 9	Data for this area has been suppressed for data quality or confidentiality reasons.					
Wahleach Island 2	Statistics Canada does not provide information for this community.					
Peters 2	Statistics Canada does not provide information for this community.					
Seabird Island	610	435	225	51.7	40.2	22.2
Popkum 2	Data for this area has been suppressed for data quality or confidentiality reasons.					
Tseatah 2	Data for this area has been suppressed for data quality or confidentiality reasons.					
Cheam 1	225	165	70	42.4	36.4	14.3
Schelawat 1	Data for this area has been suppressed for data quality or confidentiality reasons.					
Chehalis 6	Statistics Canada does not provide information for this community.					
Chehalis 5	645	470	230	48.9	38.3	21.7
Scowlitz 1	Data for this area has been suppressed for data quality or confidentiality reasons.					
Williams 2	Statistics Canada does not provide information for this community.					
Skwahla 2	Data for this area has been suppressed for data quality or confidentiality reasons.					
Yakweakwoose 12	Data for this area has been suppressed for data quality or confidentiality reasons.					
Skowkale ⁵	800	695	235	33.8	28.8	12.8
Soowahlie 14	185	150	70	46.7	36.7	28.6
Skwali 3	Data for this area has been suppressed for data quality or confidentiality reasons.					
Skwah 4	215	160	90	56.2	40.6	33.3
Kwawkwawapilt 6	350	335	55	16.4	14.9	n/a ³
Squiaala ⁶	80	55	20	36.4	18.2	50.0
Aitchelitch 9	Data for this area has been suppressed for data quality or confidentiality reasons.					
Skway 5	100	70	35	50.0	35.7	n/a ³
Holachten 8	315	255	135	52.9	43.1	18.5
Skumalasp 16	Statistics Canada does not provide information for this community.					

TABLE D-4 Cont'd

Location	Population (no.) ²	Total population aged 15 years and over by labour force status (no.)	In the Labour Force (no.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
Zaitscullachan 9	Statistics Canada does not provide information for this community.					
Lakway Cemetery 3	Statistics Canada does not provide information for this community.					
Lackaway 2	Statistics Canada does not provide information for this community.					
Yaalstrick 1	Statistics Canada does not provide information for this community.					
Skweahm 10	290	215	135	62.8	65.1	n/a ³
Lakahahmen 11	180	145	65	44.8	31.0	30.8
Papekwatchin 4	Statistics Canada does not provide information for this community.					
Sumas Cemetery 12	Statistics Canada does not provide information for this community.					
Aylehootlook 5	Statistics Canada does not provide information for this community.					
Upper Sumas 6	185	140	80	57.1	39.3	31.2
Pekw'Xe:yles	Statistics Canada does not provide information for this community.					
Sahhucum 1	Statistics Canada does not provide information for this community.					
Three Islands 3	Statistics Canada does not provide information for this community.					
Langley 4	Statistics Canada does not provide information for this community.					
Langley 3	Statistics Canada does not provide information for this community.					
Langley 2	Statistics Canada does not provide information for this community.					
Sub-Total Indian Reserves	6,060	3,930	1,880	47.8	82.7	37.2
Fraser Valley Region Total	265,990	213,885	138,485	64.7	92.2	8.0
METRO VANCOUVER REGION						
Municipal Areas						
Township of Langley*	103,145	83,790	58,535	69.9	65.6	6.1
City of Surrey*	463,340	374,315	245,645	65.6	60.4	7.9
City of Coquitlam*	25,015	104,390	69,720	66.8	62.0	7.2
City of Burnaby*	220,255	189,230	120,290	63.6	58.9	7.4
District of Maple Ridge	75,140	61,385	42,310	68.9	64.2	6.8
City of Langley	24,485	20,520	13,505	65.8	61.4	6.7
City of Pitt Meadows	17,710	14,460	10,410	72.0	67.6	6.1
City of White Rock	18,535	16,800	10,050	59.8	55.7	7.0
City of Port Coquitlam	55,780	45,905	32,500	70.8	66.2	6.5
City of New Westminster	65,090	56,495	39,360	69.7	64.1	7.9
Corporation of Delta	98,745	81,660	54,005	66.1	62.0	6.3
Tsawwassen First Nation	720	635	360	56.7	51.2	9.7
City of Richmond	189,305	162,040	99,910	61.7	57.3	7.1

TABLE D-4 Cont'd

Location	Population (no.) ²	Total population aged 15 years and over by labour force status (no.)	In the Labour Force (no.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
City of Port Moody	32,875	26,745	19,130	71.5	66.5	7.1
Village of Anmore	2,090	1,615	1,200	74.3	69.7	6.2
Village of Belcarra	645	575	365	63.5	61.7	n/a ³
District of North Vancouver	83,550	69,070	46,515	67.3	63.3	6.0
City of Vancouver	590,205	518,975	349,145	67.3	62.5	7.1
City of North Vancouver	47,685	41,200	29,415	71.4	67.0	6.1
District of West Vancouver	42,045	36,095	19,315	53.5	49.7	7.1
Village of Lions Bay	1,315	1,140	790	69.3	65.8	5.1
Bowen Island, Island Municipality	Data for this area has been suppressed for data quality or confidentiality reasons.					
Sub-Total Municipal Areas	2,157,675	1,907,040	1,262,475	66.2	92.9	7.1
Rural Areas						
Electoral Area A, Metro Vancouver	2,385	10,230	5,360	52.4	47.5	94.0
Sub-Total Rural Areas	2,385	10,230	5,360	52.4	90.7	9.4
Indian Reserves						
Whonnock 1	Data for this area has been suppressed for data quality or confidentiality reasons.					
Matsqui 4	385	385	35	9.1	7.8	n/a ³
Langley 5	Data for this area has been suppressed for data quality or confidentiality reasons.					
McMillan Island 6	65	55	25	45.5	45.5	n/a ³
Pitt Lake 4	Statistics Canada does not provide information for this community.					
Katzie 2	Data for this area has been suppressed for data quality or confidentiality reasons.					
Graveyard 5	Statistics Canada does not provide information for this community..					
Katzie 1	110	170	100	58.8	38.2	30.0
Barnston Island 3	Data for this area has been suppressed for data quality or confidentiality reasons.					
Coquitlam 1	Data for this area has been suppressed for data quality or confidentiality reasons.					
Coquitlam 2	Data for this area has been suppressed for data quality or confidentiality reasons.					
Semiahmoo	105	100	55	55.0	50.0	n/a ³
Inlailawatash 4A	Statistics Canada does not provide information for this community.					
Burrard Inlet 3	1475	1310	995	76.0	70.6	7.0
Seymour Creek 2	90	75	45	60.0	46.7	22.2
Mission 1	615	505	295	58.4	45.5	22.0
Capilano 5	2665	2355	1240	52.7	47.1	10.5
Kitsilano 6	Statistics Canada does not provide information for this community.					
Musqueam 2	1610	1325	805	60.8	53.6	11.8

