30 COMMUNITY INFRASTRUCTURE AND SERVICES

30.1 Approach

Population change and changes to the physical land base as a result of the Project would affect infrastructure and services that communities in proximity to the Project provide to residents. The project effects on community infrastructure and services VC were assessed by taking into consideration changes in the demand for, or the provision of, community, emergency, education and health, and social services, and specific displacement of, or effects to, infrastructure, such as sewer and water systems.

30.1.1 Regulatory and Policy Setting

The assessment was prepared in accordance with Section 17.4 of the Site C Clean Energy Project Environmental Impact Statement Guidelines (the Minister of Environment of Canada and the Executive Director of the BCEAO 2012) (EIS Guidelines).

Legislation and regulations relevant to community infrastructure and services are outlined in the following paragraphs.

30.1.1.1 Health and Social Services

Health care services in Canada are primarily publicly funded under provincial jurisdiction, with the federal government responsible for provision of Aboriginal health services and for providing funds to the provinces, per the requirements of the *Canada Health Act*.

In B.C., the Ministry of Health is responsible for providing health services to residents and is responsible for more than 25 statutes. Important programs include the Medical Services Plan (physician services), PharmaCare (prescription drug insurance) and the Emergency and Health Services Commission (ambulance services). Six health authorities take primary responsibility for health service delivery. The Northern Health Authority delivers health services to residents of northeast B.C.

30.1.1.2 Emergency Services

Police

The Royal Canadian Mounted Police (RCMP) provide policing services throughout the Peace River Regional District (PRRD). The RCMP are mandated by federal legislation; however, the B.C. *Police Act* establishes municipal police boards that set the priorities, goals, and objectives of local departments, each in consultation with the Chief Constable (B.C. Ministry of Public Safety and Solicitor General 2005). In B.C., each municipal police department is overseen by an appointed police board (Justice Institute of BC 2012).

Courts

The Provincial Court is a statutory court created by the *Provincial Court Act*. It is one of two trial courts in B.C., the other being the Supreme Court of B.C. Under some statutes, jurisdiction is shared with the Supreme Court or split between the Provincial Court and the Supreme Court. Cases heard in the Provincial Court fall into four main categories:

criminal and youth, family, small claims, and traffic and bylaw. The Provincial Court handles over 90% of criminal cases conducted in B.C. (Justice BC 2012).

Fire

Local governments are responsible for providing municipal fire services. Guidance is provided by the B.C. Fire Code, which includes regulations in the *Fire Services Act*. The provincial government, through the B.C. Ministry of Forests, Lands and Natural Resource Operations, as outlined in the *Wildfire Act*, has responsibility for fighting wildfires on Crown lands and in provincial forests. The Wildfire Regulations direct how industrial activities are to mitigate and manage for wildfires on Crown lands (B.C. Ministry of Forests, Lands and Natural Resource Operations 2011).

Ambulance

Ambulance services are provided by the British Columbia Ambulance Service (BCAS) operating under the authority of the Emergency and Health Services Commission as mandated in the *Emergency and Health Services Act*. The Emergency and Health Services Commission also receives direction from the B.C. Ministry of Health and regional health authorities (BCAS 2011).

Emergency Management

The B.C. emergency management program, established under the *Emergency Program Act,* sets out the preparedness, response, and recovery roles and responsibilities of provincial and local authorities (Justice Institute of BC 2007), including the need for municipalities, regional districts, and emergency service providers to have internal emergency plans. Emergency Management BC~~The Provincial Emergency Program (PEP)~~ is a branch of the Ministry of Justice.

30.1.1.3 Public Education Services

The B.C. Ministry of Education oversees the planning and implementation of education services in B.C. under the guidance of the *School Act*. School districts (SDs) and post-secondary institutions play a lead role in planning and delivering services.

The B.C. kindergarten to grade 12 education system is jointly managed by the Province and the 60 elected boards of education. The Province establishes the education grant funding amount, and allocates funds to the SDs on the basis of a funding formula. These funds are managed by SD boards of education according to local spending needs and priorities.

The provincial government also funds the capital costs of schools through debt-service grants. SD boards of education receive an annual facility grant to cover the costs of renovations to extend the useful life of school buildings. Each year, school boards submit five-year capital plans that outline future school building projects. Each capital request is analyzed by the Ministry of Education and ranked. Based on detailed analysis of district submissions, government establishes an overall capital budget for schools, and resources are allocated to the highest-priority projects.

Public post-secondary institutions in B.C. receive about one-half of their total revenue from the provincial government in the form of grants from the B.C. Ministry of Advanced Education. The rest comes from tuition, ancillary services, federal grants, donations, endowments, investments and research revenue.

30.1.1.4 Municipal Services

Municipal services are subject to numerous provincial statutes and regulations. The Community Charter outlines areas of concurrent authority with the provincial government, including public health, protection of the natural environment, wildlife, building standards, and soil deposition and removal (B.C. Ministry of Community, Sport and Cultural Development 2012).

The Charter also directs local government on the provision of municipal services and borrowing for infrastructure. Generally, a municipality that provides new infrastructure will recoup costs from property owners in the service area. The development cost charge is an example of a tool used for this type of cost recovery. Currently, Fort St. John is the only municipality in the region to use development cost charges (City of Fort St. John 2012b). For other projects where long-term borrowing and other liabilities are incurred by municipalities, electoral approval is required.

30.1.1.5 Regulatory and Policy Setting for Community and Infrastructure Services – Aboriginal Peoples

Under *The Constitution Act, 1867*, the federal government has exclusive authority to legislate on matters pertaining to “Indians, and Lands reserved for Indians”. Indian and Northern Affairs Canada, now Aboriginal Affairs and Northern Development Canada, has been the main federal organization exercising this authority.

The federal government established each First Nation band as an autonomous entity and provides separate program funding to each. Many of these First Nations are small, consisting of communities that often have fewer than 500 residents. Mainly through AANDC, the federal government supports many services on reserves that are normally provided off reserves by provincial and municipal governments.

The federal government uses contribution agreements to fund the delivery of services on First Nations reserves. Through these agreements, First Nations receive a certain level of funding to provide programs and services in their communities.

Aboriginal Affairs and Northern Development Canada (AANDC), Health Canada, the Canada Mortgage and Housing Corporation (CMHC), and the Treasury Board of Canada Secretariat play a role in the management of programs to improve the lives of First Nations and Inuit people. The programs and services include education and social development programs, land management and economic development, housing, drinking water, and the provision of benefits to First Nations members under treaties and other agreements. While the federal government has funded the delivery of many programs and services, it has not clearly defined the type and level of services it supports.

Approximately half of the Status Indians in Canada live off reserves and receive some health and education benefits provided by the federal government.

30.1.2 Key Issues and Identification of Potential Effects

Issues, concerns, and interests identified during consultation with the public, Aboriginal groups, and government agencies guided the scope of the infrastructure and services assessment (refer to Volume 1 Section 9 Information Distribution and Consultation).

Consistent with Volume 4 Section 28 Population and Demographics, the interaction between the Project and community services and infrastructure would be expected during the Project construction phase, due to:

- Changes to population associated with direct and indirect workers and their families living in local communities (primarily Fort St. John and area) and the new demand created for community infrastructure and services
- Change in demand from the on-site camp workforce's utilization of community infrastructure and services

In addition, the Project would displace specific existing local government infrastructure currently located along the Peace River. The key issues identified and the approaches used to address issues are outlined in Table 30.1.

Table 30.1 Key Issues: Community Infrastructure and Services

Key Issues	Approach to Addressing Key Issues
Change in population creates incremental demand on services	▪ Issues were used to identify specific community areas of concern including municipal, PRRD, and First Nations concern on increased camp population demand on local services; Northern Health's concern around all employees accessing local services; RCMP concern with increased caseload; fire rescue service being provided outside municipalities ▪ Included services that were already under pressure locally, including daycare services and access to dentists and doctors ▪ Included road design, camp policies and amenities, and on-site services in assessing approaches to reduce community demand ▪ Issues were used to identify incremental kindergarten to grade 12 services that would be required, and how local post-secondary institutions would be affected ▪ Included safety planning in scope of municipal services ▪ Incorporate the full extent of population change from all components of the labor force requirements for the project (see Volume 3 Appendix A Economic Assessment Supporting Documentation, Part 2 Project Economic Impacts: BC Stats) ▪ Issues pertaining to availability of and access to services were considered in view of results of population forecast, capacity and demand for services
Demand for services by non-residents	
First Nations concern with effect of the Project on local services (heath care, education, and other social benefits), including increased prices and hindered access to these services (T8TA[a] and SFN[b])	
First Nations concern that influx of workers and increased flow of money into communities could lead to public health and safety concerns; concern regarding impact on availability and response of fire and peace officers in Doig River and Halfway River; call for safety net and programs to address this (T8TA and SFN)	Issue is considered in view of results of population forecast and mitigations such as workforce management

Key Issues	Approach to Addressing Key Issues
Project displacements existing infrastructure	Issues were used to identify municipal and PRRD concerns to infrastructure including: Hudson's Hope Shoreline Protection; water intakes, wells, and outfalls for local governments
First Nations concern with potential increased wait time for construction, repair, and maintenance of physical infrastructure (T8TA)	Issue is considered in view of results of population forecast and transportation/traffic study

NOTES:
[a] T8TA – Treaty 8 Tribal Association
[b] SFN – Saulteau First Nations

Potential project interactions with community infrastructure and services are summarized in Volume 2 Appendix A Project Interaction Matrix, Table 2. As defined in Volume 2 Section 10 Effects Assessment Methodology, a rank of "2" was given where interactions may result in an adverse effect and the nature of the effect and/or the effectiveness of mitigation measures is uncertain. Therefore, they are taken forward through the effects assessment.

Project interactions with a ranking of "2" are summarized in Table 30.2. The assessment was completed for the construction phase since population effects, which are associated both with people located in local communities and those accommodated in on-site camps, will occur throughout construction. In addition, during the construction phase there is the potential that the building of the Site C Dam and the generating station could disrupt Fort St. John's and the District of Taylor's water intakes, while Site C reservoir inundation towards the end of construction would displace the Hudson's Hope water intake, pumping station, and treatment plant, as well as the Charlie Lake sewage outfall.

Table 30.2 Interactions of Project with Community Infrastructure and Services

Project Activities and Physical Works	Key Aspects	
	Change in demand for or provision of services	Displacement of Infrastructure
Construction	✓	✓

NOTE:
Only Project interactions ranked as "2" in Table 2 Volume 2 Appendix A Project Interaction Matrix are carried forward to this table. A ✓ indicates that an activity is likely to contribute to the effect.

30.1.3 Standard Mitigation Measures and Effects Addressed

A "1" ranking in Volume 2 Appendix A Project Interaction Matrix, Table 2 means that an interaction would occur but that it is well understood and can be avoided or mitigated through the application of standard mitigation measures and would be negligible.

As described in Volume 1 Section 4 Project Description, on-site accommodation and services will be provided for the direct construction workforce. Services required for dam-site accommodations and for the overall construction areas will be provided through a combination of on-site development and private procurement. For example, for worker camp accommodation, on-site water and sewer services will be developed, site electricity will be provided by BC Hydro, and site telecommunications services will be procured by or provided by BC Hydro. Firefighting and emergency services will be

provided as on-site activities and augmented as necessary by private services. On-site recreation, safety and medical transport, and health services will be provided at the Project site, including at the worker camp accommodations, and would be augmented by provincial health services (e.g., hospital care and, for B.C. residents, the use of the Medical Services Plan) or by local government providers, where agreements are reached.

The on-site independent provision of services will be effective in reducing overall demand on community infrastructure and services and related adverse effects by reducing potential for new demand on services provided by local governments. In addition, the utilization of the camp accommodation will reduce the need for workers and their families to reside in the local communities, which will further reduce demand on community infrastructure and services. As outlined in Volume 4 Section 29 Housing, BC Hydro has committed to providing accommodation for all direct workers if required.

The potential effects of the Project on community infrastructure and services during operations are ranked a “1”. During this period, demand on local services as a result of the Project would be negligible due to negligible population effects (as described in Volume 4 Section 28 Population and Demographics). There would be limited direct use of infrastructure and services by the Project during operations, and there would be no further physical changes to infrastructure after reservoir filling that could not be addressed with standard measures.

30.1.4 Selection of Key Indicators

The key indicators for assessing project effects on community infrastructure and services and the rationale for their selection are shown in Table 30.3. The capacity, statistics, and approved plans for community infrastructure and services were described using these indicators. The results of assessment of the Project on population and demographics were also used to assess project effects on community infrastructure and services.

Table 30.3 Key Indicators for Community Infrastructure and Services

Key Aspects	Key Indicators	Rationale for Selection of the Key Indicators[b]
Demand for or provision of community, emergency, education, and health and social services and facilities[a]	Health and Social Services: vital statistics, medical service expenditures; medical and dental facilities; practitioner numbers and services	Indicators used by government, agencies and service providers for planning, management, and reporting Data sources generated by government, agencies and service providers
	Emergency Services: Police, court, fire protection, ambulance services; provincial emergency planning	
	Education Services: Public schools; private schools; post-secondary institutions	
	Community Services: Recreation and leisure facilities, sewer and water services	
Displacement or effects to Infrastructure	Community Services: Sewer and water services	Site-specific identification required for mitigation

NOTES:

[a] Includes results of the assessment of the Project on population and demographics in identifying potential workforce and population demand for services

[b] Includes input from consultation with regulators, Aboriginal groups, affected stakeholders, and the public, as well as regulatory guidelines, policies and/or programs

30.1.5 Spatial and Temporal Boundaries

30.1.5.1 Spatial Boundaries

The Local Assessment Area (LAA) includes the City of Fort St. John, the District of Taylor, the District of Hudson's Hope, the District of Chetwynd, the City of Dawson Creek, and the Peace River Regional District (PRRD). Given the proximity of the City of Fort St. John, the District of Taylor, the District of Hudson's Hope, and associated rural areas to the Project, these communities could experience demand on services. The LAA is also the area where potential project effects on water and sewer infrastructure may occur.

Baseline infrastructure and services information is presented for First Nations communities, where available. The borders of the PRRD and First Nations traditional territories and communities do not precisely overlap. The First Nations with Indian Reserve communities situated within or near the boundaries of the LAA are the Doig River First Nation, Halfway River First Nation, Prophet River First Nation, West Moberly First Nations, Blueberry First Nations and Saulteau First Nations.

Where First Nations outside the LAA have identified interests in potential effects on infrastructure and services, these are discussed in Volume 5 Section 34 Asserted or Established Aboriginal and Treaty Rights, Aboriginal Interests, and Information Requirements.

The geographical area of the Regional Assessment Area (RAA) is the same as the LAA. Developments and activities within the PRRD would add to the population in the LAA, whereas projects outside the RAA would not. Overlapping physical uses that could generate cumulative effects within or near the Project would also originate in the PRRD.

LAA and RAA spatial boundaries are presented in Figure 30.1 and outlined in Table 30.4.

Table 30.4 Spatial Assessment Areas for Community Infrastructure and Services

Local Assessment Area (LAA)	Regional Assessment Area (RAA)
City of Fort St. John, District of Taylor, District of Hudson's Hope, District of Chetwynd, City of Dawson Creek, and Peace River Regional District	City of Fort St. John, District of Taylor, District of Hudson's Hope, District of Chetwynd, City of Dawson Creek, and Peace River Regional District

30.1.5.2 Temporal Boundaries

The assessment was conducted for the project construction phase as described in Volume 1 Section 4 Project Description. The increased demand on community infrastructure and services from population change within the community and from the on-site direct workforce would occur throughout the entire construction phase.

