



Keeyask Generation Project

Environmental Impact Statement

Supporting Volume
Socio-Economic Environment,
Resource Use and Heritage Resources



June 2012

SECTION 4

**POPULATION,
INFRASTRUCTURE AND
SERVICES**

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4.0 POPULATION, INFRASTRUCTURE AND SERVICES

4.1 INTRODUCTION

This section examines the effects of the Project on the population, infrastructure and services of communities in the Socio-Economic Local Study Area, as well as effects on population and transportation infrastructure in the Socio-Economic Regional Study Area. Similar to Section 3, Economy, valued environmental components (VECs) were identified within the broad categories of population, infrastructure and services. This section responds to Sections 8.3 (Existing Environment) and 9 (Environmental Effects Assessment) of the Final EIS Guidelines for the Project, as issued by the Canadian Environmental Assessment Agency in March 2012 (CEAA 2012).

A wide range of essential human needs are fulfilled by infrastructure and services in communities in the Local Study Area. For purposes of this socio-economic impact assessment (SEIA), infrastructure is considered to include the following: housing; public infrastructure (such as potable water treatment facilities, waste handling facilities, roads, airports, rail, electricity and communications); public facilities (such as schools, health centres, recreation facilities, government offices); and public services (such as education, health care, recreation, day care, social services and other government services).

In many communities in the Regional Study Area, and particularly in First Nation and Northern Affairs communities, limited financial resources often hamper the provision of infrastructure and services. In many cases, this is coupled with rapid population growth. Over the past several decades, higher fertility rates together with improvements in life expectancy have caused the Aboriginal population to grow more rapidly than the overall Canadian population. This trend is expected to continue for some time into the future (CMHC 2007; INAC 2009).

Governments are involved in providing housing, infrastructure, public facilities and services for residents of most First Nation reserves and, to varying degrees, draw on public funds at the local, provincial and national levels. One of the most basic of necessities that many First Nation communities struggle with is the provision of adequate housing (International Housing Coalition 2006; CHMC 2008). This struggle was substantiated through the community-based fieldwork research with the Keeyask Cree Nations (KCNs) communities. Although housing is a priority recognized as important to human health and social well-being, demand frequently exceeds the available supply of quality homes and many community residents and families live in crowded conditions. As a result, there is limited capacity in most communities to handle population growth, including the ability to accommodate community Members who may wish to return to their home reserve after living elsewhere. The effects associated with crowding in the KCNs communities are discussed in Section 5, Personal, Family and Community Life.

Public consultation and engagement, as well as community-based research in the KCNs communities, Gillam and Thompson were important sources of information in describing the existing environment as well as the assessment of Project-related effects on population, infrastructure and services. In addition to

the sources noted above, and as noted in Section 1, the study team reviewed a number of recent Environmental Impact Statements (EIS) and project-specific regulatory guidelines for other projects in Canada including the Wuskwatim Generation Project. This contributed to identification of best practices in relation to assessment of effects on VECs related to population, infrastructure and services.

This section is divided into the following three main sub-sections:

- Approach and Methodology (Section 4.2);
- Environmental Setting (Section 4.3); and
- Project Effects, Mitigation/Enhancement and Monitoring (Section 4.4).

The environmental setting and Project effects, mitigation/enhancement and monitoring sections discuss VECs as relevant to the Local Study Area and the Regional Study Area. The VECs associated with population, infrastructure and services are the following:

- Housing (including temporary accommodations);
- Infrastructure (including water supply, wastewater management, landfill and recycling facilities, and utilities);
- Facilities and Services (including education, health and social services, childcare, emergency and police services, and community recreation);
- Land (including Indian Reserve parcels, Treaty Land Entitlement (TLE) parcels and lands selected as part of the Northern Flood Agreement (NFA)); and
- Transportation (including roads, highways, internal and ice roads, railway, airport, bus, and ferry infrastructure and services).