TABLE D-4 Cont'd

Location	Population (no.) ²	Total population aged 15 years and over by labour force status (no.)	In the Labour Force (no.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
Sea Island 3	Statistics Canada does not provide information for this community.					
Musqueam 4	Data for this area has been suppressed for data quality or confidentiality reasons.					
Sub-Total Indian Reserves	7,120	6,280	3,595	57.2	88.5	11.1
Metro Vancouver Region Total	2,167,180	1,923,550	1,271,430	66.1	92.9	7.1

Sources: Statistics Canada 2013a

- Notes:**
- * Denotes incorporated communities, counties/regions and IRs crossed by the proposed pipeline corridor, a pump station or a reactivated pipeline segment.
 - 1 The Village of Valemount is not located in the proposed pipeline corridor; however, it lies in close proximity (400 m) and is anticipated to be a hub for construction activities, and, therefore is considered a corridor community.
 - 2 Underlying population counts in the NHS may differ from those provided by the Census of Canada due to differing survey methods (see Section 3.7 Data Context and Limitations). Census of Canada is used as the source of population and demographic information in this report. However, NHS population counts are noted here as they are the basis of labour force estimates. Labour force metrics based on the NHS are the best available at the community/municipality level.
 - 1 Data for this area has been suppressed and/or rounded to zero.
 - 2 Data for Neskonlith 1 and Neskonlith 2 is amalgamated and presented as Neskonlith.
 - 3 Data for Skowkale 10 and Skowkale 11 is amalgamated and presented as Skowkale.
 - 4 Data for Squiaala 7 and Squiaala 8 is amalgamated and presented as Squiaala.

TABLE D-5

2011 EDUCATIONAL ATTAINMENT IN THE SOCIO-ECONOMIC REGIONAL STUDY AREA IN ALBERTA

Location	Total population 15 years and over (no.)	No certificate, diploma or degree (%)	High school certificate or degree (%)	Postsecondary certificate, diploma or degree (%)	Apprenticeship or trades certificate or diploma (%)	College, CEGEP or other non-university certificate or diploma (%)	University certificate below the bachelor level (%)	University certificate, diploma or degree at bachelor level or above(%)	Bachelor's degree (%)	University certificate, diploma or degree above bachelor level (%)
EDMONTON REGION										
Municipal Areas										
City of Edmonton*	660,820	17.5	26.2	56.3	9.5	17.6	4.9	24.4	16.0	8.4
City of Spruce Grove*	20,290	19.8	27.1	53.1	15.7	21.5	3.1	12.7	10.1	2.7
Town of Stony Plain*	11825	23.7	27.0	49.3	15.5	20.2	2.9	10.8	8.0	2.8
Village of Wabamun*	Data for this area has been suppressed for data quality or confidentiality reasons.									
City of Fort Saskatchewan	15,130	17.1	26.9	56.0	18.2	22.1	4.1	11.5	9.2	2.3
Village of Spring Lake	430	9.3	36.0	52.3	22.1	11.6	7.0	11.6	10.5	0.0
Town of Mayerthorpe	Data for this area has been suppressed for data quality or confidentiality reasons.									
Town of Onoway	755	29.8	31.1	38.4	14.6	17.9	0.0	4.6	3.3	2.0
Village of Alberta Beach	Data for this area has been suppressed for data quality or confidentiality reasons.									
Town of Morinville	6,575	17.2	33.1	49.7	15.4	24.3	3.2	6.8	5.8	1.1
Town of Bon Accord	1,160	21.1	25.0	54.3	19.0	21.6	4.3	9.9	9.1	0.0
Town of Gibbons	2,260	17.7	30.5	51.8	15.3	24.8	5.1	6.6	4.6	2.0
Town of Legal	Data for this area has been suppressed for data quality or confidentiality reasons.									
Town of Redwater	Data for this area has been suppressed for data quality or confidentiality reasons.									
City of St. Albert	49,190	13.6	27.1	59.2	10.1	21.5	5.0	22.7	16.3	6.4
Town of Drayton Valley	5,425	24.8	26.5	48.7	14.0	24.4	2.8	7.6	6.2	1.5
Village of Breton	380	39.5	13.2	48.7	13.2	21.1	0.0	13.2	6.6	0.0
City of Leduc	19,090	18.6	29.6	51.8	17.2	19.5	4.2	10.8	8.5	2.3
Town of Beaumont	9,885	17.1	29.1	53.8	11.0	22.4	4.5	16.0	12.6	3.4
Town of Calmar	1,595	18.5	39.5	42.0	16.0	18.2	2.5	5.0	5.0	0.0
Town of Devon	5,005	20.3	32.4	47.4	15.2	18.0	3.5	10.7	9.2	1.5
Village of Thorsby	Data for this area has been suppressed for data quality or confidentiality reasons.									
Village of Warburg	Data for this area has been suppressed for data quality or confidentiality reasons.									
Sub-Total Municipal Areas	809,815	17.5	26.5	55.9	10.3	18.3	4.7	22.6	15.2	7.5
Rural Areas										
Strathcona County*	73,665	14.5	26.7	58.9	13.4	21.0	4.5	20.1	14.7	5.3
Parkland County*	24,625	19.9	28.7	51.4	16.4	18.6	3.0	13.3	9.8	3.4
Summer Village of Betula Beach	Data for this area has been suppressed for data quality or confidentiality reasons.									