The potential effects of the Project on community infrastructure and services during operations are ranked a "1". During this period, demand on local services as a result of the Project would be negligible due to negligible population effects (as described in Volume 4 Section 28 Population and Demographics). There would be limited direct use of infrastructure and services by the Project during operations and there would be no further physical changes to infrastructure after inundation that could not be addressed with standard measures.

30.2 Information Sources and Methodology

30.2.1 Literature Review

The following historical and current literature was used to formulate the baseline conditions, and to assist with assessing potential effects:

- Health and social services statistics including:
  - Community health services, facilities, Dawson Creek and Fort St. John hospital patient data, and daycare services reported by Northern Health and Child Care Resource and Referral
  - General practitioner and dentist numbers reported by the College of Physicians and Surgeons of B.C. and the College of Dental Surgeons of B.C.
  - 2007 to 2008 and 2010 to 2011 practitioners, and health care service numbers and expenditures from B.C. Ministry of Health
- Emergency service statistics including:
  - Policing services resources, staffing, caseload, and crime rate data from local government sources and the B.C. Ministry of Justice
  - Justice and court facilities, staffing, new cases, and median pending case age from the B.C. Ministry of Justice

  - Fire protection resourcing and staffing, equipment, and fire calls by station, provided by local governments and PRRD
  - Ambulance staffing and equipment and trend data for 911 calls from the British Columbia Ambulance Service and PRRD
  - Existing Provincial Emergency Programming
- Education service statistics including:
  - Student enrolment and schools, average class sizes by school from the B.C. Ministry of Education
  - Post-secondary campuses and programs from Northern Lights College (NLC) and the University of Northern B.C. (UNBC)
  - School enrolment projections for 2012 to 2022, and school capacity from the Peace River North School District (SD 60) and the B.C. Ministry of Education
- Municipal service statistics and information including:
  - Recreation facilities and services from local government and PRRD
  - Municipal solid waste site location, total waste disposed and material types in 2010 from the PRRD
  - Description of water and sewage infrastructure from local governments and PRRD
  - Change in kilometres of municipal water and sewer lines from 2003 to 2010 from B.C. Ministry of Community, Sport and Cultural Development
- First Nations community statistics and information:
  - First Nations community baseline profiles supplied by the Treaty 8 First Nations of Doig River First Nation, Halfway River First Nation, Prophet River First Nation and West Moberly First Nations (detailed in Volume 3 Appendix B First Nations Community Baseline Reports, Part 7 Community Baseline Information and EIS Integration Summary Table for Doig River First Nation, Halfway River First Nation, Prophet River First Nation, West Moberly First Nations)
  - Infrastructure information from Aboriginal Affairs and Northern Development Canada (AANDC)

The descriptions of local government and PRRD services and infrastructure were obtained from websites and online reports prepared by local government.

Provincial information for health and social services, policing, and community infrastructure was obtained from databases and statistics prepared annually by B.C. ministries and agencies. Information for specific indicator data is available by the unique administrative boundaries that the individual service provider operates in, as described below:

- Northern Health is responsible for the delivery of health care across northern B.C. Northern Health is divided into three Health Service Delivery Areas (HSDAs), of which the Northeast HSDA is one. The Northeast HSDA consists of three Local Health Areas (LHAs): Fort Nelson (081), Peace River North (060), and Peace River South (059), with LHAs 60 and 59 corresponding to the PRRD. In Northeast HSDA,

Northern Health has an integrated system whereby services are shared between the regions. The Fort St. John and Dawson Creek hospitals provide specialized services to the entire LAA.

- School Districts 60 (Peace River North) and 59 (Peace River South) cover the LAA
- Fort St. John, Hudson's Hope, and Chetwynd RCMP detachments cover the service area immediately adjacent to the Project. Detachments are also based in Dawson Creek and Tumbler Ridge.
- Provincial justice and court services are based in Fort St. John and Dawson Creek
- Fire protection within municipalities is provided by the municipality. Some Regional District rural areas are covered by municipal fire or their own paid rural fire services, while the remaining rural areas have no organized fire protection. Wildfire fighting services on Crown lands are provided by the province and are provided regionally.
- Ambulance services are based in Hudson's Hope, Chetwynd, Dawson Creek, and Fort St. John; however, resources are administrated centrally and dispatched throughout the LAA

All literature and data sources used in the assessment are listed in References at the end of this section.

30.2.2 Interviews

Interviews were conducted with municipal government, PRRD, provincial government, Northern Health, RCMP, Court Service, BCAS, SDs, and post-secondary representatives concerning current services, utilization, and infrastructure demands for the specific service providers' service area. The interaction of the Project with plans for infrastructure and service expansion was also discussed.

Interviews with provincial, municipal, and regional district staff helped to further identify issues and interactions, and provided insight on baseline content.

Volume 4 Appendix A Social Assessment Supporting Documentation, Part 1 Social Assessment Interview Methodology presents details on the interview methodology applied. Personal contacts are listed in References at the end of this section.

30.2.3 Data Management, Mapping, and Modelling

Estimates of change in demand on services and infrastructure were based on population modelling results and associated assumptions (Volume 4 Appendix A Social Assessment Supporting Documentation, Part 2 Population and Demographic Base Case Forecast) and the B.C. Input Output Model (BCIOM) results (Volume 3 Appendix A Economic Assessment Supporting Documentation, Part 2 Project Economic Impacts: BC Stats).

Physical overlap of the Project activity zone with community infrastructure was identified through BC Hydro project mapping and modelling, and through consultation with local governments.

Aboriginal people are included in general population modelling so results of the population effects model are applicable to Aboriginal peoples living off reserve. Issues

around population change and on reserve community infrastructure and services, however, cannot be modelled and are more related to decisions that people make to either leave their reserve community and take up residence elsewhere, often in response to economic opportunity, or to move back to their home reserve. The flows between on-reserve and off-reserve communities can have effects on access to services and delivery, but are assessed qualitatively and as a “potential” effect.

30.2.4 Aboriginal Community and Traditional Knowledge

Aboriginal community and traditional knowledge related to the community infrastructure and services VC was gained through review of results of BC Hydro’s consultation with Aboriginal groups and of First Nations community baseline studies prepared by the following First Nations in the LAA: Doig River First Nation, Halfway River First Nation, Prophet River First Nation, and West Moberly First Nations. While the communities and territories of the Blueberry First Nations and Saulteau First Nations are also within the boundaries of the LAA, BC Hydro had not received community baseline information from them at the time of writing. Should information be received during the EIS review period, it will be considered and integrated in an amendment to the EIS.

Baseline information and data as well as First Nations concerns and interests relevant to the community infrastructure and services are incorporated into the baseline and effects assessment sections below. The First Nations community baseline reports are provided in Volume 3 Appendix B First Nations Community Baseline Reports, Part 7 Community Baseline Information and EIS Integration Summary Table for Doig River First Nation, Halfway River First Nation, Prophet River First Nation, West Moberly First Nations.

BC Hydro’s approach to gathering community-based social and economic data with First Nations is described in Volume 3 Appendix B First Nations Community Baseline Reports, Part 1 Approach to Gathering and Integrating Community Baseline Information.

30.3 Baseline Conditions

This section presents baseline information for the following service areas:

- Health and social services
- Emergency services
- Education services
- Community (municipal) services and infrastructure (including recreation, solid waste, water and sewer)

30.3.1 Health Services and Social Services – General Population

30.3.1.1 Regional Programming

Regional programming refers to health and social programming offered to the population in the LAA by Northern Health and includes: preventative public health, public health protection, mental health and addiction services, and men’s health programming. A profile of the population in the LAA is outlined in the vital statistics section in Volume 4 Appendix A Social Assessment Supporting Documentation, Part 6 Supplementary Health Service Information and Education Baseline.

30.3.1.1.1 Preventative Public Health

Northern Health offers Preventative Public Health Program services to individuals, families, groups, and communities in homes, schools, and health unit facilities. The Preventative Public Health Program supports healthy growth and development, fosters healthy lifestyles, helps to protect the public from health risks, and works to prevent illness and injury. It is delivered by a wide array of health professionals including: public health nurses, audiologists, speech language pathologists, dental hygienists, and administrative and support staff. Much of this service is delivered through local health units.

The Fort St. John health unit provides community health services to Fort St. John, Taylor, Hudson's Hope and surrounding area. The Dawson Creek health unit services Dawson Creek and the surrounding area, while Chetwynd has its own health unit. The health units include related to adults' and women's health, infants, children and family health, communicable disease prevention and control, dental health services, hearing services, nursing support services, school and youth health, and speech and language (Northern Health 2011e).

30.3.1.1.2 Public Health Protection

Public health protection programs reduce health risks to the public through education and inspection strategies. As part of these programs, public health inspectors are responsible for a range of items including: air quality, drinking water and food safety, radon gas detection, land use (subdivisions, sanitation, sewage disposal), tobacco control, community care licensing, communicable disease and outbreak control, institutional environments (schools, hospitals), recreational water safety (pools, hot tubs),emergency preparedness planning and response, salons, tattooing and other personal services, playground safety, summer camps, industrial camps, public health engineering, and healthy built environments (Northern Health 2011f).

30.3.1.1.3 Mental Health and Addiction Services

Mental health and addiction service staff work with clients who are engaged in substance abuse or who are affected by those who do. Mental health and addiction services are available in Fort St. John, Dawson Creek and Chetwynd. In Fort St. John, the services are co-located and provide: assessments and treatments, a community response unit, crisis response services, school-based prevention groups and school-based prevention presentations, family counselling and support services, substance-affected services, recreational therapy, methadone maintenance, and perinatal depression assistance and referrals (Northern Health 2011g).

30.3.1.1.4 Men's Health Program

The men's health program was created by Northern Health in 2012 following a report completed by the Province's Chief Medical Health Officer. This report outlined a number of health challenges for men living in northern B.C., including:

- Higher rates of cancer, suicide, occupational deaths, and chronic disease
- Lower access rates of health care

To address this issue, Northern Health has made men's health a focus area by creating a program to improve the health outcomes of men living in the North. This commitment is closely aligned with Northern Health's pillars of integrated health services with a population health approach outlined in their Strategic Plan (Northern Health 2012a).

30.3.2 Medical, Dental, and Optometry Practitioners

In 2011, there were 63 general practitioners (GPs) in the LAA. Thirty-five of these were based in the North Peace LHA, all in Fort St. John with 19 accepting new patients (College of Physicians and Surgeons of BC 2011a). The number of GPs in Fort St. John in 2011 was down slightly, from 37 in 2008. A visiting physician from Fort St. John provides regular in-community service in Taylor and Hudson's Hope (Northern Health, Chief Operating Officer 2011 pers. comm.).

In the South Peace LHA, the number of GPs has declined in recent years. In Dawson Creek there were 21 GPs in 2011, down from 24 in 2008 and 27 in 2005. Chetwynd currently has four GPs, down from five in 2005. Tumbler Ridge has three GPs. All GPs in these communities accept new patients (College of Physicians and Surgeons of B.C. 2011a).

Seven specialists are located in Fort St. John, including an internal medicine specialist, three general surgeons, a diagnostic radiologist, an anatomical pathologist, and a psychiatrist (B.C. Ministry of Health 2012). Nine specialists are located in Dawson Creek, including an ophthalmologist, two obstetricians/gynaecologists, two orthopaedic surgeons, two psychiatrists, a general surgeon, and a diagnostic radiologist (B.C. Ministry of Health 2012). Other medical specialists visit the LAA to provide specialized services.

In 2011, Fort St. John had nine dentists, Dawson Creek had eight, and Chetwynd had one (College of Dental Surgeons of B.C. 2011). Residents of Hudson's Hope, Taylor, and rural areas travel to these communities for dental service. Northern B.C. generally has a lower dentist-to-patient ratio than the rest of B.C., with approximately one dentist for every 2,600 permanent residents, compared to one dentist for every 1,600 persons in the rest of B.C. (Initiatives Prince George Development Corporation and Northern Development Initiative Trust No Date). Close to half of the dentists in the LAA graduated prior to 1982. Their retirement is anticipated to exacerbate this shortage (see Volume 4 Appendix A Social Assessment Supporting Documentation, Part 6 Supplementary Health Service Information and Education Baseline).

There are eight optometrists currently providing service in the LAA (BCAO 2012). These optometrists serviced multiple communities in Dawson Creek, Chetwynd, Tumbler Ridge, and Fort St. John. Five of the optometrists have practices in Fort St. John, while six report working in Dawson Creek. Chetwynd has two optometrists servicing the community and Tumbler Ridge has one (see Volume 4 Appendix A Social Assessment Supporting Documentation, Part 6 Supplementary Health Service Information and Education Baseline). In B.C., there is, on average, 10 optometrists for every 100,000 population, which would put the LAA on par with the per capita number experienced at the provincial level (Canadian Institute for Health Information 2008).

30.3.3 Medical Facilities

Northern Health is responsible for the delivery of health care in Northern B.C. The main medical care facilities in the LAA are summarized in Table 30.5.

Table 30.5 Health Care Facilities by Community in the LAA, 2011

Area	Facilities	Description
Fort St. John	Fort St. John Hospital and Residential Care	Opened in 2012; Acute care hospital; 55 acute care beds; Intensive Care Unit; maternity ward; two operating rooms; emergency room; endoscopy suite; adjacent residential care building with 123 beds; designed to meet demand of 84,000 people (currently 69,000)
	Fort St. John Health Unit	Public health and preventative health services including; prenatal counselling; home care nursing; home support; community rehabilitation; nutrition and social worker services; environmental health; audiology; dental health; school health; industrial camp service standards; sexually transmitted infection services
	Heritage Manor II	24 self-contained assisted living units
	North Peace Care Centre	87-bed long-term residential complex care facility
	Addiction Services at 9900 100 Ave	Counselling services; methadone clinic
Hudson's Hope	Hudson's Hope Health Centre	Range of services; two emergency room beds; doctor's office with two exam rooms; dental clinic; physiotherapy; massage therapy; pharmacy
Chetwynd	Chetwynd Hospital & Health Centre	12-bed facility with seven long-term care beds and five acute care beds; 24/7 emergency services; medical inpatient; palliative care; public health nursing; home and community nursing; home support; respiratory therapy; Aboriginal liaison
Dawson Creek	Dawson Creek and District Hospital	31 acute care beds; 15 regional adult psychiatric beds; 24/7 emergency; intensive care unit; medical and surgical inpatient care; day surgery; specialty services of respiratory therapy; rehab therapy; diabetic education; primary care; general surgery; diagnostics including lab and medical imaging with computerized tomography (CT); cancer care; visiting specialists including urology, dermatology, obstetrics, gynaecology and paediatrics; serves as Northeast Orthopaedic Trauma and Surgical Centre
	Dawson Creek Health Unit	Public health and preventative health services including: prenatal counselling; home care nursing; home support; community rehabilitation; nutrition and social worker services; environmental health; audiology; dental health; school health; industrial camp service standards; sexually transmitted infection services
	Rotary Manor (long-term care) & Southview Supportive Housing	Assists seniors and adults with disabilities to continue living in their own home; Rotary Manor has 115 beds providing nursing care and supervision, including 24 beds in the dementia care unit; Southview has a 30-unit housing complex for seniors
Pouce Coupe	Peace River Haven	Residential care facility providing nursing care and supervision
Tumbler Ridge	Hospital and Health Centre	Health and Social Services Centre, including medical, optometric, ambulance, public health, counselling, and emergency care.

NOTE:
Source: Northern Health (2011a)

30.3.4 Medical Services and Expenditures

In 2010–2011, 121 practitioners delivered 862,027 medical services for a total cost of $26.5 million in the LAA. Compared to 2007–2008, this represented an increase of 12.4% in the number of medical services delivered and a 13.7% increase in expenditures. At the same time, the population in the LAA increased by 6.7% over the period (BC Stats 2012).