The effect that construction and operation of the Project may have on infrastructure and services in communities in the Local Study Area would largely depend on changes to population. As such, population itself is not considered a VEC but a supporting key topic. An understanding of projected future population is useful in planning for future demands on infrastructure, facilities and services. This includes projections both of future population without the Project and, in addition, population change that may result from the Project. The most important factors affecting population growth or decline are births, deaths and migration (INAC 2007). Of these factors, migration is hardest to predict because adults and their families migrate from one community to another for many reasons, including a search for job and business opportunities, better housing conditions, access to better education and health care, and family, personal and other reasons (CNP KPI Program 2009-2010; FLCN KPI Program 2009-2011; and YFFN KPI Program 2009-2010). The Project is not anticipated to affect in-migration to the Regional Study Area as a whole, but it does have the potential to affect in-migration to the Local Study Area as a result of the draw of substantive construction phase employment, business opportunities and operation phase employment. In-migration, particularly by those with limited financial resources, could generate additional demand for housing, facilities and services and, depending on current capacity, could have implications for public finances.

Population projections for the existing environment for the KCNs communities in the Local Study Area were developed using a cohort-component-based approach. Section 4.2.1.2 and Appendix 4A describe the approach and methodology used to model and project natural population growth for the KCNs communities without the Project. Projections for the Town of Gillam were estimated based on Manitoba Hydro staffing forecasts beyond the Project. For the City of Thompson, population growth is described based on known and potential drivers of change, which were used to develop three population growth scenarios based on high, low and suppressed economic growth.

Communities in the Local Study Area, particularly Tataskeweyak Cree Nation (TCN), Fox Lake Cree Nation (FLCN) and Gillam, are likely to experience the majority of Project-related in-migration and associated effects on infrastructure and services as a result of the following:

- Their proximity to the Project site;
- The Direct Negotiated Contracts (DNCs) with the KCNs during the construction phase (which would allow KCNs contractors and businesses to directly hire qualified workers – see Section 3.4.1);
- The availability of KCNs Members who have successfully completed Pre-Project Training (PPT);
- The operational headquarters for the Project being located in Gillam; and
- The Project revenue stream that would eventually accompany KCNs investment in the Project.

Section 4.2 below describes the approach and methodology used to estimate population change associated with the Project. Section 4.3 describes the current state of infrastructure, facilities and services within the communities, as well as the availability of housing and land in terms of their capacity to accommodate population growth associated with the Project. Section 4.4 describes Project effects during both the construction and operation phases, including recommended mitigation/enhancement, monitoring and follow-up.

4.2 APPROACH AND METHODOLOGY

This section describes the approach and methodology used to assess the effects of the Project on the VECs and supporting topic examined under population, infrastructure and services. The methodologies used varied among VECs and between the construction and operation phases. The analysis considered the drivers of change within the Local Study Area, including the projected and planned changes within communities, both with and without the Project. For example, changes to population considered both natural growth and decline as well as estimates of population change as a result of Project construction and operation. The approaches and methods selected to assess Project-related changes were built on pathways of effect that connect relevant features of the Project to the socio-economic environment in which the Project would occur.

As Vanclay (2002) notes, the key social effects of a proposed project are likely to vary from project to project and from community to community. The process of community-based research supported Vanclay's observation, as each of the KCNs and stakeholders in Gillam and Thompson described the factors that shape life in their respective communities and their issues and concerns related to Project

development. Community-based key person interviews (KPIs) and theme-based workshops helped to understand the existing situations in communities including past influences. In the case of the KCNs communities, the study team worked with a local community coordinator and (when available) community researchers to help in the planning and conducting of KPIs, and the coordination of workshops. For Gillam and Thompson, members of the study team conducted the community-based research through KPIs with a variety of key informants. Follow-up telephone interviews were used to fill any identified data gaps.

The process of engaging with the Local Study Area communities was important in the analysis of population, infrastructure and services and for the assessment of effects of the Project. The assessment of effects considered the Project-related drivers of change and focused largely on changes to population. However, the assessment also considered effects stemming from community participation in Project activities and each community's relative proximity to the Project. While accounting for natural growth and decline, estimates of Project-related population change were calculated and the implications of the new population on community infrastructure and services were examined. The short-term influx of construction workers visiting communities was also examined. If community infrastructure, a public facility or service already operates at or near capacity, additional strain from an increase in population or short-term influxes of workers may have an adverse effect. However, population growth may not have any adverse effects if the infrastructure, facilities and services in the community have unused capacity.

A review of planning and other documents related to infrastructure and services within the Local Study Area supplemented the community-based research. Census data from Statistics Canada were used to help characterize the environmental setting, in particular the current population and certain housing characteristics.