TABLE D-5 Cont'd

Location	Total population 15 years and over (no.)	No certificate, diploma or degree (%)	High school certificate or degree (%)	Postsecondary certificate, diploma or degree (%)	Apprenticeship or trades certificate or diploma (%)	College, CEGEP or other non-university certificate or diploma (%)	University certificate below the bachelor level (%)	University certificate, diploma or degree at bachelor level or above(%)	Bachelor's degree (%)	University certificate, diploma or degree above bachelor level (%)
Summer Village of Kapasiwin	Data for this area has been suppressed for data quality or confidentiality reasons.									
Summer Village of Lakeview	Data for this area has been suppressed for data quality or confidentiality reasons.									
Summer Village of Point Alison	Data for this area has been suppressed for data quality or confidentiality reasons.									
Summer Village of Seba Beach	125	0.0	24.0	68.0	0.0	20.0	12.0	32.0	0.0	20.0
Lac Ste Anne County	8,555	27.5	27.6	44.9	18.1	17.7	2.5	6.6	4.1	2.5
Summer Village of Birch Cove	Data for this area has been suppressed for data quality or confidentiality reasons.									
Summer Village of Castle Island	Data for this area has been suppressed for data quality or confidentiality reasons.									
Summer Village of Nakamun Park	Data for this area has been suppressed for data quality or confidentiality reasons.									
Summer Village of Ross Haven	110	31.8	13.6	54.5	0.0	0.0	0.0	50.0	0.0	45.5
Summer Village of Silver Sands	40	0.0	37.5	37.5	0.0	0.0	0.0	0.0	0.0	0.0
Summer Village of South View	Data for this area has been suppressed for data quality or confidentiality reasons.									
Summer Village of Sunrise Beach	Data for this area has been suppressed for data quality or confidentiality reasons.									
Summer Village of Sunset Point	115	8.7	26.1	60.9	17.4	21.7	0.0	17.4	0.0	8.7
Summer Village of Val Quentin	80	25.0	31.3	56.3	37.5	0.0	0.0	0.0	0.0	0.0
Summer Village of West Cove	65	0.0	38.5	46.2	30.8	0.0	0.0	15.4	15.4	0.0
Summer Village of Yellowstone	Data for this area has been suppressed for data quality or confidentiality reasons.									
Sturgeon County	15,135	16.7	28.8	54.5	17.9	20.5	2.4	13.6	10.8	2.8
Brazeau County	5,695	28.1	34.6	37.3	17.5	12.6	1.0	6.3	5.4	0.8
Leduc County	11,085	20.8	31.8	47.3	16.8	17.5	2.8	10.3	8.4	1.9
Summer Village of Golden Days	85	0.0	29.4	58.8	0.0	29.4	0.0	0.0	0.0	0.0
Summer Village of Itaska Beach	Data for this area has been suppressed for data quality or confidentiality reasons.									
Summer Village of Sundance Beach	35	0.0	0.0	85.7	0.0	0.0	0.0	57.1	0.0	57.1
Sub-Total Rural Areas	139,415	17.5	28.0	54.4	15.1	19.6	3.6	16.0	11.8	4.1
Indian Reserves										
Stony Plain 135	655	43.5	21.4	34.4	11.5	18.3	3.1	1.5	1.5	0.0
Alexander 134	700	48.6	22.9	29.3	7.9	15.7	2.1	2.9	2.9	0.0
Wabamun 133b	Data for this area has been suppressed for data quality or confidentiality reasons.									
Wabamun 133a	645	65.9	13.2	20.9	10.1	7.8	0.0	1.6	1.6	0.0
Stony Plain 135a	Statistics Canada does not provide information for this community.									
Alexis 133	545	58.7	10.1	32.1	12.8	13.8	4.6	1.8	1.8	0.0