The LAA is part of Northern Health's integrated health care delivery for the Northeast Service Area. As shown in Table 30.6, all but seven of the Northeast HSDA's 128 practitioners were located in the LAA in 2010–2011. Table 30.7 outlines the total practitioners, number of medical services, and expenditures on services for LHA 59 and 60 and for the LAA and Northeast HSDA. Additional detail on the trend in medical practitioners, services, expenditures, and usage at the Fort St. John and Dawson Creek hospitals is provided in Volume 4 Appendix A Social Assessment Supporting Documentation, Part 6 Supplementary Health Service Information and Education Baseline.

Table 30.6 LAA and Northeast Practitioners, Services, and Expenditures by LHA

LHA	Total Practitioners (No.)		Services (No.)		Expenditures ($)	
	2007–2008	2010–2011	2007–2008	2010–2011	2007–2008	2010–2011
59 – Peace River South	54	59	200,639	193,167	10,687,209	11,249,349
60 – Peace River North	53	62	566,568	668,860	12,654,916	15,287,538
LAA (total of above)	107	121	767,207	862,027	23,342,125	26,536,887
81 – Fort Nelson	4	7	33,265	36,835	1,398,047	1,650,480
Northeast (total of LAA and Fort Nelson)	111	128	800,472	898,862	24,740,172	28,187,367

NOTE:
Source: B.C. Ministry of Health (2011, 2012)

30.3.5 Health Services and Outlook

Northern Health uses population forecasts prepared for the LHA by BC Stats for planning (Northern Health, Population Analyst 2012 pers. comm.). This is the same forecast applied in Volume 4 Section 28 Population and Demographics, and incorporates the Project in the population growth model.

Northern Health has continued to invest in new health care infrastructure in the LAA through the new Fort St. John Hospital (July 2012) and the expansion at the Rotary Manor with the addition of 71 new residential care beds. These investments address current and future demand in the LAA. In particular, the hospital is designed to support a regional population of 84,000, which is forecasted by Northern Health to be reached in 2028 (Northern Health 2011i).

Public health and social services in the LAA face challenges attracting and retaining medical and health care professionals. Turnover among specialists and nursing staff is high. Some specialists come to the area to start their careers before moving to other

employers or leaving the area. Others have family partners in high-paying resource industry jobs that allow them to work part time or to leave the labour force. The active resource sector often offers better compensation than the public sector, and is a source of competition for public health and social care professionals (Northern Health, Chief Operating Officer 2011 pers.comm.).

In May 2012, there were 59 external vacancies, including 21 nursing positions, 14 health science positions, and 10 community positions in the Northeast Health Area. In the LAA, there continues to be shortages in Fort St. John for specialized nursing, rehabilitation, pharmacy, and ultrasound. Chetwynd is short of registered nurses, and Dawson Creek is actively seeking rehabilitation personnel. Currently, and moving forward, Northern Health continues to actively recruit for positions that are difficult to fill and to explore innovative approaches to address ongoing vacancies (Northern Health 2012b).

30.3.6 Child Care Services

30.3.6.1 Daycare Services

Childcare services in the LAA are provided by regulated and non-regulated facilities (i.e., those that allow care to be provided for up to two children, or a sibling group up to the age of 12) (CCRR North Peace No Date). The number of non-regulated daycares in the LAA is unknown. Table 30.5 outlines the registered daycare in the LAA in 2012.

Table 30.7 Registered Daycare for Fort St. John and Dawson Creek Areas, 2012[a]

Type of Daycare	Care Provider Profile	Number of Facilities		
		Fort St. John Area	Dawson Creek Area	Chetwynd and Area
Preschool	Up to four hours of care for groups of up to 20 children, aged 30 months to school age	7 facilities	3	3
Infant & Toddler	Up to 12 children under the age of 36 months	2 facilities	0	0
Daycare	Care for groups up to 25 children, age 30 months to school age	4 facilities	2	3
In-home	In-home multi-age child daycares for up to eight children, including caregiver's own, birth to age 12	2 homes	0	0
In-home family	In-home family childcare offered in caregiver's own home from birth to age 12, maximum seven children	12 homes	19	4
Out-of-school care	Daycare provided for up to 20 school-age children before and after school	5 facilities	6	2

NOTE:

[a] Fort St. John area includes: Fort St. John, Charlie Lake, Taylor, and Hudson's Hope; Dawson Creek area includes: Dawson Creek, Pouce Coupe, and Toms Lake; Chetwynd area includes Chetwynd, Moberly Lake, and Tumbler Ridge.

Sources: CCRR South Peace (2010, 2012a, 2012b); CCRR North Peace (No Date)

For Fort St. John and area, the demand for spaces has increased, with parent referrals rising from 225 in 2008–2009 to 272 in 2010–2011. In the Dawson Creek and Chetwynd areas, parent referrals have increased from 160 in 2008–2009 to 599 in 2010–2011.

The number of registered daycares has been stable over the past few years in the Fort St. John area, although openings and closures are common. In 2012, daycare space was limited in the Fort St. John, Charlie Lake, and Taylor area, with no available licensed daycare space for infant to three-year-old children, and only 20 spaces for children aged three to five (CCRR Office Fort St. John, Program Coordinator 2012 pers. comm.). In the Dawson Creek and Chetwynd areas, there is a shortage of space for children under two years old because of the ratios of staff to workers. However, the implementation of the full-day kindergarten has freed up care space for children aged five to 12 years (CCRR Office Dawson Creek, Program Coordinator 2012 pers. comm.).

30.3.6.1.1 Fort St. John Child Development Centre

The Fort St. John Child Development Centre is a non-profit organization that supports children with special needs and their families in Fort St. John and surrounding areas. Services and programs include early intervention, skills and respite programming, supported child development, family services, and complex developmental behavioural conditions key intake services. The Centre also provides a fully integrated preschool program for children with typical and special needs (Fort St. John Child Development Centre, Executive Director 2012 pers. comm.).

In 2010 the Centre moved into its new facilities of approximately 930 m^2, doubling the size of its space. In 2011–2012 the Centre provided service to 1,248 children, up from 460 children in 2007–2008. However, the wait-list for specialized programming has been steadily increasing, going from 107 in 2007–2008 to 373 in 2011–2012 (Fort St. John Child Development Centre No Date).

30.3.7 Emergency Services – General Population

30.3.7.1 Police

30.3.7.1.1 Police – Funding Source

There are five provincial forces and two municipal RCMP forces in the LAA. Municipal forces serve incorporated communities with populations over 5,000 people. In communities with populations between 5,000 and 15,000 people (such as Dawson Creek), the municipality is responsible for 70% of the total service cost and the federal government 30%. For communities with a population greater than 15,000 (such as Fort St. John), the municipality pays 90% of the cost and the federal government 10% (Union of BC Municipalities 2006). In rural and unincorporated areas with less than 5,000 people policed by the provincial force, the Province pays 70% and the federal government pays the remaining 30% (B.C. Ministry of Justice 2012b).

30.3.7.1.2 Jurisdiction Boundaries, Staffing, and Case Loads

The Fort St. John municipal and provincial detachment has a full-time staff of 60 (44 officers and 16 municipal staff), three auxiliary constables, and two victim services workers, one full time and one part time. The detachment is responsible for Fort St. John, Taylor and the surrounding rural area north to the Sikanni Chief, west to the Halfway River, and east to the Alberta border (City of Fort St. John 2012a).

Hudson's Hope has a three-member detachment staffed with a corporal and two constables. The detachment covers the municipality and as far east as the Halfway River (District of Hudson's Hope 2012a).

The Dawson Creek municipal and provincial detachment has 28 officers and nine municipal staff (Fort St. John RCMP, Sergeant 2012 pers. comm.). Over 400 citizens serve as volunteers in various community policing programs (City of Dawson Creek 2011a). The Dawson Creek detachment services Dawson Creek, Pouce Coupe, Rolla, Arras, Farmington, and Kelly Lake.

The Chetwynd detachment has 10 officers, plus one officer from South Traffic Division who reports to Fort St. John. In addition, there are two staff providing support services.

The RCMP detachment in Tumbler Ridge maintains an office and detainment facilities, and has 5 officers.

Table 30.8 shows the policing strength, total Canadian Criminal Code offences, and caseloads for the seven policing jurisdictions in the LAA. The resulting caseload of 92 offences per officer for the Fort St. John municipal detachment in 2010 is among the highest in the province (B.C. Ministry of Public Safety and Solicitor General 2012).

Table 30.8 Authorized Police Statistics by Jurisdiction in the LAA, 2010

Community	Policing Jurisdiction	2010 Population (No.)	Police Strength (No.)	Total CCC Offences[a]	Caseload[b]
Chetwynd	Provincial	5,590	10	877	88
Dawson Creek	Municipal	11,860	24	1,654	69
Dawson Creek	Provincial	7,622	4	283	71
Fort St. John	Municipal	19,873	34	3,144	92
Fort St. John	Provincial	14,045	10	649	65
Hudson's Hope	Provincial	1,459	3	89	30
Tumbler Ridge	Provincial	2,428	5	305	61
Total Peace River Regional District		**62,877**	**90**	**7,001**	**78**

NOTES:
[a] CCC (Canada Criminal Code) offences include property, personal and other offences excluding traffic offences
[b] Caseload is the number of Canada Criminal Code offences per authorized police strength
Source: BC Ministry of Justice (2012c)

Table 30.9 presents crime rates for the policing jurisdictions and the LAA. Rates are higher in the LAA than in B.C. The Fort St. John jurisdiction experiences twice the rate of violent crime and three times the rate of other crime rates when compared to B.C.

Table 30.9 Crime Rate Statistics by Jurisdiction, 2010

Community	Violent Crime	Property Crime	Other Crime	Total Criminal Code Offences
Chetwynd	27.0	64.9	64.9	156.8
Dawson Creek Municipal	25.0	56.0	58.4	139.4
Dawson Creek Rural	6.4	20.2	10.5	37.1
Fort St. John Municipal	38.3	69.4	50.5	158.2
Fort St. John Rural	16.4	22.0	7.8	46.2
Hudson's Hope	8.9	38.4	13.7	61.0
Tumbler Ridge	22.2	65.5	37.9	125.6
Total PRRD	**24.8**	**49.0**	**37.5**	**111.3**
Total B.C.	**15.6**	**51.1**	**17.3**	**84.0**

NOTE:
[a] Crime rate is the number of Criminal Code offences per 1,000 resident population
Source: BC Ministry of Justice (2012c)

Figure 30.2 shows total criminal code offences in the LAA between 2001 and 2010. Total offences have dropped from a high of 9,337 in 2005 to 7,001 in 2010. There is regional variation in the number of offences, with almost half taking place in Fort St. John in 2010 and between 30% and 50% of all offences in the LAA taking place in Fort St. John between 2001 and 2010.

30.3.7.1.3 Policing Focus and Outlook in LAA

A presentation by the RCMP detachments to the PRRD in December 2011 highlighted the following strategies priorities and focus for each detachment in the LAA:

- Fort St. John detachment – speeding, impaired driving, and drug use
- Hudson's Hope detachment – fire, ambulance, school board, the local medical clinic, substance abuse, alcohol-impaired driving, and speeding
- Chetwynd detachment – substance abuse and violence
- Tumbler Ridge detachment – youth, vandalism, mischief, and substance abuse
- Dawson Creek detachment – working with EnCana and Louisbourg Pipelines on on-site project security to reduce calls; crime and drug traffic initiatives (PRRD 2011d)

30.3.7.2 Justice and Court Services

30.3.7.2.1 Funding Source

In B.C., the Attorney General is responsible for the provision, operation, and maintenance of court facilities, registries, and administrative services.

30.3.7.2.2 Facilities and Staffing

Table 30.10 summarizes court location and level, number of new cases, pending cases and median pending case age.

Table 30.10 Law Courts and Provincial Criminal Court Cases in the LAA, July 5, 2011

Law Court Location	Court Level	Staffed	Provincial Criminal (Adult & Youth) Court Data as of July 5, 2011			
			New Cases (No.)	Pending Cases (No.)	Median Pending Case Age (days)	Provincial Median Case Age (days)
Fort St. John	Both	Yes	1,481	545	392	230
Hudson's Hope	Provincial	No	48	19	462	
Chetwynd	Provincial	No	322	109	335	
Dawson Creek	Both	Yes	1,134	330	330	
Tumbler Ridge	Provincial	No	77	25	336	

NOTE:
Source: B.C. Ministry of Attorney General (2012)

The Fort St. John court office has two judges, eight support staff, and six sheriffs. One office manager is based in Fort St. John and provides service to all four regional courts. Dawson Creek has one judge, six support staff, and two sheriffs. Chetwynd court operates three to four times a month, Tumbler Ridge court operates once per month, and Hudson's Hope court operates less than once a month (Provincial Court of B.C., Court Case Manager 2012 pers. comm.).

30.3.7.2.3 Court Wait Times

In 2010, the wait times in Fort St. John court exceeded the Court's standards in three categories (Provincial Court of B.C. 2012):

- Family cases half-day hearing – six-month wait, compared to standard of four months
- Child protection cases half-day hearing – six months, compared to standard of three months
- Adult criminal half-day trial – 11 months, compared to standard of six months

30.3.7.2.4 Outlook for Court Services

As with other parts of B.C., the court system in the LAA is experiencing delayed hearings and service pressures due to capacity shortfalls. More resources are required to address the increasing caseload (Provincial Court of B.C., Court Case Manager 2012 pers. comm.). To address this pressure, the province has integrated the former Ministries of Public Safety and Solicitor General and Attorney General into the Ministry of Justice and is installing reforms to address challenges of cost, delay and complexity (B.C. Ministry of Justice 2012a).

30.3.7.3 Fire Protection

30.3.7.3.1 Resources and Staffing

The Fort St. John Fire Department has 19 full-time employees and 13 volunteer firefighters serving a 70 km^2 area around Fort St. John (City of Fort St. John 2011a). The

department, which has six firefighting vehicles and a hazardous materials response unit, is the fire dispatch centre for the Fort St. John, Charlie Lake, Taylor, and Hudson's Hope fire departments (PRRD 2012a).

The Charlie Lake Fire Department serves the Charlie Lake area and is operated by PRRD. The department consists of 25 volunteer firefighters and two staff. The department has two pumper trucks, one tender unit, and two grass firefighting units (PRRD 2012c).

The Taylor Fire Department consists of the Fire Chief, 17 volunteer firefighters and one junior firefighter. The department has two pumper trucks, one tanker and one rescue truck (District of Taylor 2011).

The Hudson's Hope Fire and Rescue Service maintains two stations, two fire engines, one pumper/tanker, and one compressed air foam system Rescue Engine. The department is led by a full-time Chief and has 25 volunteer members who respond to fires within the District's Fire Protection District (District of Hudson's Hope 2011a).

The Chetwynd Volunteer Fire Department consists of 30 members including the Fire Chief. Equipment includes a pumper truck, ladder truck, initial response vehicle, and a rescue vehicle. The department responds to fires within the designated fire boundary of the District of Chetwynd (District of Chetwynd 2011a).

The Dawson Creek Fire Department provides firefighting and rescue services to the city, the Dawson Creek airport, and an 8 km rural area around the City. The department has a fire chief, a deputy fire chief, 16 full-time firefighters and 12 volunteer firefighters (City of Dawson Creek 2012d). It is equipped with six pieces of firefighting equipment including an aerial ladder-equipped fire truck. The Department is the fire dispatch centre for the Dawson Creek, Tumbler Ridge, Pouce Coupe, Moberly Lake, Tomslake and Arras fire departments (City of Dawson Creek 2011f).