4.2.1 Population

Population changes have implications for infrastructure and services within a community. Population projections can be used as a planning tool to enable communities to understand and adjust to potential future conditions. As such, population projections for the communities within the Local Study Area were conducted in order to understand population growth both with and without the Project.

4.2.1.1 Current Population

The first step in projecting population was to establish the current population. Given the range of approaches used by government agencies to determine past and current populations, triangulation among multiple data sources was employed to cross-check population estimates. Among the sources considered were the following:

- Statistics Canada: 2006 Census of Canada (2007a) and 2006 Census of Canada Aboriginal Population Profiles (2008c);
- Aboriginal Affairs and Northern Development Canada (AANDC)(formerly INAC): First Nation Population Profiles;
- Health Canada: First Nations and Inuit Health Branch Population Totals Reports;

- Manitoba Health: Population Reports;
- Other relevant historic information found in reports, websites and other available publications; and
- Community-based KPI programs.

For information from databases, 2006 was considered as the baseline year to complement the 2006 Census of Canada, which is the most recent census year. The exception to this is for population projections using AANDC data, whereby 2008 is used as the most recent data available at the time of estimating projections. Historical population data was also presented back to 1991 in order to illustrate any trends in how communities' populations have changed since the early 1990s. Where available, information on the historic population of communities before 1991 was also provided. The age and gender breakdown of communities was described through population pyramids, which illustrate the overall composition of the population.

4.2.1.2 Keyask Cree Nations: Projected Population

After establishing the current population, the next step was to estimate the projected future population for each of the Local Study Area communities independent of the Project. Given the unique characteristics of each of the communities, methods were devised to reflect factors that shape the population in each community (these methods are described in the following sections).

The current population structure of the KCNs communities would play an important role in determining population levels for this group of First Nations in the near future. Under these circumstances, a demographically based approach was used for projecting population growth. KCNs population projections were developed using a cohort-component-based approach. Projections were also developed for each of the KCNs community. Low, medium and high population projections were modelled and the medium projection is presented in this section. Low and high projections are contained in Appendix 4A.

Under this approach, each component of population change is factored into the projection as expressed in the demographic equation below.

$$\text{Population}_{t+1} = \text{Population}_t + (\text{Birth} - \text{Death}) + \text{Net Migration}$$

Where:

- *Population_{t+1}* is population at time “t+1”;
- *Population_t* is population at time “t”;
- *Birth* is number of births between time “t” and “t+1”;
- *Death* is number of deaths between time “t” and “t+1”; and
- *Net Migration* is the number of people moving into the community between time “t” and “t+1” less the number of people moving out of the community in the same period of time.

The model projects population growth for the KCNs communities for a 15-year timeframe, with 2008¹ acting as the base year for projections through to 2023. This period encompasses the construction phase and the early years of the operation phase of the Project. High, medium and low growth scenarios considered fertility rates, mortality rates and net migration. The medium growth scenario used the following assumptions:

- Fertility:
 - Women between the ages of 15-49 would be giving birth;
 - Age specific fertility rates were applied;
 - 105:100 sex ratio² (boys to girls born); and
 - Annual moderate decline (-0.84%) fertility coefficient.
- Mortality:
 - Age specific mortality ratios (*e.g.*, a ratio for each age) that reflect a gradual improvement to life expectancy;
 - All people in the specific age group are subject to mortality; and
 - The model assumes the same mortality rate for people 85 years of age and older.
- Net Migration:
 - 0.5% net migration applied to the on-reserve population;
 - The number of net migrants on-reserve is subtracted from the off-reserve population at each age level and by sex;
 - In the model, migration effects are not applied to age cohorts over 60 years of age³; and
 - Migration effects do not apply to newborn babies since their migration effects are captured by their mother.

Population projections should be interpreted with some caution and it is unlikely that the exact population predicted would result.

¹ As noted previously, 2008 was used for the KCNs projections as this is the year of most recent data available from Aboriginal Affairs and Northern Development Canada.

² Sex ratio: the ratio of males to females in a given population, expressed as the number of males per 100 females. Per Statistics Canada, the sex ratio for Canada for 0-14 year age group equals 105:100.