TABLE D-5 Cont'd

Location	Total population 15 years and over (no.)	No certificate, diploma or degree (%)	High school certificate or degree (%)	Postsecondary certificate, diploma or degree (%)	Apprenticeship or trades certificate or diploma (%)	College, CECEP or other non-university certificate or diploma (%)	University certificate below the bachelor level (%)	University certificate, diploma or degree at bachelor level or above(%)	Bachelor's degree (%)	University certificate, diploma or degree above bachelor level (%)
Sub-Total Indian Reserves	2,545	53.8	17.3	29.1	10.4	13.9	2.4	2.0	2.0	0.0
Edmonton Region Total	951,775	17.6	26.7	55.7	11.0	18.5	4.6	21.6	14.6	7.0
RURAL ALBERTA REGION										
Municipal Areas										
Town of Edson*	6,685	29.0	27.7	43.2	14.4	17.4	3.1	8.3	6.2	2.1
Town of Hinton*	7,650	24.1	30.1	45.7	15.9	18.8	1.4	9.6	7.5	2.1
Sub-Total Municipal Areas	14,335	26.4	29.0	44.5	15.2	18.1	2.2	9.0	6.9	2.1
Rural Areas										
Yellowhead County*	8,425	31.6	26.2	42.1	18.3	14.4	3.1	6.3	4.8	1.5
Sub-Total Rural Areas	455	31.6	26.2	42.1	18.3	14.4	3.1	6.3	4.8	1.5
Indian Reserves										
O'Chiese 203	455	90.1	3.3	6.6	3.3	2.2	0.0	2.2	0.0	0.0
Alexis Elk River 233	Statistics Canada does not provide information for this community.									
Alexis Cardinal River 234	Statistics Canada does not provide information for this community.									
Sub-Total Indian Reserves	455	90.1	3.3	6.6	3.3	2.2	0.0	2.2	0.0	0.0
Rural Alberta Region Total	23,215	29.5	27.5	42.9	16.1	16.5	2.5	7.9	6.0	1.9
JASPER NATIONAL PARK REGION										
Municipal Areas										
Municipality of Jasper	2,955	12.7	32.7	54.5	12.2	19.8	4.2	18.3	13.5	4.7
Sub-Total Municipal Areas	2,955	12.7	32.7	54.5	12.2	19.8	4.2	18.3	13.5	4.7
Rural Areas										
ID No 12	Data for this area has been suppressed for data quality or confidentiality reasons.									
Sub-Total Rural Areas	Data for this area has been suppressed for data quality or confidentiality reasons.									
JNP Region Total	2,955	12.7	32.7	54.5	12.2	19.8	4.2	18.3	13.5	4.7

Sources: Statistics Canada 2013a

Notes: Educational attainment estimates are calculated based on labour force data provided by the NHS. Underlying population counts may differ from those provided by the Census of Canada; however educational attainment metrics based on the NHS are the best available at the community/municipality level. Percentages represent portion of labour force that has achieved that level of attainment. Percent totals do not sum to 100%, as certain sub-categories are also presented as a percentage of the total labour force opposed to a percentage of the category to which they are a subset.

* Denotes incorporated communities, counties/regions and IRs crossed by the proposed pipeline corridor.

TABLE D-6

2011 EDUCATIONAL ATTAINMENT IN THE SOCIO-ECONOMIC REGIONAL STUDY AREA IN BC

Location	Total population 15 years and over	No certificate, diploma or degree (%)	High school certificate or degree (%)	Postsecondary certificate, diploma or degree (%)	Apprenticeship or trades certificate or diploma (%)	College, CEGEP or other non-university certificate or diploma (%)	University certificate below the bachelor level (%)	University certificate, diploma or degree at bachelor level or above (%)	Bachelor's degree (%)	University certificate, diploma or degree above bachelor level (%)
FRASER-FORT GEORGE/THOMPSON-NICOLA REGION										
Municipal Areas										
Village of Valemount*1	815	27.6	24.5	47.9	21.5	17.2	3.7	5.5	3.7	1.8
District of Clearwater*	2,045	24.0	29.8	46.0	15.2	14.2	4.9	11.7	8.6	3.2
City of Kamloops*	70,385	17.0	30.2	52.7	13.5	16.8	6.3	16.2	10.8	5.3
City of Merritt*	5,665	26.7	30.3	43.2	12.6	13.5	3.2	13.9	9.6	4.3
Village of McBride	450	36.7	28.9	34.4	10.0	22.2	0.0	0.0	0.0	0.0
District of Barriere*	Data for this area has been suppressed for data quality or confidentiality reasons.									
Municipality of Sun Peaks	305	9.8	36.1	55.7	16.4	11.5	0.0	24.6	18.0	8.2
Village of Chase	2,145	31.2	29.1	39.9	20.0	9.6	3.7	6.5	5.6	1.2
District of Logan Lake	1,810	21.5	30.4	48.3	15.5	17.4	7.7	8.0	6.6	1.7
Town of Princeton	2,440	34.8	29.9	35.2	10.5	15.4	1.0	8.6	4.5	3.9
Sub-Total Municipal Areas	86,060	19.0	30.1	50.9	13.7	16.3	5.8	15.1	10.2	4.9
Rural Areas										
Electoral Area H, Regional District of Fraser-Fort George*	1,450	21.4	29.7	48.6	9.0	19.7	2.8	16.9	12.4	4.8
Electoral Area A, Thompson-Nicola Regional District*	1,295	20.8	40.5	38.6	15.1	13.5	4.2	6.2	5.0	0.0
Electoral Area B, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.									
Electoral Area O, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.									
Electoral Area P, Thompson-Nicola Regional District*	3,195	17.5	38.5	43.8	13.6	16.3	5.2	8.8	5.3	3.6
Electoral Area J, Thompson-Nicola Regional District*	1,315	20.2	28.9	51.3	18.3	14.4	7.6	11.0	8.0	3.0
Electoral Area M, Thompson-Nicola Regional District*	1,555	26.7	33.4	39.9	12.9	14.5	4.5	9.0	4.5	4.2
Electoral Area N, Thompson-Nicola Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.									
Electoral Area L, Thompson-Nicola Regional District	Data for this area has been suppressed for data quality or confidentiality reasons.									
Electoral Area H, Regional District of Okanagan- Similkameen	Data for this area has been suppressed for data quality or confidentiality reasons.									
Sub-Total Rural Areas	8,810	20.7	35.0	44.3	13.6	15.8	4.9	10.1	6.7	3.3
Indian Reserves										
Kamloops 4										