The District of Tumbler Ridge has a full-time fire chief, one full-time firefighter, and a volunteer fire department with approximately 15 members. The Fire Hall is well equipped with emergency and fire protection vehicles. The fire department responds to medical emergencies, motor vehicle accidents, industrial accidents, gas leaks, and fires. It works in conjunction with the volunteer Tumbler Ridge Search and Rescue Society, supplying equipment and sharing the use of a squad bay (District of Tumbler Ridge 2009, 2012).

The Pouce Coupe Volunteer Fire Department consists of 17 active volunteers, and a Fire Chief. The Tumbler Ridge Fire Department has 12 volunteers, a full-time Fire Chief, and one full-time firefighter. The Arras, Tomslake, and Moberly Lake fire departments are all registered non-profit organizations providing fire service in their designated areas through volunteers (PRRD 2011f).

There is a mutual aid agreement with the fire departments of Fort St. John and Taylor to augment responses to larger emergencies (Dave Mitchell and Associates Ltd. 2011). The fire departments of Fort St. John, Taylor, Hudson's Hope, Chetwynd, Dawson Creek, and Tumbler Ridge provide rescue and extraction services for motor vehicle accidents in the LAA.

In the event of a fire involving forest lands, the B.C. Ministry of Forests, Lands and Natural Resource Operations fire service would respond to fires in the rural PRRD areas. In the event of a provincial emergency, fire departments from nearby municipalities would become involved. The B.C. Ministry of Forests, Lands and Natural

Resource Operations provides fire services from the Prince George Fire Centre. The Centre maintains close to 130 firefighters, comprising a 51-person seasonal initial attack crew, a 60-person crew, and an 18-person para-attack crew that parachutes crews and equipment into fires from fixed winged aircraft. An additional 26 seasonal protection assistants are stationed in Chetwynd, Dawson Creek, and Fort St. John (B.C. Ministry of Forests, Lands and Natural Resource Operations 2011).

30.3.7.3.2 Fire Call Trends in the LAA

Fire calls by fire station for the Fort St. John and Dawson Creek dispatch areas over the past six years are presented in Table 30.11. Calls have increased since 2007, after dropping in 2006. The majority of the increase in calls was for Fort St. John. The only other fire department to experience an increase in calls was Tumbler Ridge.

Table 30.11 Fire Calls by Fire Station in the LAA, 2006 to 2011

Fire Station	Number of Fire Calls					
	2006	2007	2008	2009	2010	2011
Fort St. John Dispatch						
Fort St. John	816	577	666	649	717	1,037
Charlie Lake	55	41	57	58	57	49
Taylor	138	112	90	109	112	111
Hudson's Hope	39	26	24	47	38	26
Dawson Creek Dispatch						
Dawson Creek	430	410	420	408	397	388
Chetwynd	123	89	97	80	94	105
Tumbler Ridge	85	81	124	110	134	172
Pouce Coupe	20	19	21	24	20	27
Tomslake	13	4	16	21	15	14
Moberly Lake	50	21	18	20	13	9
Arras	12	6	7	5	8	7
Total LAA	**1,781**	**1,386**	**1,540**	**1,531**	**1,605**	**1,945**

NOTE:
Source: PRRD (2011e, 2012e)

30.3.7.3.3 Outlook for Fire Services

Smaller fire departments in the LAA continue to work on recruiting volunteer firefighters and purchasing new equipment. In Fort St. John, the City continues to plan for a new, 2,500 m^2 fire hall on 93rd Avenue that would be more than double the size of the current station. Current plans are for construction to begin by the end of 2012 (Energeticcity.ca 2012).

30.3.7.4 Ambulance Services

30.3.7.4.1 Funding Source

The ambulance service is funded by the provincial government. Ambulance stations are located in Fort St. John, Hudson's Hope, Chetwynd, Tumbler Ridge, and Dawson Creek. Ambulance services based in these communities service the entire LAA.

30.3.7.4.2 Resources and Staffing

Table 30.12 outlines the full-time and part-time ambulance attendants and key equipment stationed in each community.

Table 30.12 Ambulance Staffing and Key Equipment in the LAA

Location	Full-time Staff	Part-time Staff	Key Equipment
Fort St. John	4	22	3 ambulances 1 multi-crash ambulance
Hudson's Hope	N/A	5	1 ambulance
Tumbler Ridge	N/A	N/A	1 ambulance
Chetwynd	1	13	2 ambulances
Dawson Creek	4	17	3 ambulance

NOTES:
N/A – not applicable
Sources: City of Dawson Creek (2011a); BC Ambulance, Superintendent (2012 pers. comm.); BC Ambulance, Hudson's Hope Unit Chief (2012 pers. comm.); BC Ambulance, Chetwynd Unit Chief (2012 pers. comm.)

30.3.7.4.3 Ambulance Call Trends

Dispatching is done from Kamloops through 911 (BCAS 2012). Service is integrated with the provincial system, which means, for example, that northern communities have access to helicopters and fixed-wing aircraft for medical evacuations. Table 30.13 indicates that the number of 911 ambulance calls in the LAA has varied over the past six years, peaking in 2007, generally representing about 20% of all 911 calls in the PRRD.

Table 30.13 Ambulance 911 Calls in the LAA

Fire Station	2006	2007	2008	2009	2010	2011
Ambulance 911 Calls (no.)	3,001	4,466	3,391	3,397	3,174	3,440
Ambulance (% of total 911 Calls for PRRD)	18.2	21.6	17.4	21.6	20.5	19.3

NOTE:
Source: PRRD (2011e, 2012a)

30.3.7.4.4 Outlook for Ambulance Services

All area paramedics have a minimum Level 1 first aid certificate. Ambulance crews often travel considerable distance from their home base to cover areas that are underserviced, and smaller communities can be without ambulance coverage for periods close to two days (*Northeast News* 2012). To address staffing shortages, the Province recently provided funding to cover two-thirds of the cost to train 15 students in the part-time primary care paramedic program (City of Dawson Creek 2011b) and additional efforts are underway to train and recruit new ambulance attendants (*Tumbler Ridge News* 2012). However, trained ambulance attendants are actively recruited by LAA industry, which limits the number available for work with the British Columbia Ambulance Service (BCAS 2011).

30.3.7.5 Provincial Emergency Program

30.3.7.5.1 Overview

All municipalities and regional districts develop and maintain an emergency plan in compliance with Emergency Management BC. ~~the Provincial Emergency Program (PEP).~~ The plans form the basis for organizing local, regional, and provincial resources in the event of an emergency that threatens to overwhelm a local authority's ability to respond. Emergency Management BC~~The PEP~~ is headquartered in Victoria and has six regions. The Peace River area is part of the northeast region, with headquarters in Prince George. Potential emergencies, including those associated with BC Hydro's existing dams on the Peace River, are incorporated into local governments' emergency preparedness plans.

30.3.8 Education Services – General Population

The following section summarizes education services in the LAA. Supplementary baseline data are provided in the Volume 4 Appendix A Social Assessment Supporting Documentation, Part 6 Supplementary Health Service Information and Education Baseline.

30.3.8.1 Elementary and Secondary

Table 30.14 shows the number of students and schools for SD 60 and SD 59 that together represent the kindergarten to grade 12 school population in the LAA. During the period between 2006–2007 and 2010–2011, total enrolment in SD 60 declined by 1%, or 61 students. During the same period, total enrolment in SD 59 declined by 11%, or 507 students.

Table 30.14 Student Enrolment and Number of Schools, SDs 59 and 60 – LAA

School District	2006–2007 (No. of Students)	2007–2008 (No. of Students)	2008–2009 (No. of Students)	2009–2010 (No. of Students)	2010–2011 (No. of Students)
Peace River North – SD 60					
Total enrolment	5,934	5,955	6,013	6,053	5,873
Aboriginal enrolment	1,350	1,327	1,287	1,269	1,201
Number of public schools	18	18	18	18	19
Peace River South – SD 59					
Total enrolment	4,570	4,501	4,294	4,131	4,063
Aboriginal enrolment	1,568	1,554	1,454	1,398	1,365
Number of public schools	23	23	23	23	22

NOTE:
Source: B.C. Ministry of Education (2011a, 2011b)

The schools in SD 60 are located primarily in Fort St. John, Taylor, and Hudson's Hope, with a small number elsewhere throughout the SD. The Site C dam site and construction area would be located closest to Fort St. John in School District 60. In 2010–2011, Fort St. John had 15 of the 19 schools in SD 60: nine public and four independent, including a Distance Learning Centre. In 2010–2011, the average class sizes for grades 1–7 in most public schools in Fort St. John exceeded the provincial average. For kindergarten classes, approximately half of the public schools exceeded the provincial average in this

same year. Class sizes in Fort St. John's secondary schools in 2010–2011 were similar to the provincial average (details are provided in Volume 4 Appendix A Social Assessment Supporting Documentation, Part 6 Supplementary Health Service Information and Education Baseline).

In 2010–2011, the average class sizes in the one school in Taylor and the one school in Hudson's Hope were below the provincial average for each grade. SD 60 also has five schools in unincorporated areas, two of which have secondary students. Average class size in a number of these schools exceeded the provincial average in 2010–2011. Full details on class sizes by individual schools and Aboriginal composition of enrolment in SD 60 are provided in Volume 4 Appendix A Social Assessment Supporting Documentation, Part 6 Supplementary Health Service Information and Education Baseline.

The schools in SD 59 are located primarily in Dawson Creek and Chetwynd, with a small number elsewhere throughout the SD. Dawson Creek has seven public and three private schools.

There are seven schools located in the unincorporated areas within SD 59. With the exception of the kindergarten class at Tate Elementary, all average class sizes are below the provincial average. Details on class sizes by individual schools, and Aboriginal composition of enrolment in SD 59 are provided in Volume 4 Appendix A Social Assessment Supporting Documentation, Part 6 Supplementary Health Service Information and Education Baseline.

The communities of Chetwynd, Pouce Coupe, and Tumbler Ridge are served by eight schools. In 2010–2011, the two secondary schools in Chetwynd and Tumbler Ridge both had average class sizes below the provincial average.

Secondary schools in SD 60 and 59, post-secondary institutions, and industry are partnering to deliver and expand dual-credit programs offered in grades 11 and 12 (whereby a high school student enrols in a post-secondary course and receives simultaneous academic credit for the post-secondary program and for the high school). In northeast B.C., the graduation rate from dual-credit programs is generally higher than from the "traditional" secondary programs, both for Aboriginal and non-Aboriginal students.

SD 60 and SD 59 offer alternative learning models in addition to their traditional public school system. The Northern B.C. Distance Education School Key Learning Centre in Fort St. John has 130 full-time-equivalent elementary students, and 1,000 secondary students throughout the northern third of the province and the Yukon. The First Nation Education Centre is also situated in Fort St. John.

In SD 59, approximately 350 students attend the South Peace Distributed Learning School. The school provides curriculum and support to parents and students who are looking for alternative ways to complete the requirements for high school graduation.

Also in SD 59, the dual-credit programming at Northern Lights College (NLC) has recently expanded its curriculum to include academic and vocational post-secondary courses, in addition to trade courses. This program is part of the Career Pathways initiative in B.C. to educate and retain young workers in the North.

30.3.8.2 Post-Secondary Education

Northern Lights College and the University of Northern B.C. provide post-secondary education services in the LAA. NLC has eight campus locations in northern B.C., with the Dawson Creek and Fort St. John campuses having the largest enrolments. NLC's smaller campuses and learning centres are located at Chetwynd, Fort Nelson, Tumbler Ridge, Hudson's Hope, Atlin, and Dease Lake. NLC offers programs via classroom setting as well as by videoconference, online instruction, and distributed delivery, and through the use of mobile training facilities.

Depending on their programs and career paths, students at NLC can earn certificates, diplomas, or associate degrees. In 2007–2008, total enrolment at NLC's campuses was 10,300 students, comprising 8,900 part-time and 1,400 full-time students. The range of programs at NLC continues to grow to meet student and industry requirements.

UNBC has its main campus in Prince George, and offers degree and diploma programs. In 2009–2010 there were 3,469 undergraduates and 715 graduate students, with 578 students attending academic classes outside of Prince George. UNBC has regional campuses in Fort St. John, and teaching centres in Dawson Creek, Chetwynd, Tumbler Ridge, and Fort Nelson.

In Fort St. John and Dawson Creek, UNBC and NLC share campuses. The enrolment in Fort St. John and Dawson Creek was 20 students in total as of December 2011. The focus at the Fort St. John and Dawson Creek campuses is on university transfer, with the future addition of nursing and business programs. UNBC is also planning to add a Master of Education Counselling program in 2012.

30.3.8.3 Outlook for Education

The B.C. Ministry of Education and SD 60 project that the student enrolment in grades kindergarten to grade 12 in SD 60 will be 11.2% greater in 2020 than in 2010, with declining enrolment in 2012,~~until 2017,~~ followed by increased enrolment un~~ti~~l 2020 (Table 30.15). It is noted that SD 60's enrolment projections do not include changes associated with the Project (SD 60 Secretary-Treasurer 2012, pers. comm.).

Table 30.15 School Enrolment Projections for Kindergarten to Grade 12, SD 59 and SD 60, 2010-2020

Year	SD 59 (No. of Students)	SD 60 (No. of Students)
2010 (Actual)	4,026	5,501
2011	3,977	NA
2012	3,965	5,480
2013	3,954	NA
2014	3,943	5,528
2015	3,954	NA
2016	3,991	5,709
2017	4,031	NA
2018	4,088	5,909
2019	4,143	NA
2020	4,178	6,118

NOTES:
NA – data not available
Sources: Peace River North School District No. 60 (2011); B.C. Ministry of Education (2011b)

The 2011–2012 school year was the first year of full-day kindergarten in SD 60. This generated the need for more elementary schools resources than in previous years. Capacity utilization (defined as enrolment/operating capacity) in SD 60 schools is projected to rise from 101% in 2010 to 113% in 2020 if no further facilities are added. See Table 30.16. By 2020, SD 60 predicts that it will require facilities to accommodate 795 new students. Most of this growth will occur in the elementary and middle grades, which will see utilization rates climb to 131% and 123%, respectively. Utilization rates will also grow in the rural and neighbouring communities, but not to overcapacity. Capacity utilization is projected to decline to 94% at in-town secondary schools, and to 55% in Hudson's Hope during the same period.

Table 30.16 Forecast of Operating Capacity and Enrolment in SD 60, 2010–2020

School Type	Official Capacity	Enrolment 2010	Utilization[a] 2010 (%)	Enrolment 2020	Utilization 2020 (%)
In-town Elementary	2,254	2,270	101	2,946	131
In-town Middle	925	1,032	112	1,137	123
In-town Secondary	1,100	1,220	111	1,038	94
Hudson's Hope (K-12)	231	161	70	128	55
Rural and neighbouring communities	915	818	89	869	95
SD 60 Total	**5,425**	**5,501**	**101**	**6,118**	**113**

NOTES:
[a] Utilization is defined as number of enrolled students/number of available classroom seats
Sources: B.C. Ministry of Education (2011c); Peace River North School District No. 60 (2011)

30.3.9 Municipal (Community) Services – Municipalities

30.3.9.1 Funding Sources

Municipal services and infrastructure are funded by municipalities and the PRRD. Recreation and leisure services are primarily funded by municipalities and the PRRD, while solid waste landfills are operated by the PRRD and funded collaboratively by the PRRD and the LAA municipalities. Sewer and water systems are operated on a local level and are funded by the municipality or PRRD.

30.3.9.2 Recreation and Leisure Facilities

Recreation and leisure includes services and facilities offered by municipalities and the PRRD for recreation, sport, arts, and cultural activities focused on urban activities inside municipal boundaries. Outdoor recreation activities are addressed in Volume 3 Section 25 Outdoor Recreation and Tourism. Facilities are occasionally funded in partnership with other levels of government.