³ It is recognized that out-migration could occur for health related reasons since on-reserve facilities and services are often inadequate for certain chronic diseases. However, given the small size of the over 60 age cohort, out-migration numbers are likely too small to make a statistical difference in the model.

4.2.1.3 Gillam: Projected Population

The population of Gillam today continues to be primarily linked to the availability of employment with Manitoba Hydro and associated available housing. The current housing stock in Gillam (described in detail in Section 4.3.2.2) limits the overall ability of the community to grow according to a natural increase, as estimated with traditional population projection models. Upon retirement, most Manitoba Hydro employees migrate out of the community because they no longer qualify for Manitoba Hydro housing; this affects the overall structure of the population. In addition, the Manitoba Hydro workforce in Gillam experiences regular turnover, so that, while the total population of the community remains fairly stable, the actual people resident in the community are in flux. As such, cohort component population models such as the one applied to the KCNs communities do not apply to Gillam. An approach based on the connection between population and the number of Manitoba Hydro employees in the community was more appropriate.

In addition to Manitoba Hydro employees, Gillam is home to FLCN Members who reside both on- and off-reserve. As current estimates of the size of this population are uncertain, projections could not be developed for this portion of the population. It is likely that overall population trends for FLCN Members residing in Gillam would be similar to that of the general FLCN population.

Over the next five to ten years, Manitoba Hydro's northern operations based in Gillam are planning for growth. This is due in part to the addition of the Wuskwatim Generating Station, which requires technical support positions based in Gillam. Increases in employment are also anticipated related to work at the Kettle, Long Spruce and Limestone generating stations. These positions are based in Gillam, with employees commuting to their respective work sites on a daily basis. The proposed Keewatinooow Converter Station (as part of the Bipole III Transmission Project) and the potential Conawapa Generation Project (a future project within Manitoba Hydro's ten-year planning horizon) could also add to the Manitoba Hydro operations workforce in Gillam in the future. Growth in Manitoba Hydro's northern technical services department and in Gillam Services is expected in relation to current and planned growth within Manitoba Hydro's system.

4.2.1.4 Thompson: Projected Population

Scenarios were developed to examine the potential future population of Thompson prior to and during the development of the Project. This approach was adopted because the cohort-component approach based on birth rates and mortality rates was unlikely to produce meaningful results for the following reasons:

- Thompson's population has fluctuated with the cyclical nature of the mining industry;
- More recently, the economy has started to diversify resulting in additional economic drivers for the community. While the Vale operations continue to be the prime economic driver of Thompson's economy and population, this role currently is not as great as it has been in the past; and

- In-migration and out-migration of workers, students and others from outlying northern communities and the south, appear to have as great an effect, if not a greater effect, on the overall population than birth and mortality rates.

As described in Section 3.3, the Thompson economy has been strongly linked to the mining sector throughout most of its history. Over the last fifteen years, the economy has started to diversify, although mining still ranks as the top economic activity. With the increase in government services, post-secondary education (particularly University College of the North) and health care services and facilities, the population of Thompson has also started to diversify with a wider range of factors affecting population change.

Using an analysis of the known and potential drivers of change, two scenarios for the future of Thompson's economy were produced (more complete analysis is attached in Appendix 4C). The two economic scenarios examined were as follows:

- A low growth scenario which maintains growth in the community but at a noticeably lower rate than occurred from 2007 to 2010; and
- A suppressed economy scenario similar to stable and sometimes negative growth experienced from 1981 to 2006 (see Section 4.3.1.4 for further details).

4.2.1.5 Project-Related Population Changes

The final step in understanding population effects in the Local Study Area relates to Project construction (Section 4.4.1.1) and Project operation (Section 4.4.2.1), since both may result in population change in the area. The effects on population are considerably different between the Project phases. During the construction phase, employment opportunities are short-term in nature and workers are expected to be accommodated by the Project construction camps. While construction workers would be likely to visit communities in the Local Study Area during their term working on the Project, these would largely be short-term visits to communities during leisure time as opposed to relocation to communities to establish residences. The factors that were considered in arriving at this conclusion included:

- The lack of available housing in communities;
- The work rotation schedule;
- The nature of hiring preferences for KCNs Members; and
- The potential for out-migration associated with Project employment.