TABLE D-6 Cont'd

Location	Total population 15 years and over	No certificate, diploma or degree (%)	High school certificate or degree (%)	Postsecondary certificate, diploma or degree (%)	Apprenticeship or trades certificate or diploma (%)	College, CEGEP or other non-university certificate or diploma (%)	University certificate below the bachelor level (%)	University certificate, diploma or degree at bachelor level or above (%)	Bachelor's degree (%)	University certificate, diploma or degree above bachelor level (%)
Whispering Pines 4	45	22.2	0.0	66.7	22.2	33.3	0.0	0.0	0.0	0.0
Zoht 5*	Data for this area has been suppressed for data quality or confidentiality reasons.									
Zoht 4*	Data for this area has been suppressed for data quality or confidentiality reasons.									
Joeyaksa 2*	Statistics Canada does not provide information for this community.									
Coldwater 1	275	36.4	23.6	38.2	12.7	21.8	0.0	0.0	0.0	0.0
Boulder Creek 5	Statistics Canada does not provide information for this community.									
Nekalliston 2	Statistics Canada does not provide information for this community.									
North Thompson 1	190	21.1	36.8	42.1	10.5	15.8	7.9	7.9	0.0	5.3
Louis Creek 4	Data for this area has been suppressed for data quality or confidentiality reasons.									
Squaam 2	Data for this area has been suppressed for data quality or confidentiality reasons.									
Hustalen 1	Data for this area has been suppressed for data quality or confidentiality reasons.									
Marshy Lake 1	Statistics Canada does not provide information for this community.									
Toops 3	Statistics Canada does not provide information for this community.									
Hihium Lake 6a	Statistics Canada does not provide information for this community.									
Hihium Lake 6b	Statistics Canada does not provide information for this community.									
Quaaout 1	185	32.4	24.3	45.9	18.9	13.5	5.4	5.4	0.0	0.0
Kamloops 5	Statistics Canada does not provide information for this community.									
Sahhalkum 4	235	25.5	31.9	40.4	8.5	17.0	8.5	6.4	6.4	0.0
Meadow Creek 3	Statistics Canada does not provide information for this community.									
Neskonlith ²	170	23.5	29.4	47.1	17.6	11.8	5.9	8.8	8.8	0.0
Skeetchestn	205	39.0	19.5	41.5	12.2	17.1	7.3	4.9	0.0	4.9
Kamloops 1	2,225	17.3	32.6	50.1	15.7	16.0	5.6	12.8	9.7	3.1
Kamloops 2	Statistics Canada does not provide information for this community.									
Kamloops 3	Statistics Canada does not provide information for this community.									
Pipseul 3	Statistics Canada does not provide information for this community.									
Salmon Lake 7	Statistics Canada does not provide information for this community.									
Douglas Lake 3	125	44.0	28.0	32.0	12.0	12.0	0.0	8.0	0.0	0.0
Chapperon Lake 5	Statistics Canada does not provide information for this community.									
Chapperon Creek 6	Statistics Canada does not provide information for this community.									

TABLE D-6 Cont'd

Location	Total population 15 years and over	No certificate, diploma or degree (%)	High school certificate or degree (%)	Postsecondary certificate, diploma or degree (%)	Apprenticeship or trades certificate or diploma (%)	College, CEGEP or other non-university certificate or diploma (%)	University certificate below the bachelor level (%)	University certificate, diploma or degree at bachelor level or above (%)	Bachelor's degree (%)	University certificate, diploma or degree above bachelor level (%)
Nicola Lake 1	110	36.4	18.2	50.0	13.6	22.7	0.0	9.1	9.1	0.0
Zoht 14	Statistics Canada does not provide information for this community.									
Nicola Mameet 1	420	38.1	29.8	32.1	8.3	13.1	4.8	4.8	4.8	0.0
Hamilton Creek 2	Data for this area has been suppressed for data quality or confidentiality reasons.									
Spahomin Creek 8	Statistics Canada does not provide information for this community.									
Spahomin Creek 4	Statistics Canada does not provide information for this community.									
Hamilton Creek 7	Statistics Canada does not provide information for this community.									
Anlko 21	Statistics Canada does not provide information for this community.									
Nooaitch Grass 9	Statistics Canada does not provide information for this community.									
Logan's 6	Statistics Canada does not provide information for this community.									
Nooaitch 10	105	38.1	14.3	52.4	9.5	28.6	9.5	0.0	0.0	0.0
Speous 8	Statistics Canada does not provide information for this community.									
Gwen Lake 3	Statistics Canada does not provide information for this community.									
Paul's Basin 2	25	40.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
One Mile 6	Statistics Canada does not provide information for this community.									
Nine Mile Creek 4	Statistics Canada does not provide information for this community.									
Lulu 5	Data for this area has been suppressed for data quality or confidentiality reasons.									
Wolf Creek 3	Statistics Canada does not provide information for this community.									
Sub-Total Indian Reserves	4,315	25.0	29.5	45.4	13.9	16.3	5.2	9.0	6.4	2.1
Fraser-Fort George/Thompson-Nicola Region Total	99,185	19.4	30.5	50.1	13.7	16.3	5.7	14.4	9.7	4.7
FRASER VALLEY REGION										
Municipal Areas										
District of Hope*	4,990	25.1	27.1	47.9	14.0	15.1	5.5	13.2	10.2	3.1
City of Chilliwack*	61,760	20.6	32.1	47.4	13.4	17.6	6.0	10.4	6.6	3.8
City of Abbotsford*	105,630	22.0	31.1	46.9	11.0	15.2	6.3	14.4	8.4	6.0
District of Kent	3,950	22.3	30.4	47.2	15.4	16.8	3.5	11.4	5.9	5.4
Village of Harrison Hot Springs	1,315	16.0	26.6	57.8	14.4	21.3	6.1	15.6	6.8	9.1
District of Mission	28,550	20.1	31.1	48.7	15.0	18.4	4.6	10.6	6.0	4.7
Sub-Total Municipal Areas	206,195	21.3	31.3	47.4	12.5	16.4	5.9	12.6	7.5	5.1