30.3.9.2.1 Fort St. John

The Pomeroy Sport Centre, opened in October 2010, is a three-floor facility that includes two full-sized ice rinks, 12 dressing rooms, two public meeting rooms, an Olympic-sized long track speed skating oval, a 340 m indoor walking track and about 140,000 sq. ft. of event space.

The North Peace Arena has a rink and seating for 1,550 spectators. The Leisure Pool is owned by the PRRD and operated by the City of Fort St. John and consists of a leisure pool, a six-lane 25 m lap pool, sauna, steam room, whirlpool, water slide, change rooms, cardio fitness room, and a meeting room (City of Fort St. John 2012c).

Fort St. John has 146 ha of parkland, including hiking and biking trails, a skateboard park, ball diamonds, tennis courts, sports fields and other outdoor venues (B.C. Ministry of Community, Sport and Cultural Development 2011). The community also a 10 km paved walking trail within the City. The Fish Creek Community Forest has three interpretative trails. Fort St. John Links is a private golf course that converts to a cross-country ski club in the winter. The local curling club operates an eight-sheet curling rink (City of Fort St. John 2012c).

The Fort St. John library is operated by a non-profit society (Fort St. John Public Library 2012). The North Peace Cultural Centre is home to the Peace Arts Gallery Society, Watt School of Irish Dance and a resident Community Choir, and the North Peace Community Choir. The Stage North Theatre Society produces three or four major drama productions every year, and the local School District utilizes the theatre for school shows and cultural performances. The facility has meeting rooms and dressing rooms and a 413-seat theatre (North Peace Cultural Centre 2012).

30.3.9.2.2 Taylor

The District of Taylor has a community centre, four ball diamonds, tennis courts, 18-hole championship golf course, community trail, numerousa -community parks, and motocross track and stockcar raceway. The recreational complex offers four sheets of curling ice in the winter that is converted into a 27 m swimming pool in summer.. and Taylor also has ana ice/hockey arena with a leisure ice pad, a library and a medical clinicrink in winter that is converted into a 25 m swimming pool in summer (District of Taylor, Parks and Facilities

Director, 2012 pers. comm.). ~~The community has a library.~~ Peace Island Park is located on the banks of the Peace River and features ~~99~~127 campsites, many group sites, day-use picnic sites, walking trails, horseshoe pits, playgrounds, Rocky Mountain Fort display and a boat launch (District of Taylor 2012). It is the host site for numerous outdoor events. In total, the District has 11 ha designated as park (B.C. Ministry of Community, Sport and Cultural Development 2011).

30.3.9.2.3 Hudson's Hope

The District of Hudson's Hope has a 25 metre outdoor pool and an arena with an NHL-sized ice surface, a curling rink, the community Pearkes Centre, and a library (District of Hudson's Hope 2012b). Jamieson Woods Natural Preserve has ancient sand dunes and a mature, mixed forest. School District 60 operates an outdoor education site with hiking and cross-country skiing trails by Cameron Lake. The District operates the 28 acre Beryl Prairie Community Park, and four campground facilities at Cameron Lake, King Gething, Alwin Holland, and Dinosaur Lake, that provide campground sites and facilities to visitors (District of Hudson's Hope 2011b).

30.3.9.2.4 Chetwynd

The Chetwynd and District Recreation Centre is owned by the PRRD, and operated and maintained by the District of Chetwynd. The Recreation Centre and Leisure Pool offer a squash court, 120 metre long walking track, climbing wall, meeting rooms, a weight room, ice rink, two dressing rooms, six curling sheets, and two banquet halls. The pool includes a 25 metre, four lane lap pool with a wave machine, a whirlpool and sauna. Outside the complex are a skateboard park, baseball diamond, and fitness park (District of Chetwynd 2011b). The community has five other ball diamonds, soccer fields, an oval running track, and outdoor speed skating oval. Chetwynd has designated a total of 2,455 ha for parkland and has numerous hiking and biking trails.

Chetwynd's Pine Valley Exhibition Park has an indoor riding arena, a large hall, boarding for horses and cattle, and an outdoor rodeo grounds. Natural Spring and Moberly Lake Golf courses are located within 20 minutes of Chetwynd's town centre (District of Chetwynd 2011c). Chetwynd also has a library with over 21, 000 volumes and modern technology including seven public access computers (District of Chetwynd 2012).

30.3.9.2.5 Dawson Creek

Dawson Creek has an eight-sheet curling rink, two arenas, Bear Mountain downhill ski facilities, and 25 km of groomed cross-country ski trails. Bear Mountain is used for mountain biking, horseback riding, and hiking. The community has six baseball diamonds. The Multiplex sports fields offer a newly developed soccer facility covering an area of 8.3 ha. Other recreational assets include an 18-hole municipal golf course, tennis and basketball courts, horseshoe pitches, skateboard park, full-sized outdoor speed skating oval, and over 4.5 km of walking trail within City boundaries.

The Ken Borek Aquatic Centre has a swimming pool, climbing wall, and an indoor walking track. The community's 14 parks cover 94 ha of parkland. Other assets include the Lakota indoor riding arena and boarding facilities, Ark Youth Centre, the EnCana Event Centre with its state-of-the-art 4,500-permanent-seat venue, the Dawson Creek Art Gallery, a library, and the Unchagah Hall, which is a 630-seat performing arts theatre with world-class acoustics (City of Dawson Creek 2011d, 2012c).

30.3.9.2.6 Tumbler Ridge

The Tumbler Ridge Community Centre has an ice arena, four-sheet curling rink, fully equipped weight room, youth centre, climbing wall, and aquatic centre including a four-lane 25 m pool, side lagoon play area, tots pool, whirlpool, dry sauna, steam room, squash court, and racquetball court. The Centre also houses an art gallery, library, restaurant, sports lounge, museum displays, and meeting rooms, and is home to the Tumbler Ridge childcare centre. The community also has baseball diamonds, walking trails, and a nine-hole golf course and associated facilities. The golf course also serves as a marked cross-country ski route in the winter months (District of Tumbler Ridge 2009).

30.3.9.2.7 Outlook for Recreation and Leisure Facilities

Fort St. John is considering a new arts and culture centre to meet growing demand for music and performing arts, and has considered an energy interpretive multi-purpose facility. The City forecasts a new pool in the next 10 years, and refurbishment or replacement of an ice rink (City of Fort St. John, Director of Community Services 2012 pers. comm.). In addition, the Fort St. John library, which has been growing along with the population, is planning for a move to a new facility over the next three- to five-year period (Fort St. John Library, Director 2012 pers. comm.).

With the exception of Fort St. John, there are no announced plans by municipalities to expand recreation and leisure facilities. At peak demand times there is some pressure on facilities, mainly ice time at the indoor ice rinks (District of Taylor, Parks and Facilities Director 2011 pers. comm.; City of Dawson Creek, Director of Community Services 2012 pers. comm.; District of Chetwynd, Chief Administrative Officer 2012 pers. comm.).

30.3.9.3 Municipal Solid Waste

The PRRD and its seven member municipalities share responsibilities for managing waste, with the PRRD being the sole provider of services in unincorporated rural areas. Disposal is the responsibility of the PRRD, and municipalities are requisitioned for their share of waste management costs. Municipalities are also required to pay tipping fees for waste disposal at PRRD landfill sites (Earth Tech 2008).

There are four regional landfills located in Bessborough, Chetwynd, Rose Prairie, and Fort St. John, and three large compacting (transtor) facilities at Tumbler Ridge, Dawson Creek, and Hudson's Hope (Table 30.17). Recently completed planning work for the Fort St. John landfill has extended the life of the landfill, and the PRRD is now working on a new operational plan for the site (PRRD, Deputy Administrative Officer 2012 pers. comm.).

The PRRD manages the transfer sites listed in Table 30.18. They serve as collection points for waste headed to the regional landfills.

Table 30.17 Solid Waste Landfills and Compacting Sites in the Peace River Regional District, 2010

Facility	Location	Facility Type	Total Waste Disposed 2010 (tonnes)
Fort St. John	7014 – 269 Road	Regional landfill	30,969
Rose Prairie	12452 – 260 Road	Regional landfill	2,000[a]
Bessborough	6688 – 237 Road	Regional landfill	21,205
Chetwynd	3978 Blair Road	Regional landfill	6,654
Dawson Creek	829 Highway 49	Compacting	N/A
Hudson's Hope	20318 – Canyon Road	Compacting	N/A
Tumbler Ridge	103 Ridge Road	Compacting	N/A

NOTES:
[a] Refers to an estimate, as there is no weigh scale at this site. Volumes do not include soils.
N/A – not applicable
Source: PRRD (2011b)

Table 30.18 Transfer Sites in the Peace River Regional District

Location		
Buckinghorse	Hasler Flats	Progress
Buick Creek	Hudson's Hope	Rolla
Cecil Lake	Lebel	Sikanni Chief
Clayhurst	Lone Prairie	Sukunka
Doe River	Milligan Creek (2 sites)	Tomslake
Dawson Creek	Mile 62.5	Tumbler Ridge
East Pine	Moberly Lake	Two Rivers
Fellers Heights	Mount Le Moray	Upper Cache
Golata Creek	Osborn	Upper Halfway (2 sites)
Goodlow	Pink Mountain (4 sites)	Wonowon (5 sites)
Groundbirch	Prespatou	
First Nation bins: Saulteau, West Moberly, Doig, Blueberry, and Graham Halfway		

NOTE:
Source: PRRD (2011c)

30.3.9.4 Water and Sewage Infrastructure

Table 30.19 shows the kilometres of sewer (storm and sanitary) and water lines for the municipalities in the LAA between 2003 and 2010.

The expansion of the sewer and water lines are correlated with community growth, and funded through tax and grant revenues. In Fort St. John, development cost charges are also paid by developers for connecting to sewer and water infrastructure in the community.

Table 30.19 LAA Municipal Infrastructure – Kilometres of Sewer and Water Lines

Community	Year	Sewer (km)		Water Pipe (km)
		Storm	Sanitary	
Fort St. John	2010	82	127	158
	2005	52	129	153
	2003	42	120	134
Taylor	2010	0	13	18
	2007	0	13	18
	2003	0	12	17
Hudson's Hope	2010	2	8	15
	2007	2	8	15
	2003	2	8	15
Chetwynd	2010	8	37	41
	2007	9	34	44
	2003	7	33	36
Dawson Creek	2010	63	103	146
	2007	36	87	134
	2003	34	81	123

NOTE:
Source: B.C. Ministry of Community, Sport and Cultural Development (2011)

30.3.9.4.1 Fort St. John

In 1997, Fort St. John began exclusive use of the well system adjacent to the Peace River as a source of potable water with the deactivation of the Charlie Lake Water Treatment Plant. The water comes from wells located 65 ft. under the Peace River in bedrock. The water is taken from an aquifer, which provides residents with potable water. The intake system services the entire City and adjacent areas of the PRRD.

To meet the growth in water demand, the City redeveloped the wells, made modifications to the water treatment plant and expanded the pumping facility that pumps water from the Peace River wells. There are plans to add an additional well in the Peace River to accommodate future expected growth in demand (City of Fort St. John, Director of Infrastructure and Capital Works 2012 pers. comm.). The pumping station is currently capable of pumping at the targeted 2,020 l/s. A projected increase in water demand indicates that upgrades would be required to support higher production levels (City of Fort St. John, Director of Community Infrastructure and Capital Works 2012 pers. comm.). In addition, the City sells water to commercial and residential water users not located in the on the City system through their rural water dispensing station (City of Fort St. John 2012d).

Recommissioning the Charlie Lake water treatment plant is an option to provide additional future capacity and reduce the risk of water supply shortages (City of Fort St. John, Director of Infrastructure and Capital Works 2012 pers. comm.). The City has installed water meters that are estimated to reduce water consumption by upwards of 25% – enough to sustain an increase of an additional 2,450 homes in the City (City of Fort St. John 2012f). In addition, the modification of the liquid waste plan that the City is working on would see liquid waste used for industrial purposes and result in the saving of portable water in the City system that is currently used for industrial purposes (City of

Fort St. John, Director of Community Infrastructure and Capital Works 2012 pers. comm.).

In recent years, the City has upgraded the sewage system to accommodate an additional 5,000 to 6,000 new residents (City of Fort St. John, Director of Infrastructure and Capital Works 2012 pers. comm.). This is anticipated to meet the demands for the sewer system from population, industrial and commercial growth until 2023 (Urban Systems 2004).

The City continues to develop its liquid waste management plan for expanded liquefaction and effluent reuse (City of Fort St. John, Director of Infrastructure and Capital Works 2012 pers. comm.). The City is exploring how to address the large peak water flows during rainstorms, which can cause basement flooding and phosphorous, oil, and other contaminants to enter the system and that cannot currently be removed by the treatment system during these peak flow events (City of Fort St. John, Director of Infrastructure and Capital Works 2012 pers. comm.).

30.3.9.4.2 Taylor

Taylor draws its water from three shallow wells located on a gravel bar in the Peace River at the confluence of the Pine and Peace rivers. The pump house for these wells is located on the north bank of the Peace River. In 2011, the community upgraded its 10 in. water line and constructed a new 6 in. water line for irrigation of the golf course in 2012. These upgrades have freed up potable water capacity for future community growth. The District is preparing modelling scenarios to determine how much growth could be accommodated with the existing water system (District of Taylor, Public Works Superintendent 2012 pers. comm.)

Taylor's sewage system is within 10% of capacity (400 m^3/d), but the District's licence allows for a blending factor for periodic discharge of up to 700 m^3 per day. The District has recently completed upgrades to improve efficiency and water quality. The District's sewage system could accommodate an increase in population (District of Taylor, Public Works Superintendent 2012 pers. comm.).

30.3.9.4.3 PRRD Electoral Area C [Charlie Lake and North Peace Regional Airport]

Homes in Charlie Lake and the surrounding rural area rely on their own independent water systems such as a cistern or well, or water is trucked to area residents.

The Charlie Lake area is served by a separate sewer system operated by the PRRD, while the North Peace Regional airport subdivision is on the City of Fort St. John system. The Charlie Lake system, installed in 1982 to resolve sewage leakage into Charlie Lake, services 312 houses and businesses, and approximately 1,000 full-time residents. There are plans to upgrade to the Charlie Lake sewer lagoon, add a third pump to the main lift station, and upsize the main line to provide additional system capacity to allow area infill of approximately 170 residential lots (PRRD 2012b).

The small subdivision near the North Peace Regional airport is on Fort St. John's water system.

30.3.9.4.4 Hudson's Hope

Hudson's Hope`s pump house and water intake system are located on the banks of the Peace River. The District has two wells from which it draws water, including an infiltration pipe (wet well) that runs under the Peace River. The second well is located beside the Peace River. A new water treatment plant began operations in 2012. The current water system has capacity to accommodate over 2,500 residents (which is over twice the current population). The District is also working on water conservation measures including water meters to lower per capita consumption in the community (District of Hudson's Hope, Manager of Community Infrastructure and Public Works, 2012 pers. comm.)

The Hudson's Hope sewage lagoon is close to capacity servicing the current population. It sits above the bank of the Peace River just east of the town site. Some of the volume that the District receives is from oil and gas industrial users. The District is planning upgrades to their sewer system to service 6,000 residents (District of Hudson's Hope, Director of Public Works 2012 pers. comm.)

30.3.9.4.5 Dawson Creek

The City of Dawson Creek draws its water from the Kiskatinaw River. The Kiskatinaw River is experiencing rapid human development but is not recognized as a community watershed by the B.C. government; consequently, landowners do not have to follow watershed-level management practices (City of Dawson Creek 2012a). In recent years, there has been an increasing concern about drinking water quality and summer season low water capacity.

Approximately 12,500 people are connected to the City's water system, including approximately 850 residents of the Village of Pouce Coupe. There are plans to upgrade the water infrastructure to meet population growth over the next 20 years at an annual growth rate of 0.4% (Urban Systems 2012).