Uncertainties in predicting construction-related population effects resulting from Project construction arise primarily from the difficulty in estimating migration behaviour. While there is potential for individuals to relocate to a community in the Local Study Area to better access employment opportunities, the decision by an individual and/or family to move ultimately involves an array of factors, of which economic opportunities are but one element.

Operation phase employment would result in the creation of permanent jobs that would be located in Gillam. These employment estimates include the number of positions required to operate and support

the Project, (some of which may be filled locally), and the potential for other professional positions to be created in response to the overall growth of the Gillam community.

Changes to the population resulting from the Project would be expected only to occur within the Local Study Area communities. Beyond the communities in the Local Study Area, communities in the Regional Study Area would be unlikely to see material population changes resulting from the Project. As such, these effects are not carried through to the assessment.

4.2.2 Housing, Infrastructure and Services

Effects on housing, infrastructure and services were considered by following the pathway of effects associated with Project activities. The analysis considered the drivers of change within the Local Study Area, including the characteristics of the environmental setting and planned changes within communities, both with and without the Project. The existing conditions in the Local Study Area communities were determined through community-based KPI programs, along with document and website searches. A key component of the KPI programs included collecting information about current conditions and available capacity of housing, infrastructure and services today. Trends and plans that are in place for the future without the Project were also considered where information was available.

The effects assessment looked at predicted Project effects on housing, infrastructure and services in the Local Study Area during both the construction and operation phases based on key drivers as outlined below.

4.2.2.1 Construction Phase

During construction, the key driver of change related to housing (including temporary accommodations) in Local Study Area communities would be demand created by the population seeking or engaging in Project employment. During construction, Project workers, including Manitoba Hydro employees, would be housed in construction camps near the Project site, although communities in the Local Study Area may experience some population change as result of activities related to the Project. Construction workers may also choose to visit communities within the Local Study Area during their time off, resulting in potential short-term effects on housing and/or temporary accommodations. The effects on housing and temporary accommodations were examined based on information obtained through KPIs and predicted population growth.

Changes affecting infrastructure and services in the Local Study Area communities were anticipated to include the following:

- Changes in population resulting from the Project;
- Employment and associated increased income related to the Project;
- Proximity to the Project;
- Access to transportation;
- Type of time off (evening off vs. day off vs. end of shift rotation); and

- The availability of leisure-time activities at the construction camps and within the communities including bars, liquor vendors, hotels, restaurants, shopping and recreation.

Potential Project effects on transportation infrastructure and services in the Local Study Area were also examined due to the potential pathway of effect from an increased use of rail, air and road networks related to the transport of people, equipment and material to the Project site.

The extent to which these sources of effect would be felt in any given community may vary; changes could be negligible in some cases or well within the capacity of the infrastructure or service. In other cases, adverse effects were identified and these effects and mitigation measures are discussed in greater detail. The effects on infrastructure and services in the Local Study Area (including transportation) were examined based on information obtained through KPIs.

Effects on the Regional Study Area focused on the transportation pathway of effect due to predicted increased use of Provincial Trunk Highway (PTH) 6 for transportation of equipment, materials and personnel to the Project site; and increased use of northern road networks by potential northern Manitoba construction workers driving to the site.

4.2.2.2 Operation Phase

Effects on housing in the Local Study Area during the operation phase would be driven primarily by increases in the population as a result of the Project's operation phase employment opportunities. Project operation staff would be housed in Gillam; hence, it is anticipated this would be the community to incur a measurable effect on housing¹.

The capacity of infrastructure and services in Gillam (*e.g.*, housing, education facilities, day care, health services, recreation facilities and services, and emergency services) to accommodate a growth in new population were examined and compared to potential in-migration for operation jobs.

Assessing the effects of an increased population on infrastructure and services in Gillam consisted of two primary steps:

- Estimating potential Project-related population change in Gillam, including the structure of the population where possible (*e.g.*, age and family structure); and
- Examining the implications of providing infrastructure and services for an expanded population that may include an increased FLCN population residing in Gillam.

Project effects for the operation phase were examined based on information obtained through KPIs (Gillam and FLCN) and workshops with FLCN; particularly focused on known capacity concerns of both FLCN and Gillam.

¹ Operation phase job targets for the KCNs communities are Manitoba Hydro system-wide and are not tied specifically to Gillam or Project operations.