TABLE D-6 Cont'd

Location	Total population 15 years and over	No certificate, diploma or degree (%)	High school certificate or degree (%)	Postsecondary certificate, diploma or degree (%)	Apprenticeship or trades certificate or diploma (%)	College, CEGEP or other non-university certificate or diploma (%)	University certificate below the bachelor level (%)	University certificate, diploma or degree at bachelor level or above (%)	Bachelor's degree (%)	University certificate, diploma or degree above bachelor level (%)
Rural Areas										
Electoral Area B, Fraser Valley Regional District*	Data for this area has been suppressed for data quality or confidentiality reasons.									
Electoral Area D, Fraser Valley Regional District*	975	17.9	26.2	55.9	14.9	15.4	11.3	14.4	12.3	2.6
Electoral Area E, Fraser Valley Regional District*	2,785	19.7	30.3	50.1	16.3	16.7	6.6	10.4	5.7	4.8
Electoral Area G, Fraser Valley Regional District	Data for this area has been suppressed for data quality or confidentiality reasons.									
Sub-Total Rural Areas	3,760	19.3	29.3	51.6	16.0	16.4	7.8	11.4	7.4	4.3
Indian Reserves										
Ohamil 1*	55	27.3	18.2	45.5	36.4	0.0	0.0	0.0	0.0	0.0
Peters 1*	Data for this area has been suppressed for data quality or confidentiality reasons.									
Peters 1A*	Statistics Canada does not provide information for this community.									
Popkum 1*	Data for this area has been suppressed for data quality or confidentiality reasons.									
Grass 15*	Statistics Canada does not provide information for this community.									
Tzeachten 13*	1,275	29.0	31.8	39.2	10.2	14.9	6.3	7.5	5.1	2.7
Matsqui Main 2*	55	54.5	18.2	27.3	18.2	18.2	18.2	0.0	0.0	0.0
Teequaloose 3	Statistics Canada does not provide information for this community.									
Skuet	Statistics Canada does not provide information for this community.									
Papsilqua 2b	Statistics Canada does not provide information for this community.									
Papsilqua 2	Statistics Canada does not provide information for this community.									
Papsilqua 2a	Statistics Canada does not provide information for this community.									
Spuzzum 1	Statistics Canada does not provide information for this community.									
Spuzzum 1a	Statistics Canada does not provide information for this community.									
Spuzzum 7	Statistics Canada does not provide information for this community.									
Stout 8	Statistics Canada does not provide information for this community.									
Saddle Rock 9	Data for this area has been suppressed for data quality or confidentiality reasons.									
4 1/2 Mile 2	Statistics Canada does not provide information for this community.									
Yale 25	Statistics Canada does not provide information for this community.									
Yale 23	Statistics Canada does not provide information for this community.									
Yale 22	Statistics Canada does not provide information for this community.									
Yale 21	Statistics Canada does not provide information for this community.									
Yale 20	Statistics Canada does not provide information for this community.									

TABLE D-6 Cont'd

Location	Total population 15 years and over	No certificate, diploma or degree (%)	High school certificate or degree (%)	Postsecondary certificate, diploma or degree (%)	Apprenticeship or trades certificate or diploma (%)	College, CEGEP or other non-university certificate or diploma (%)	University certificate below the bachelor level (%)	University certificate, diploma or degree at bachelor level or above (%)	Bachelor's degree (%)	University certificate, diploma or degree above bachelor level (%)
Yale 19	Statistics Canada does not provide information for this community.									
Kuthlaith 3	Statistics Canada does not provide information for this community.									
Yale 18	Statistics Canada does not provide information for this community.									
Yale Town 1	Data for this area has been suppressed for data quality or confidentiality reasons.									
Albert Flat 5	Data for this area has been suppressed for data quality or confidentiality reasons.									
Qualark 4	Statistics Canada does not provide information for this community.									
Squeah 6	Statistics Canada does not provide information for this community.									
Kaykaip 7	Statistics Canada does not provide information for this community.									
Stullawheets 8	35	42.9	28.6	28.6	0.0	0.0	0.0	0.0	0.0	0.0
Skawahlum 10	Statistics Canada does not provide information for this community.									
Puckatholetchin 11	Data for this area has been suppressed for data quality or confidentiality reasons.									
Swahliseah 14	Statistics Canada does not provide information for this community.									
Klaklacum 12	Statistics Canada does not provide information for this community.									
Trafalgar Flat 13	Statistics Canada does not provide information for this community.									
Kawkawa Lake 16	Statistics Canada does not provide information for this community.									
Aywawwis 15	Statistics Canada does not provide information for this community.									
Tunnel 6	Statistics Canada does not provide information for this community.									
Hope 1	Statistics Canada does not provide information for this community.									
Schkam 2	80	43.8	18.8	31.3	18.8	18.8	0.0	0.0	0.0	0.0
Greenwood Island 3	Statistics Canada does not provide information for this community.									
Chawathil 4	110	36.4	22.7	45.5	18.2	18.2	9.1	0.0	0.0	0.0
Skawahlook 1	Data for this area has been suppressed for data quality or confidentiality reasons.									
Ruby Creek 2	Data for this area has been suppressed for data quality or confidentiality reasons.									
Lukseetsissum 9	Data for this area has been suppressed for data quality or confidentiality reasons.									
Wahleach Island 2	Statistics Canada does not provide information for this community.									
Peters 2	Statistics Canada does not provide information for this community.									
Seabird Island	435	37.9	20.7	41.4	19.5	12.6	5.7	2.3	2.3	0.0
Popkum 2	Data for this area has been suppressed for data quality or confidentiality reasons.									
Tsealah 2	Data for this area has been suppressed for data quality or confidentiality reasons.									
Cheam 1	165	51.5	18.2	30.3	12.1	9.1	9.1	0.0	0.0	0.0