The City treats an average of 5.5 million litres of sewage per day (City of Dawson Creek 2012b). The future development of land for residential, commercial, and industrial uses can be accommodated without major impact to the sanitary sewer system (Urban Systems 2012). Dawson Creek has recently completed an innovative reclaimed water project with Shell, which will reclaim waste water to provide water for industrial and municipal uses.

30.3.9.4.6 Chetwynd

The Pine River is the primary source of potable water for Chetwynd. Prior to the 2000 oil spill into the Pine River, the river was the only water source but groundwater wells have since been drilled to augment supply. The water system currently serves the existing population and industry. Incremental upgrades are planned for the holding pond, treatment plant, and water lines to accommodate growth. The District is also looking at a new reservoir and looping of lines to increase capacity, and is currently working on scenarios that would accommodate between 100 and 500 new homes (District of Chetwynd, Chief Administrative Officer 2012 pers. comm.).

A 2006 sewage upgrading plan identified several components that require upgrading (District of Chetwynd 2010). The sewer system is adequately servicing the existing

population; however, upgrades are being made to accommodate population growth (District of Chetwynd, Chief Administrative Officer 2012 pers. comm.).

30.3.10 Baseline Conditions – First Nations Communities

This section presents baseline information on the following service areas for First Nations communities in the LAA:

- Health and social services (including emergency)
- Education services
- Other services and infrastructure (including recreation, solid waste, water, and sewer)

A common theme for all First Nations on-reserve communities is that health and social services are limited in each, and extensive travel is required to access most basic services. Transportation is a challenge for many people, especially the elderly and high school students. Emergency response times are worrisome, as emergency assistance travels at some distance from Fort St. John, Fort Nelson, or Chetwynd. The community of Prophet River First Nation has a substandard water system.

Table 30.20 provides a summary of infrastructure and services of or used by Doig River First Nation, Halfway River First Nation, Prophet River First Nation, and West Moberly First Nations, including where these services are accessed.

Table 30.20 Physical and Social Infrastructure in First Nations Communities (2012)

Infrastructure/Service	Doig River First Nation	Halfway River First Nation	Prophet River First Nation	West Moberly First Nations
Daycare	Yes, on reserve	Yes, on reserve	No	Yes, on reserve
Recreation centre	Gym and rodeo grounds	Gym and rodeo grounds	Gym and rodeo grounds	No
Fire hall	No	No	No, volunteer fire department	No
Police station	No, services out of Fort St. John	No, services out of Fort St. John	No, services out of Fort St. John. Visits from Fort Nelson RCMP.	No, services out of Chetwynd

Infrastructure/Service	Doig River First Nation	Halfway River First Nation	Prophet River First Nation	West Moberly First Nations
Health centre	Yes, health department and care on-site. Part- time employee and visiting nurse and/or doctors weekly. Regular clinics for diabetes management, HIV, and mammograms.	Yes, health department and care on-site. One full-time employee. Visiting nurse and/or doctors weekly. Regular clinics for diabetes management, HIV, mammograms, and specialty clinics throughout the year.	Yes, health department and care on-site. One full-time employee. Visiting nurse and/or doctors weekly. Regular clinics for diabetes management, HIV, mammograms, and specialty clinics throughout year.	Yes, health department and care on-site. Three full-time employees. Visiting nurse and/or doctors weekly. Regular clinics for diabetes management, HIV, mammograms, and specialty clinics throughout year. Healthy meals program.
School	No, students bused to Upper Pine School	No, school closed. Students attend Upper Halfway School.	Yes, on reserve. Meal program.	No, students bused to Moberly Lake School or Chetwynd
High school	Students attend school in Fort St. John	Students attend school in Fort St. John	Students attend school in Fort Nelson	Students attend school in Chetwynd
Aboriginal language instruction	Yes, Elders participate in Beaver language program	Yes, Elders participate in Beaver language program	Yes, Elders participate in Beaver language program	Yes, Elders participate in Beaver language program
Water treatment facility (portable water)	Unknown; there is a double lagoon sewage treatment facility reported to be working well	Not on-site, no information available	1989 pumphouse and do chlorine injection when needed – only once in 20 years	Since 2011 floods, water has been trucked in from Chetwynd
Cultural centre	Administrative and Cultural Centre on-site	No	New administration and meeting hall completion in 2012	No
Library	Museum and library in administration building	No	Library in administration and meeting hall	No
Grocery store (nearest full-service grocery store)	Convenience store. Nearest full-service grocery store in Fort St. John.	No. Nearest full-service grocery store in Fort St. John.	Convenience store. Nearest full-service grocery store in Fort Nelson.	Convenience store. Nearest full-service store in either Chetwynd or Hudson's Hope.
Gas station (nearest gas station)	No	Nearest gas station at Mile 101	On-site, but irregular hours	Nearest gas station in Saulteau First Nations community

Infrastructure/Service	Doig River First Nation	Halfway River First Nation	Prophet River First Nation	West Moberly First Nations
All-season road access and distance to nearest centre	73.5 km from Fort St. John, primarily paved	130.5 km from Fort St. John, paved	85 km from Fort Nelson, paved highway	34.9 km from Chetwynd and 32.5 km from Hudson's Hope, paved highway
Main community location	Doig River No. 206	Halfway River No. 168	Prophet River No. 4	West Moberly No. 168A

NOTE:

Sources: First Nations Community Baseline Reports (Volume 3 Appendix B First Nations Community Baseline Reports, Part 7 Community Baseline Information and EIS Integration Summary Table for Doig River First Nation, Halfway River First Nation, Prophet River First Nation, West Moberly First Nations)

30.3.10.1 Doig River First Nation

Doig River First Nation members indicate gaps in local health care and community support services. Doig River, like other small and relatively remote communities, experiences challenges recruiting and retaining qualified staff to provide health and social services and programs in the community. As a remote community, truck ambulance service can take up to an hour and 15 minutes to access its community.

Road access into Doig, which started in the early 1970s, has altered this once-remote community and, while it brought benefits, it also increased access to alcohol and illegal drugs. Some people cite alcohol and substance abuse in the community as a factor in their decision to move off-reserve. Other issues related to health and wellness cited by community members are allergies and asthma and other respiratory ailments, which are attributed to nearby oil and gas development.

Modern conveniences are relatively new to Doig River. Most homes in Doig River first received running water and central heating in the 1980s. The community experiences frequent power outages.

In 2011, Doig River First Nation celebrated the arrival of high-speed Internet in the community. The community is equipped with heat, hydro, and water utilities, and is also equipped with garbage collection and sewer services. As of 2003, the community's sewage system, a double lagoon/wetland treatment facility, was described as working well.

30.3.10.2 Halfway River

Although Halfway River First Nation has a health centre, which is viewed as instrumental in helping improve the community's overall quality of health, there are still limited health services here, as well as people to staff them. Nurses with more specialty training are perceived to be needed.

Lack of social services requires community members to travel to access services as well as for groceries and basic necessities. Transportation and lack of money are barriers, both to accessing services and to meeting basic needs. With the remoteness of the community, lack of nearby services, and increased industrial pressure, people are concerned about emergency response, should any problems arise.

Students in grades 7 to 12 are required to travel to Fort St. John. Some make a daily three-and-a-half-hour commute, but most board at the First Nation's expense in Fort St. John.

There are substantial limitations to the infrastructure and services in this remote community, including minimal road maintenance in winter, no store, no fire hall, and an unstaffed police station. The community water supply draws directly from the rivers and is pumped, untreated, to houses. This community receives weekly shipments of bottled water at reported expenditures in the range of $30,000 to $40,000 per month.

30.3.10.3 Prophet River First Nation

Prophet River First Nation is a remote community situated 350 km north of Fort St. John and 91 km south of Fort Nelson.

Health, wellness and social services available to the people of Prophet River First Nation on-reserve are limited; approximately once per month, a nurse from the Northern Health Authority visits the community.

There are no licensed daycare facilities in the community.

Prophet River First Nation ostensibly has an on-reserve police program with an RCMP office at the Health Centre but, the RCMP reportedly has a limited presence in the community and provides services from Fort Nelson (Volume 4 Appendix B First Nations Community Baseline Reports, Part 7 Community Baseline Report and EIS Integration Summary Table for Doig River First Nation, Halfway River First Nation, Prophet River First Nation, West Moberly First Nations).

Students in grades 7 to 12 are bused to Fort Nelson and community members have expressed concerns that attending school in Fort Nelson keeps children away from their community too long during the regular school seasons.

30.3.10.4 West Moberly First Nations

High school students attend Chetwynd Secondary School. There has been a slight improvement in the high school graduation rate for community members over time, but their graduation rate remains below Chetwynd Secondary School's average rate.

In terms of adult education, West Moberly First Nations members attend adult education programs at Muskoti Learning Centre (Saulteau First Nations),or Northern Lights College in Chetwynd or Hudson's Hope. Large numbers of members apply for and receive post-secondary funding from the First Nation each year.

30.4 Effects Assessment

The potential to adversely affect community infrastructure and services is assessed by taking into account the potential for the Project to result in changes to the following key aspects:

- The demand for or provision of health and social services, emergency, education, and community services and facilities
- Specific displacement or effects to infrastructure, such as sewer and water systems

- The results of the assessment of the Project on population and demographics were used to assess the effects on community infrastructure and services

The Population and Demographic Effects Assessment (Volume 4 Section 28) summarizes the projected population change in the LAA and in Fort St. John attributable to the Project and also includes a future population forecast without the project (base case) and with the base case forecast included in Table 30.21 below. Population change would be due to the following:

- Direct workers and their dependents not living in on-site accommodations, as well as indirect and induced workers and their dependents living in the community. This group would become local residents for the duration of their employment on the Project
- Direct workers living in on-site accommodations. This group would be temporary residents

Projected population change attributable to direct, indirect and induced workers and their dependents living in LAA communities and Fort St. John are presented in Table 30.21.

The incremental change in population over the base case highlights how the demand for community infrastructure and services would change during the construction phase of the Project, and differ from what is currently anticipated with the key effects including the following:

- Peak change as measured by the absolute change in population attributable to the Project would be in Year 5, when the LAA would have an additional 1,613~~8~~ people, with 877 ~~1,096~~ of this total residing in Fort St. John
- Peak change, as measured by the annual change in population attributable to the Project, would be in the second year of construction, when the LAA population would grow by 2.8% (versus 2.0% in the base case), and Fort St. John would grow by 3.5% ~~8%~~ (compared to 2.3% in the base case)
- The main period of adjustment for communities and service providers would be in the first two years of construction, when the rate of change would be the greatest

The number of direct workers residing in on-site accommodations is presented in Table 30.22. The peak effect would be in Year 5, when there would be an average annual occupancy of 1,372 workers.

Table 30.21 Project's Population Increment Relative to Base Case Population, LAA and Fort St. John

Population Change	Year -1	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
LAA										
Base Case	65,890	67,232	68,610	69,953	70,588	71,190	71,780	72,263	73,093	73,919
Annual change (%)	N/A	2.0%	2.0%	2.0%	0.9%	0.9%	0.8%	0.7%	1.1%	1.1%
Project Increment[a]	N/A	300	788	1,013	1,045	1,317	1,613	1,508	1,191	513
Project Case	N/A	67,532	69,398	70,966	71,633	72,507	73,393	73,771	74,284	74,432
Annual change (%)	N/A	2.5%	2.8%	2.3%	0.9%	1.2%	1.2%	0.5%	0.7%	0.2%
Fort St. John										
Base Case	21,402	21,923	22,438	22,688	22,928	23,161	23,365	23,701	24,047	24,390
Annual change (%)	N/A	2.4%	2.3%	1.1%	1.1%	1.0%	0.9%	1.4%	1.5%	1.4%
Project Increment	N/A	163 ~~204~~	429 ~~535~~	551 ~~689~~	568 ~~710~~	717 ~~895~~	877 ~~1,096~~	820 ~~1,025~~	648 ~~810~~	279 ~~348~~
Project Case	N/A	22,086 ~~22,127~~	22,867 ~~22,974~~	23,239 ~~23,377~~	23,496 ~~23,638~~	23,877 ~~24,056~~	24,242 ~~24,461~~	24,521 ~~24,726~~	24,695 ~~24,857~~	24,668 ~~24,738~~
Annual change (%)	N/A	3.2% ~~3.4%~~	3.5% ~~3.9%~~	1.6% ~~1.8%~~	1.10% ~~1.1%~~	1.6% ~~1.8%~~	1.5% ~~1.7%~~	1.2% ~~1.1%~~	0.7% ~~0.5%~~	-0.1% ~~-0.5%~~

NOTES:

Peak population change

Peak population increment

[a] Includes direct, indirect and induced workers and their families living in communities. Does not include workers living in on-site accommodations

See Volume 4 Appendix A Social Assessment Supporting Documentation, Part 3 Population Effects Model for detailed methodology on population forecasts

N/A – not applicable

Source: BC Stats (2011)

Table 30.22 Direct Workers Living in On-Site Accommodations

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Number	145	502	683	661	792	1,372	1,227	768	233

New residents who would take up direct construction employment opportunities (and other employment opportunities created by residents leaving their current jobs to take up indirect and induced employment opportunities), and who would reside in LAA communities (some with dependents) would result in a proportional increase in demand for community services, as they would be of similar demographic composition as existing residents.

Communities and agencies would be required to respond to in-community population growth from the Project and the demand for services. The major adjustment would be in the first two years of construction, after which the change in population moderates and the differences between the Project and Base Case conditions would attenuate.

The workers taking on-site accommodation would place minimal demand on most community services, as they would either have their local living requirements met by the camp facilities (water, sewer, recreation), or they would continue to access services from their permanent place of residence outside the LAA or through on-site services for workers provided by BC Hydro and its contractors.

In addition to the population effects, BC Hydro and its contractors would also create demand for some services associated with emergency services associated with

construction activities and increased traffic volumes (refer to Volume 4 Section 31 Transportation).

As noted in the Volume 4 Section 29 Housing, 90% of all workers who would reside in-community would do so in Fort St. John, Taylor, and Electoral Area C of the PRRD, due to proximity of these communities to the Project work sites.

30.4.1 Effects Assessment – Construction – Change in Demand for or Provision of Services

30.4.1.1 Health and Social Services

New residents living in communities would require health and social services similar to what existing residents use. Upon arrival, they would seek out family doctors, family dentists, optometrist, other health care specialists and services, and daycare facilities. Accidents and emergencies would increase demand in acute and emergency care wards. In addition, some individuals and families would arrive in the community without work, adequate finances, or local support, which would lead to an increase need for social services (refer to Volume 4 Section 29 Housing). Most of the new demand would be concentrated in the Fort St. John area. However, as Northern Health's integrated health care delivery model would channel demand to where there is available capacity, Dawson Creek would experience a rise in demand for some services as well.

Workers living in on-site workforce camps would not have the same need for services as residents would, since the workers would retain access to health and social services in their home communities during shift rotation. However, they would require periodic access to health and social services during their time in the LAA. Emergency and acute care services would see the greatest increase in demand, but mental health, drug addiction, and diagnostic services would also be utilized (Nichols Applied Management 2007).

The anticipated response from service providers to the Project's population change would vary:

- Several general practitioners in the LAA and Fort St. John are accepting new patients. The increase demand attributable to the Project would be absorbed by expanded patient lists or by the establishment of new practices.
- Most dentists in Fort St. John are also accepting patients, although some are coming close to retirement and new recruits could be required in the coming years to maintain current dental service levels.
- Optometrists in the LAA are taking new patients in 2012, but this may change over time.
- Northern Health promotes health and provides health services for northern communities. Northern Health would plan for increased levels of health services in consideration of Project related new permanent residents in the area, and need for potential emergency or hospital care for the on-site workforce.
- Licensed daycare spaces in the Fort St. John area are limited, while the availability of the unlicensed daycares in the LAA is unknown. In addition, there are waiting lists to access child development services in the Fort St. John area.

30.4.1.2 Emergency Services

The Project would increase population-based demand for firefighting services, ambulance services, and policing services.

Firefighting services would see increased demand proportionate to population growth, as would fire departments providing rescue response services for motor vehicle accidents. Ambulance service would see increase in demand proportionate to population growth and road usage. Project work site accidents would be primarily addressed by private on-site first aid and medical transport. Policing and court services would see an increased caseload and traffic enforcement activities would be proportionate to the increase in population and road usage.

Emergency service providers plan and budget according to changing population forecasts and the demand they see on services. They are publicly funded and would, in the course of normal planning, including population projections, adjust to the new demand in accordance with service plans, agreements, and partnerships.

Local fire departments in the LAA are first responders to motor vehicle accidents, and the Project is estimated to result in approximately 29 motor vehicle accidents total or approximately 4 collisions per year during the construction phase of the Project (Volume 4 Appendix B Project Traffic Analyses Report). While the Provincial Emergency Program pays a small per diem to cover the cost of emergency rescue by local fire departments outside of their fire service area, it does not cover the full cost of providing this service.

The Project demand on the British Columbia Ambulance Services (BCAS) would not result in a noticeable change in the demand on ambulance services in the LAA. BCAS would incorporate the projected population and Project activities into their planning and budgeting process.

While the caseload on Fort St. John's municipal RCMP has been declining, it remains above the provincial average and the demand on policing services remains high. Any increase brought on by the Project would require incremental resources in order to not further increase caseloads.

30.4.1.3 Education Services

In-migrating families with children would utilize the existing public and private schools, thereby increasing student enrolment. Workers seeking to upgrade their skills, as well as some spouses or adult children seeking further training, would also attend post-secondary institutions in the LAA.

In Year 0, an estimated 52 new school-age children between the ages of five and 17 would arrive in the LAA. This number would increase annually to a peak of 281 in Year 5 of construction, and then taper off to 89 school-age children in Year 8 (Table 30.23).

The trend in preschool children is expected to be the same, with 21 children between the ages of 0 and 4 arriving in Year 0. This would peak in Year 5 at 114, and then decline annually to reach 36 in Year 8.

Table 30.23 Incremental Population and Number of New School-Age Children During Project Construction

Year	Population Increment in LAA due to the Project[a b]	Estimated Number of School-Age Children		
		Preschool (0–4 Years)	School Age (5 to 17 Years)	Total
Year 0	300	21	52	73
Year 1	788	55	137	192
Year 2	1,013	71	176	247
Year 3	1,045	74	181	255
Year 4	1,317	93	228	320
Year 5	1,613	114	281	395
Year 6	1,508	107	263	369
Year 7	1,191	85	208	293
Year 8	513	36	89	125

NOTES:

[a] Population forecasts from the Population and Demographics Assessment (Volume 4 Section 28)

[b] Non-camp population living within LAA

Based on the residency assumptions, most of the new school-age children would reside in Fort St. John, Taylor, and Electoral Area C, therefore the increase in student enrolment would occur almost entirely within SD 60.

Assuming an average class size of 25:1, the addition of 52 children into the school system in Year 0 would have an aggregate effect of about two additional classrooms in the SD; however, new enrolments are likely to be spread across multiple schools and would result in the addition of one or two children to some classrooms throughout the LAA. The combined effect at the LAA level would be an increase of approximately 0.9% of total enrolment from the 2010–2011 school year.

In subsequent years, as enrolments rise, more classroom spaces would be required. The aggregate effect of the Project on SD resources, based on a predicted 281 enrolments in Year 5, would be 11 new classrooms. However, given that continued steady economic growth is anticipated in SD 60 during the next decade, the Project-related effects on education demand could be seen to accelerate what is forecast to occur in the longer term. As public education is funded based on capital and operating needs, with adequate information from BC Hydro about the timing of the Project, SD 60 would be able to prepare to develop and expand their programs to meet local needs, given their need to plan for a population growth scenario with or without the Project.

Rising enrolments during construction could be managed in some schools by increasing class sizes; at other schools, it might require additional teaching and staff resources. If there is a high proportion of kindergarten or English as a Second Language students, the actual ratio of children to classrooms could be smaller than 25:1, with a corresponding increase in the need for teachers and resources. The SD would be required to coordinate its resources and staffing capacity to meet this additional demand.

While new students would also move into SD 59, numbers are expected to be smaller. Given the excess capacity in this SD, the SD would be able to accommodate the new students. It is unlikely that children would be bused from SD 60 to SD 59, given the distance.

According to post-secondary education providers interviewed, the demand for post-secondary training by workers and their family members would grow, both in the trades required by the Project, and in other unrelated fields where spouses or children may seek education. UNBC and NLC would experience increased enrolments in trades training and in other adult and continuing education programs. With adequate information from BC Hydro about the timing of the Project, these institutions would be able to prepare to develop and expand their programs to meet local needs.

30.4.1.4 Municipal (Community) Services

30.4.1.4.1 Recreation and Leisure

Project demand for recreation and leisure services would be greatest in the communities that experience the largest share of the LAA population increase. Facilities with existing constraints, including the Fort St. John swimming pool, soccer pitches, ball fields and ice rinks, would continue to experience shortages at peak demand hours. Even with the completion of the Pomeroy Sports Centre with its two ice sheets, demand for ice time continues to exceed capacity during peak periods.

In Taylor, the community golf course could financially benefit from more use (District of Taylor, Parks and Facilities Director 2012 pers. comm.). Like Fort St. John, ice time at the Taylor arena is often fully booked during peak hours in the winter, and any additional increase in demand would put further pressure on prime ice times. This may displace residents unless mechanisms were in place to prioritize use by permanent residents. The temporary pool set up by the municipality in 2012 was not able to operate the full set of hours, as they could not find enough qualified lifeguards; however, with proper staffing, this facility could readily meet additional demand from users (District of Taylor, Public Works Superintendent 2012 pers. comm.).

Dawson Creek operates a similar set of recreation amenities as Fort St. John and is positioned to accommodate new demand in the coming years (City of Dawson Creek, Director of Community Services 2012 pers. comm.).

Chetwynd could accommodate expanded use of sport venues and recreation facilities. The exception would be around peak demand hours for ice rink times, as these are consistently fully utilized (District of Chetwynd, Chief Administrative Officer 2012 pers. comm.).

30.4.1.4.2 Solid Waste Management

The Project would generate solid waste that would enter the PRRD's waste system, mainly the Fort St. John landfill. BC Hydro would be responsible for preparing a plan to manage its waste. For residential waste, BC Hydro would pay tipping fees for the disposal of waste associated with construction camps. The resident population working directly or indirectly on the Project would pay utility fees to cover costs of garbage collection and disposal.

The waste volume generated by the Project would not materially affect the life of the landfill (PRRD, Manager of Solid Waste Services 2011 pers. comm.), as they have recently updated the plan for the Fort St. John's landfill life.

30.4.1.4.3 Sewer and Water Infrastructure

Project demand would result in increased utilization of sewer and water infrastructure proportionate to the population increase in the LAA. All communities in the LAA are continually reviewing their sewer and water capacity to meet the current population and business demands and to prepare for future demand. All changes to current discharge permits for sewer systems are regulated by the province. In addition, upgrades are being made to ensure that quality and safe systems are in place. New water and sewer lines would be covered by development cost charges in Fort St. John, with infill and existing development sites reducing the demand for new lines in other communities.

The following summarizes projected capacity and associated planned upgrades to solid waste and water infrastructure in potentially affected LAA communities:

- Fort St. John – Water meters and water conservation efforts could support an additional 2,450 homes at the current water usage levels. Recent upgrades to the sewage system are anticipated to accommodate population, industrial, and commercial growth until 2023.
- Taylor – Modelling scenarios are being prepared to determine how much growth could be accommodated with the existing water system. Taylor's sewer system could support more residents, with the precise number of new residents dependent on the type of housing that would be constructed.
- Charlie Lake – Planned sewer upgrades are projected to accommodate 170 new residences.
- Hudson's Hope – The water system can accommodate a population of between 2,500 and 3,000 people. However, the sewer system is at capacity, with planned expansion in place to accommodate a population of upwards of 6,000 residents.
- Dawson Creek – Water infrastructure investment plans are projected to accommodate population growth over the next 20 years at an annual rate of 0.4%.
- Chetwynd – Planned upgrades to Chetwynd's water and sewer system are projected to accommodate between 100 and 500 new residences.

30.4.1.4.4 Aboriginal Peoples and Communities

The increased demand on services and facilities described in Section 30.4.1 applies to Aboriginal people living both off- and on-reserve in the LAA. As illustrated in Section 30.3.10, members of Doig River First Nation, West Moberly First Nations, Halfway River First Nation and Prophet River First Nation travel to the nearest urban centre for services, including health care and education, as well as groceries. With the exception of West Moberly First Nations, they all rely on policing and emergency services from Fort St. John.

Of particular concern to First Nations in the LAA is the ability of firefighting, ambulance, and policing services to respond to increased crime and accidents associated with in-migration. While demand for services will increase, it is anticipated that service providers in the LAA will respond and adapt to the rise in population and associated pressures on services.

The demand for on-reserve services also has the potential to increase. First Nations may choose to return to their home community in search of project-related employment or in response to the increased cost of accommodation associated with the rise in demand for rental accommodation in Fort St. John during construction. This is of concern to First Nations communities, given the existing constraints on health and social services on reserve. This issue is discussed in the context of population effects and housing in Volume 4 Section 29 Housing.

30.4.2 Mitigation Measures – Construction – Change in Demand for or Provision of Services

The following measures will be implemented by BC Hydro to mitigate potentially adverse project effects on community infrastructure and services:

Health and Social Services:

- Work with Northern Health to plan for appropriate health care services for Project workforce, including camp residents; on-site health care for all workers residing in camps would include a combination of:
  - Physician care
  - On-site nurse or nurse practitioner care
  - Coordination on program delivery (i.e., Employee Assistance Program, men's health programs)
- Support Northern Health and partner agencies in planning for anticipated changes in resident population, by communicating workforce schedules, in-community population forecasts, housing plans, and on-site medical and social services
- Support Northern Health initiatives as they develop approaches for delivery of health services for camp workers
- Provide new families with a local information package about health, education, and social services
- Provide additional daycare spaces in the Fort St. John area to increase spousal participation in the labour market

Emergency Services:

- Provide on-site emergency services to minimize the need for community-based services. This will include:
  - Security services that support compliance and enforcement of all camp and construction policies relating to the terms of employment
  - Firefighting services for all project construction activities and work sites
  - First aid and medical transport for medical emergencies at the on-site accommodations and work sites
- Implement policies on safe living and work environment
- Implement traffic management plans (see Volume 5 Section 35 Summary of Environmental Management Plans)

- Work with local fire departments to identify incremental demands on emergency rescue services, and provide funding to local governments for accident coverage during Project construction
- Work with the RCMP to identify incremental demands on policing services, and provide direct funding to the RCMP in the LAA to cover identified increases during Project construction
- Develop emergency service provider site access protocols to enable safe site access during construction and operations
- Work with emergency service providers to plan for and adjust to anticipated changes in resident population and new service demands by communicating workforce schedules, in-community population forecasts, housing plans, and on-site emergency services
- Develop and update Project emergency plans, including integration with existing BC Hydro Peace River generating facilities during Project construction

Education Services:

- Work with School Districts 59 and 60 to plan for and adjust to anticipated changes in resident population and potential new enrolments by communicating in-community population forecasts
- Work with School Districts 59 and 60, and with Northern Lights College to identify the number of foreign worker hires and the potential need for in-community education services to match their skills to Project requirements
- Communicate with School Districts 59 and 60 and post-secondary institutions about expected deficits in the local labour pool and how education providers can tailor high school and post-secondary apprenticeship programs to help meet these needs
- Continue to participate in and support northern training initiatives, including participation on Northern Opportunities and financial support to Northern Lights College Foundation for funding student bursaries

Municipal Services:

- Recreation and Leisure Services:
  - Provide recreation facilities and programs on-site at the camps to minimize worker use of community services and facilities
  - Work with the City of Fort St. John to resolve local concerns about potential use of community recreation or leisure facilities by the Project workforce
- Solid Waste Management:
  - Develop and implement a construction waste management plan that integrates waste reduction, recycling and reuse standard practice, in coordination with the PRRD municipal waste management plan (see Volume 5 Section 35 Summary of Environmental Management Plans)
- Water and Sewer Management:

- Work with local governments to plan for and adjust to anticipated changes in resident population by communicating workforce schedules, in-community population forecasts, and housing plans

Aboriginal Peoples and Communities:

- Mitigation measures identified in Section 30.4.2 have general applicability in the LAA, and will therefore also avoid adverse effects on Aboriginal people living in Fort St. John and other urban centres that will see a rise in population related to the Project.

30.4.3 Effects Assessment – Construction – Infrastructure Displacement

Municipal infrastructure along the Peace River would be displaced, either as a result of Site C reservoir inundation or long-term slope erosion within the erosion impact line. These are known locations.

30.4.3.1 Hudson's Hope Water and Sewage Facilities

With the filling of the Site C reservoir, the Hudson's Hope water intake, pumping station, and treatment plant would be inundated, and would need to be rebuilt in a new location. There could also be potential effects on the sewage settling ponds due to bank erosion, or due to a change in groundwater conditions at the time of reservoir filling. The Hudson's Hope shoreline protection would be designed to address the potential for erosion at this site.

Site specific changes to groundwater elevation would be determined through observation and measurement at that location, after reservoir filling, and if required suitable mitigation would be identified.

30.4.3.2 Charlie Lake Sewage Outfall

The lower portion of the Charlie Lake outfall into the Peace River would be inundated by the Site C reservoir. The effects of inundation may result in functional loss and/or a change to discharge requirements. In the portion of the outfall above the inundation of the Site C reservoir, there could be bank erosion within the the erosion impact line.

Site specific effects on the Charlie Lake outfall infrastructure and function would be determined through further technical analysis, and if required suitable mitigation would be identified, prior to inundation.

30.4.3.3 Fort St. John Wells and Intake

Fort St. John draws water from wells at river level, fed by an aquifer located below in Peace River near the proposed Site C dam site. The well system is connected to the City by a 12 km line to the City. Potential concerns with this water system are associated with Project operations, and include impeded access to the wells at high water levels, ice cover at the site, and potential changes in flow rate and availability from the aquifer. Each of these events can already occur today, without the Project.

Ice cover on the Peace River is not predicted to reach the location of the wells, therefore there would be no change in ice cover at the wells due to the Project.

BC Hydro is proposing a minimum flow from Site C of 390 m3/s. While this is higher than the absolute minimum level experienced at the well sites today, it is expected that the

frequency of operations at this low flow / water levels would occur more often than today. Further technical analysis using existing or new well production data, would confirm if a reduction in well capacity and production would be likely, prior to Project operations. If required suitable mitigation would be identified, prior to Project operations.

It is expected that the potential for extreme high water levels at this location would be less than today, but typical high flow / water levels would occur more often than today, which could further impede existing access difficultures to the well sites. Further analysis of the conditions under which these water levels would further impede access to the well sites would confirm this effect. If required suitable mitigation would be identified, prior to Project operations.

30.4.3.4 Taylor Wells and Water Intake

Taylor has three water supply wells located on a small island in the Peace River opposite the confluence of the Pine River, downstream of the Site C dam site. Potential concerns with this water system associated with the Project include: low water levels could occur more often, which may affect well capacity and production; high water levels could occur more frequently, which limits access to the wells; and increased turbidity during Project construction could affect water quality from the wells (BC Hydro 2012). Each of these events can already occur today, without the Project.