TABLE D-6 Cont'd

Location	Total population 15 years and over	No certificate, diploma or degree (%)	High school certificate or degree (%)	Postsecondary certificate, diploma or degree (%)	Apprenticeship or trades certificate or diploma (%)	College, CEGEP or other non-university certificate or diploma (%)	University certificate below the bachelor level (%)	University certificate, diploma or degree at bachelor level or above (%)	Bachelor's degree (%)	University certificate, diploma or degree above bachelor level (%)
Schelawat 1	Data for this area has been suppressed for data quality or confidentiality reasons.									
Chehalis 6	Statistics Canada does not provide information for this community.									
Chehalis 5	470	34.0	23.4	43.6	18.1	13.8	8.5	2.1	0.0	0.0
Scowitz 1	Data for this area has been suppressed for data quality or confidentiality reasons.									
Williams 2	Statistics Canada does not provide information for this community.									
Skwahla 2	Data for this area has been suppressed for data quality or confidentiality reasons.									
Yakweakwoose 12	Data for this area has been suppressed for data quality or confidentiality reasons.									
Skowkale ³	695	38.1	28.1	33.8	11.5	11.5	3.6	6.5	2.9	2.9
Soowahlie 14	150	33.3	33.3	36.7	16.7	6.7	6.7	0.0	0.0	0.0
Skwali 3	Data for this area has been suppressed for data quality or confidentiality reasons.									
Skwah 4	160	46.9	12.5	37.5	9.4	12.5	6.3	9.4	6.3	0.0
Kwawkwawapilt 6	335	34.3	19.4	46.3	20.9	20.9	0.0	0.0	0.0	0.0
Squiaala ⁴	60	33.3	25.0	25.0	16.7	0.0	0.0	0.0	0.0	0.0
Aitchelitch 9	Data for this area has been suppressed for data quality or confidentiality reasons.									
Skway 5	75	26.7	46.7	26.7	0.0	0.0	0.0	0.0	0.0	0.0
Holachten 8	255	33.3	19.6	47.1	23.5	17.6	5.9	0.0	0.0	0.0
Skumalasp 16	Statistics Canada does not provide information for this community.									
Zaitscullachan 9	Statistics Canada does not provide information for this community.									
Lakway Cemetery 3	Statistics Canada does not provide information for this community.									
Lackaway 2	Statistics Canada does not provide information for this community.									
Yaalstrick 1	Statistics Canada does not provide information for this community.									
Skweahm 10	215	25.6	20.9	53.5	7.0	34.9	0.0	7.0	0.0	0.0
Lakahahmen 11	150	20.0	33.3	46.7	26.7	10.0	10.0	0.0	0.0	0.0
Papekwatchin 4	Statistics Canada does not provide information for this community.									
Sumas Cemetery 12	Statistics Canada does not provide information for this community.									
Aylechootlook 5	Statistics Canada does not provide information for this community.									
Upper Sumas 6	145	31.0	24.1	41.4	20.7	13.8	6.9	6.9	0.0	0.0
Pekw'xe:Yles	Statistics Canada does not provide information for this community.									
Sahhucum 1	Statistics Canada does not provide information for this community.									
Three Islands 3	Statistics Canada does not provide information for this community.									

TABLE D-6 Cont'd

Location	Total population 15 years and over	No certificate, diploma or degree (%)	High school certificate or degree (%)	Postsecondary certificate, diploma or degree (%)	Apprenticeship or trades certificate or diploma (%)	College, CEGEP or other non-university certificate or diploma (%)	University certificate below the bachelor level (%)	University certificate, diploma or degree at bachelor level or above (%)	Bachelor's degree (%)	University certificate, diploma or degree above bachelor level (%)
Langley 4	Statistics Canada does not provide information for this community.									
Langley 3	Statistics Canada does not provide information for this community.									
Langley 2	Statistics Canada does not provide information for this community.									
Sub-Total Indian Reserves	4,920	34.0	25.7	39.9	14.8	14.3	5.4	4.1	2.1	1.1
Fraser Valley Region Total	214,875	21.6	31.1	47.3	12.6	16.4	5.9	12.4	7.4	5.0
METRO VANCOUVER REGION										
Municipal Areas										
Township of Langley*	83,790	15.6	31.1	53.3	12.5	18.3	5.9	16.5	10.6	5.9
City of Surrey*	374,315	19.1	31.0	49.9	8.5	15.6	6.8	18.9	12.0	7.0
City of Coquitlam*	104,390	12.5	27.4	60.2	9.2	17.7	6.6	26.7	17.2	9.5
City of Burnaby*	189,235	13.7	25.2	61.1	7.8	16.2	7.3	29.7	19.7	10.0
District of Maple Ridge	61,385	15.9	32.1	52.0	13.7	20.7	5.3	12.2	7.8	4.5
City of Langley	20,520	19.1	31.6	49.3	13.5	18.9	5.5	11.3	8.0	3.3
City of Pitt Meadows	14,465	14.7	29.9	55.4	14.6	22.5	4.6	13.8	8.6	5.2
City of White Rock	16,800	9.6	27.2	63.2	10.7	21.0	6.5	25.1	14.0	11.1
City of Port Coquitlam	45,910	13.7	31.1	55.2	11.0	19.5	5.7	19.0	12.7	6.3
City of New Westminster	56,495	13.1	26.0	60.9	10.1	19.7	6.3	24.8	16.0	8.8
Corporation of Delta	81,660	15.7	29.7	54.6	9.4	18.7	5.9	20.6	13.0	7.6
Tsawwassen First Nation	635	15.7	26.0	59.1	13.4	14.2	6.3	25.2	13.4	11.8
City of Richmond	162,045	14.2	27.9	57.9	6.0	14.4	7.8	29.8	20.5	9.3
City of Port Moody	26,745	9.6	24.8	65.6	9.0	17.5	7.3	31.8	19.5	12.3
Village of Anmore	1,610	8.1	26.4	65.8	6.8	24.8	8.1	25.5	14.9	10.9
Village of Belcarra	580	4.3	21.6	74.1	13.8	19.8	5.2	33.6	12.1	22.4
District of North Vancouver	69,070	9.8	23.3	66.9	6.8	17.8	7.3	35.0	21.6	13.4
City of Vancouver	518,975	13.9	22.8	63.3	6.1	14.6	6.1	36.5	23.0	13.4
City of North Vancouver	41,200	9.9	23.7	66.5	9.2	18.8	7.3	31.2	19.9	11.3
District of West Vancouver	36,095	7.2	22.0	70.8	4.6	13.9	7.5	44.8	25.8	19.0
Village of Lions Bay	1,135	5.3	17.2	78.0	4.4	17.6	4.8	50.7	25.1	25.6
Bowen Island, Island Municipality	Data for this area has been suppressed for data quality or confidentiality reasons.									
Sub-Total Municipal Areas	1,907,055	14.6	26.8	58.6	8.1	16.3	6.6	27.5	17.6	9.9

TABLE D-6 Cont'd

Location	Total population 15 years and over	No certificate, diploma or degree (%)	High school certificate or degree (%)	Postsecondary certificate, diploma or degree (%)	Apprenticeship or trades certificate or diploma (%)	College, CEGEP or other non-university certificate or diploma (%)	University certificate below the bachelor level (%)	University certificate, diploma or degree at bachelor level or above (%)	Bachelor's degree (%)	University certificate, diploma or degree above bachelor level (%)
Rural Areas										
Electoral Area A, Metro Vancouver	10,225	7.4	20.1	72.5	3.0	5.6	4.5	59.4	23.3	36.1
Sub-Total Rural Areas	0	7.4	20.1	72.5	3.0	5.6	4.5	59.4	23.3	36.1
Indian Reserves										
Whonnock 1	Data for this area has been suppressed for data quality or confidentiality reasons.									
Matsqui 4	380	34.2	23.7	43.4	21.1	17.1	0.0	5.3	0.0	0.0
Langley 5	Data for this area has been suppressed for data quality or confidentiality reasons.									
McMillan Island 6	55	54.5	18.2	36.4	18.2	0.0	0.0	0.0	0.0	0.0
Pitt Lake 4	Statistics Canada does not provide information for this community.									
Katzie 2	Data for this area has been suppressed for data quality or confidentiality reasons.									
Graveyard 5	Statistics Canada does not provide information for this community.									
Katzie 1	170	50.0	23.5	23.5	5.9	17.6	5.9	0.0	0.0	0.0
Barnston Island 3	Data for this area has been suppressed for data quality or confidentiality reasons.									
Coquitlam 1	Data for this area has been suppressed for data quality or confidentiality reasons.									
Coquitlam 2	Data for this area has been suppressed for data quality or confidentiality reasons.									
Semiahmoo	95	36.8	31.6	36.8	21.1	10.5	0.0	0.0	0.0	0.0
Inlailawatash 4A	Statistics Canada does not provide information for this community.									
Burrard Inlet 3	1,310	7.3	22.9	69.8	9.5	24.0	3.8	32.8	23.3	9.9
Seymour Creek 2	80	43.8	25.0	25.0	12.5	12.5	0.0	0.0	0.0	0.0
Mission 1	505	32.7	28.7	36.6	15.8	14.9	2.0	5.0	3.0	2.0
Capilano 5	2,355	15.7	25.3	59.2	10.8	15.9	7.4	24.8	15.1	9.8
Kitsilano 6										
Musqueam 2	1,330	16.2	19.9	63.9	12.0	17.7	5.3	29.3	15.0	13.9
Sea Island 3	Statistics Canada does not provide information for this community.									
Musqueam 4	Data for this area has been suppressed for data quality or confidentiality reasons.									
Sub-Total Indian Reserves	6,280	18.5	23.8	57.7	11.9	17.8	5.0	23.1	13.9	8.8
Metro Vancouver Region Total	1,923,561	14.6	26.8	58.6	8.1	16.3	6.6	27.7	17.6	10.1

Sources: Statistics Canada 2013a

Notes: Educational attainment estimates are calculated based on labour force data provided by the NHS. Underlying population counts may differ from those provided by the Census of Canada; however educational attainment metrics based on the NHS are the best available at the community/municipality level. Percentages represent portion of labour force that has achieved that level of attainment. Percent totals do not sum to 100, as certain sub-categories are also presented as a percentage of the total labour force opposed to a percentage of the category to which they are a subset.

* Denotes incorporated communities, counties/regions and IRs crossed by the proposed pipeline corridor.

1 The Village of Valemount is not located in the proposed pipeline corridor; however, it lies in close proximity (400 m) and is anticipated to be a hub for construction activities, therefore, is considered a corridor community.

2 Data for Neskonlith 1 and Neskonlith 2 is amalgamated and presented as Neskonlith.

3 Data for Skowkale 10 and Skowkale 11 is amalgamated and presented as Skowkale.

4 Data for Squiaala 7 and Squiaala 8 is amalgamated and presented as Squiaala.