A review of information provided by Taylor confirms that well production does appear to decline with low flow in the Peace River. BC Hydro is proposing a minimum flow from Site C of 390 m3/s. While this is higher than the absolute minimum level experienced at the well sites today, it is expected that the frequency of operations at this low flow / water levels would occur more often than today, which may reduce well capacity and production.

It is expected that the potential for extreme high water levels at this location would be less than today, but typical high flow / water levels would occur more often than today, which could further impede existing access difficultures to the well sites. In the past BC Hydro has considered requests from Taylor to reduce flows from Peace Canyon Dam to facilitate access to the well sites, when operationally or economically feasible. Further analysis of the conditions under which these water levels would further impede access would confirm this effect. If required suitable mitigation would be identified, prior to Project operations.

During construction there could be increased levels of turbidity in the Peace River, and water quality would be managed through implementation of a Water Quality Management Plan. Potential effects of a change in sedimentation on well water quality is addressed in the Volume 4 Human Health Assessment.

30.4.3.5 First Nations Communities

The communities of Doig River, Halfway River, Prophet River, and West Moberly are not expected to experience any change in water service or water quality.

30.4.4 Mitigation Measures – Construction – Infrastructure Displacement

30.4.4.1 General Population

To mitigate effects on municipal infrastructure, BC Hydro will be responsible for the following:

- Providing funds for the relocation or replacement of Hudson's Hope water intake, pumping station, and treatment plant to meet the reasonable water supply needs of the residents and the District of Hudson's Hope
- Developing, with each respective municipality, an approach to determine or monitor effects of the Project on the Hudson's Hope sewage lagoons, Fort St. John water supply, District of Taylor water supply and the PRRD's Charlie Lake outfall. Based on the study or monitoring results, if adverse effects are identified, BC Hydro would implement appropriate mitigation measures to maintain functionality of these municipal systems. Mitigation measures may include relocation, replacement, or repair of the infrastructure as appropriate.

30.4.4.2 First Nations Communities

No effects on water systems or water quality are expected for First Nation communities in the LAA, and therefore no mitigation is required.

30.4.5 Summary of Effects Assessment and Mitigation Measures

A summary of potential effects and mitigation measures for community infrastructure and services are shown in Table 30.24.

With mitigation, there would be no residual effects on emergency, education, and municipal (community) services as collaborative planning, direct resourcing to service providers, replacement of displaced infrastructure, establishment of private services in-camp and on-site, and application of safe living and work procedures and policies will be in place. There would be residual adverse effects on health and social services, with the greatest effects occurring to services where there are currently wait-lists to access programs and services, and where Northern Health experiences challenges in recruiting new health care specialists. Mitigation and forward planning for health and social services will limit adverse effects but challenges will remain. Therefore, the project effect on health and social services is considered further in the residual effects assessment.

Table 30.24 Project Effects and Mitigation Measures on Community Infrastructure and Services

Project Phase	Potential Effect	Mitigation Measures	Mitigation Effectiveness	Responsibility
Construction	Change in demand for or provision of services	Health and Social Services: • Provide health care services (doctor, nurse) for Project workforce • Provide Northern Health with actual workforce and camp population statistics to help plan for service levels • Provide new families with local information package about health, education, and social services • Provide daycare spaces in the City of Fort St. John area	Increased demand on local health and social services would be addressed with in-camp services. Work with services providers and providing access for Project workforce and their families. Residual effects on Health and Social Services are anticipated.	BC Hydro
		Emergency Services: • Communicate project management plans and activities to emergency service providers • Provide security, firefighting, first aid, and medical transport services for all Project construction sites and activities. • Implement policies on safe living and work environment • Implement traffic management plan • Direct funding to detachments to support RCMP staff • Provide on-site first aid and emergency transport • Provide on-site firefighting services • Develop Project emergency plans, including integration with existing BC Hydro Peace River facilities	Increased demand on Emergency Services would be addressed by providing on-site services and providing compensation for RCMP and fire rescue services. No residual effects on emergency services.	BC Hydro
		Education Services: • Providing early notice to education institutions • Partner with education institutions on training • Support of Northern Opportunities Initiatives	Early notice about population in-migration will allow Ministry of Education to provide the required resources to meet additional enrolments. Working and communicating with local post-secondary institutions will enable the latter to help fill local labour	BC Hydro

Project Phase	Potential Effect	Mitigation Measures	Mitigation Effectiveness	Responsibility
			pool gaps. No residual effects on Education Services.	
		Recreation and Leisure Services: • Provide recreation facilities and programming at the camps for workforce • Work with City of Fort St. John on potential workforce policies or agreements regarding use of community leisure and recreation facilities	Increased demand on Recreation and Leisure Services would be addressed by providing on-site services and managing the use of local services by the in-camp workforce. No residual effects on Recreation and Leisure Services.	BC Hydro
		Solid Waste: • Implement construction waste management plan, including waste reduction and recycling policies, and management of industrial waste • Coordinate waste management planning with PRRD • Deliver and stockpile landfill cover material for Fort St. John landfill	BC Hydro would work with PRRD to manage solid waste associated with the project. No residual effects on Solid Waste services.	BC Hydro
		Sewer and Water: • None required	No residual effects on Sewer and Water.	BC Hydro
	Displacement of Infrastructure	Mitigation measures for Hudson's Hope Water and Sewage Facilities; Charlie Lake Outfall; Taylor Wells and Water Intake: • Provide funds for the relocation of Hudson's Hope water intake, pumping station, and treatment plant • Develop, with each municipality, an approach to determine or monitor the effects of the Project on the Hudson's Hope sewage lagoon, Fort St. John water supply (production and access), Taylor water supply (production and access), and PRRD's Charlie Lake outfall. • BC Hydro will implement appropriate mitigation measures to maintain functionality of these municipal systems if adverse effects are identified.	Infrastructure impairment has been identified and compensation or mitigation measures implemented will be provided or undertaken No residual effects on Displaced Infrastructure.	BC Hydro

NOTE:
N/A = not applicable

30.4.6 Other Mitigation Options Considered

There were no other mitigation options considered by BC Hydro for effects on community infrastructure and services.

30.5 Residual Effects

30.5.1 Characterization of Residual Effects

Residual adverse effects are the effects of the Project that may remain after taking into account the implementation of mitigation measures. Residual adverse effects are characterized according to the residual effects criteria and associated definitions in Table 30.25.

Table 30.25 Characterization Criteria for Residual Community Infrastructure and Services Effects

Criterion	Description	Quantitative Measure or Definition of Qualitative Categories
Direction	The ultimate long-term trend of the environmental, economic, social, heritage, or health effect (e.g., increase, decrease, or neutral)	**Adverse:** condition of the VC is worsening in comparison to baseline conditions and trends
		Positive: condition of the VC is improving in comparison to baseline conditions and trends
Magnitude	The amount of change in a key indicator or variable relative to baseline case (low, moderate, high), consideration is given to factors such as background variation	**Low:** effect occurs that is detectable but is within normal variability of baseline conditions
		Moderate: effect occurs that would cause an increase with regard to baseline but is within regulatory criteria
		High: effect occurs that would singly or as a substantial contribution in combination with other sources cause exceedances of regulatory criteria beyond the project boundaries
Geographical Extent	The geographic area in which an environmental, social, economic, heritage, or health effect of a defined magnitude occurs (site-specific, local, regional, provincial, national, international)	**Site-Specific:** the expected measurable changes are within the project boundary
		Local: City of Fort St. John, districts of Taylor, Chetwynd, and Hudson's Hope, and PRRD
		Regional: PRRD
Frequency	The number of times during a project or a specific project phase that an environmental, economic, social, heritage, or health effect may occur (e.g., once, daily, weekly, monthly or continuous)	**Once:** occurs once
		Continuous: occurs on a regular basis and at regular intervals
		Sporadic: occurs rarely and at irregular intervals

Criterion	Description	Quantitative Measure or Definition of Qualitative Categories
Duration	The period of time required until the valued component returns to its baseline condition, or the effect can no longer be measured or otherwise perceived (short term, medium term, long term, permanent)	**Short-term:** effect is limited to <1 year
		Medium-term: effect occurs >1 year but not beyond the construction of the Project
		Long-term: effect lasts beyond the construction phase and up to 10 years of the operations phase
		Far future: effect extends >10 years of the operations phase
Reversibility	The degree or likelihood to which existing baseline conditions can be regained after the factors causing the effect are removed. Effects can be reversible or irreversible.	Effect **reversible** with reclamation and/or over time
		Effect **permanent** and cannot be reversed with reclamation and/or over time
Context	Capacity of socio-economic systems and processes to accept change, resilience, or the level of change relative to base case or base line variation typically experienced. ~~The extent to which the area within which an effect may occur; has already been adversely affected by human activities; and is ecologically fragile and has little resistance and resistance to imposed stresses~~	**Low:** effects occurs in environment of low resiliency and/or high vulnerability
		Medium: effects occurs in environment of moderate resiliency and/or moderate vulnerability
		High: effects occurs in environment of high resiliency and/or low vulnerability
Level of Confidence	Evaluation of scientific certainty one has in the review of project-specific data, relevant literature, and professional opinion; this includes the level of confidence in the assessment of direction, magnitude, duration, frequency, and reversibility.	**Low:** assessment based on professional judgment and experience but hampered by incomplete understanding of cause-effect relationships and or lack of data
		Moderate: assessment based on professional judgment and experience, including a reasonable understanding of cause-effect relationships, and adequate data
		High: assessment based on professional judgement and experience, including a good understanding of cause-effect relationships and ample data
Probability	The likelihood that an adverse effect will occur (e.g., low, high or unknown)	**Low:** past experience indicates that an effect is unlikely but could occur
		High: past experience indicates that an effect is highly likely to occur
		Unknown: past experience does not allow the determination of the effect's probability

Adverse residual effects on health and social services would be low in magnitude, since the change in demand would be measurable but not outside the experience of changes in population between 2006 and 2011, and within the parameters of growth anticipated by BC Stats and service agencies. Northern Health's integrated health delivery means that health and social services across all communities in the LAA would be affected (geographical distribution would be local). Those communities close to the Project, including Fort St. John, PRRD Electoral Area C, and Taylor would be most affected by population demands on health and social services. Effects would be medium term in

duration, continuous throughout construction, and reversible as conditions revert to the base case at the end of construction.

Health and social services are concentrated in Fort St. John and Dawson Creek and provide services for the LAA. The socio-economic context of health and social services is moderate (medium resiliency and vulnerability to change). Vulnerability is associated with the capacity of health and social services to make services available and meet local demand. Vulnerability of health and social services in the LAA is considered within the context of existing health and social service infrastructure and resourcing. With the population in the region and the two regional centres (Fort St. John and Dawson Creek) Northern Health has assembled considerable capacity within the LAA.

The probability of adverse effects is low. This rating is based on the experience in the LAA with major development projects, and associated experience managing changes in population and demand for health and social services.

The assessment of community infrastructure and services is based on population modelling, linking employment and labour market behaviour to final demand in communities near the Project. The service baseline is well documented. BC Stats population forecasts used in this assessment are the basis for planning by almost all agencies in the LAA, including Northern Health. For these reasons, the level of confidence in the prediction of effects is high.

Table 30.26 summarizes Project residual effects on community infrastructure and services.

Table 30.26 Characterization of Residual Community Infrastructure and Services Effects

Activity	Effect	Residual Environmental Effect							
		Direction	Magnitude	Geographic Extent	Duration and Frequency	Reversibility	Social Context	Level of Confidence	Probability
Construction	Change in demand for Services (health and social services)	Adverse	Low	Local (LAA)	Medium term Continuous	Reversible	High (Fort St. John) Medium (Taylor, Area C, Hudson's Hope)	High	Low
Operations	None	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NOTE:
N/A = not applicable

30.5.2 Standards or Thresholds for Determining Significance

Service providers respond continuously to changes in population, demographics, and demand through their capital and operating planning practices in order to meet service standards established by government. However, when the potential change in demand attributed to the Project exceeds recent historical or forecasted variations to the extent that access to and quality of services are less than base case conditions, or the services experience a further impairment in access or quality, effects attributable to the Project are considered significant.

30.5.3 Determination of Significance of Residual Effects

The increased Project demand for health services associated with the incremental population gain would not exceed recent experience in the LAA, nor would it create capacity issues with major facilities and services. However, it is expected to create additional demand where there are currently wait-lists to access programs and services, and where Northern Health experiences challenges in recruiting health care specialists. Peak demand and constraints would arise in health and social services, but these would be managed through adaptive management practices for balancing service demand and supply. Northern Health and other service providers in the LAA and Fort St. John would not experience effects that they have not regularly dealt with over the last decade with major development projects in oil and gas, forestry, mining, and energy.

The regional forecast, without the Project, is for substantial population growth; therefore, the increased demand on the region's community infrastructure and services will happen even without the Project. In effect, the Project would advance expected population growth, and the associated increased demand on infrastructure and services, by about two years.

Each service area has specific governance and funding structure. For example education, and health and social services are primarily provincially funded in B.C., whereas sewer, water services and fire services are funded primarily at the local government level. Some services are jointly funded locally and provincially, such as policing.

Project induced population increases that would affect provincially funded services would be expected to be met by provincial budget planning. The provision of forecast and actual labour information will help these agencies plan for the projected increases, alongside their usual sources of information for future planning. For example, Northern Health would be expected to plan for increased levels of health services in consideration of Project related new permanent residents in the area, and the need for potential additional hospital services for the on-site workforce.

Project induced population increases would also result in a higher local tax base, which would support local governments in increasing their service levels. BC Hydro will continue discussions with local governments toward community agreements that will include consideration of any specific effects on their communities. Where the Project would displace or impair the functioning of municipal infrastructure, appropriate measures would be implemented to maintain the functionality of these systems.

Project effects on policing would be population based, as well as based on the Project's increased use of roads, and the presence of the camp population. Therefore, BC Hydro will provide additional funds to support incremental policing requirements.

In consideration of proposed mitigation, the expected population growth in the region in the absence of the Project, the limited duration of effects, and Northern Health's experience in managing similar changes in demand for services in the recent past, residual adverse effects on community infrastructure and services are considered not significant.

A summary of effects, mitigation, and significance rating analysis (summary statement) are presented in Table 30.27.

Table 30.27 Summary of Assessment of Potential Significant Residual Adverse Effects

Valued Component	Project Phase	Potential Effects	Key Mitigation Measures	Significance Analysis of Residual Effects (Summary Statement)
Community Infrastructure and Services	Construction	The Project would create incremental demand on local **health and social** services driven by increased in-community population and camp workforce associated with the Project	• Provide health care services (doctor, nurse) for Project workforce • Provide Northern Health with actual workforce and camp population statistics to help plan for service levels • Provide new families with local information package about health, education, and social services • Provide new daycare spaces in the City of Fort St. John area	Not significant, as demand attributed to the Project does not exceed recent historical or forecasted variations

30.6 Cumulative Effects Assessment

The residual effect on health and social services would act cumulatively with any project that would affect the population of the LAA during the construction period, and that would have a residual effect on health and social services. The cumulative effects of projects drawing permanent population to the LAA are incorporated into population forecasts of the North Peace and South Peace Local Health Areas prepared by BC Stats, by including population from specific known projects. These forecasts are used by service providers and account for continued growth in the LAA for the foreseeable future due to economic activity of the Project as well as projects in the Project Inclusion List (Volume 2 Section 10 Effects Assessment Methodology).

As such, an assessment of cumulative effects is embedded in the effects assessment for the Project. Additional consideration of projects in the Project Inclusion List for potential cumulative effects would result in double-counting, and therefore a cumulative effects assessment was not undertaken.

30.7 Monitoring and Follow-up

No monitoring or follow-up is proposed.

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