Operation effects on housing, infrastructure and services in Thompson and the Regional Study Area are expected to be minimal in comparison to those in Gillam. As such, limited analysis on Thompson and the Regional Study Area was undertaken.

The next section describes the present population, as well as the state of housing, infrastructure, facilities and services available in the KCNs communities, the Town of Gillam and the City of Thompson. The Regional Study Area is described in terms of population and transportation infrastructure.

4.3 ENVIRONMENTAL SETTING

The population size and scope of infrastructure and services vary among the six communities in the Local Study Area. This section discusses the existing population, infrastructure and services in communities in the Local Study Area (including land), as well as the population and transportation infrastructure in the Regional Study Area. The infrastructure and services discussed in this section include the following: housing; public infrastructure (*e.g.*, potable water treatment facilities, waste handling facilities, roads, airports, rail, electricity and communications); public facilities (*e.g.*, schools, health centres and recreation facilities); and public services (such as education, health care, recreation, day care, social and other government services).

Each of the KCNs provides housing, infrastructure and a variety of facilities and services to Members living on-reserve. Federal and Provincial governments are also involved in providing direct service (*e.g.*, health care) and funding (*e.g.*, for housing). In Gillam, Manitoba Hydro provides housing for its employees and contributes to a range of facilities and services in the Town; FLCN also has a role to play in serving its Members in Gillam. In the regional centre of Thompson, public facilities and services are provided by the municipality, school division, regional health authority, Provincial government and Federal Government. Market housing makes up the vast majority of the available supply; some public housing is also present.

The present state of housing, infrastructure and services is examined from the perspective of their capacity to handle a potential increase in population associated with the Project. If the population in a community does increase as a result of people returning home, this could strain housing, infrastructure and services. For example, if a community already lacks suitable housing or a particular piece of infrastructure is already at or beyond its capacity, the community will not have the capacity to absorb further population growth if people choose to return to their home community for work on the Project.

Some communities in the Local Study Area, such as Thompson and Gillam, offer a broad range of facilities and services to their population. The City of Thompson is the regional centre for northern Manitoba and the Town of Gillam is largely a resource-based town serving the needs of Manitoba Hydro as a base of operations for its northern hydroelectric system, as well as being the historical and present day home for many FLCN Members. All the KCNs community Members access facilities and services in Thompson, and some make use of facilities and services in Gillam. Gillam includes a new FLCN urban reserve called A Kwis Ki Mahka (approved in 2009).

Four First Nation communities found in the Local Study Area are as follows (see Map 1-1 Socio-Economic Local Study Area).

Tataskweyak Cree Nation

Members of TCN live on-reserve in the community of Split Lake, as well as off-reserve in Thompson, Winnipeg and other locations. Split Lake is accessible year-round from Provincial Road (PR) 280. The community is located on the shores of Split Lake and is the largest First Nation community in the Local Study Area. Chief and Council are responsible for delivery of services and programs on-reserve. TCN exercises its traditional rights, interests and pursuits mainly in the Split Lake Resource Management Area (SLRMA) and appoints Members to the Split Lake Resource Management Board. The SLRMA was established under the 1992 Northern Flood Implementation Agreement and the resource management board includes both community and provincial appointees.

War Lake First Nation

Members of WLFN live on-reserve at the Moosecoot 1 Indian Reserve adjacent to the community of Ilford. A number of their Members live on adjacent Crown land that is planned to be transferred as Reserve land (CNP 2010f). Some band Members also live in Thompson, Winnipeg and other locations. Ilford is accessible year-round by a Canadian National Railway railway and in the winter via the winter road to York Landing (*Kawechiwasiik*) and Split Lake. WLFN is responsible for delivering social services to its Members living in the community. For its pursuit of traditional activities, WLFN Members make use of the southern part of the SLRMA.

Fox Lake Cree Nation

Members of FLCN live on the Fox Lake (Bird) Reserve 51 km north of Gillam, on the A Kwis Ki Mahka Reserve and in other areas in Gillam. FLCN also has off-reserve Members living in Thompson, Winnipeg and other locations. Fox Lake (Bird) is accessible year-round via Provincial Road (PR) 290. FLCN Members rely on the Town of Gillam to support many of their key infrastructure and service needs. The FLCN Resource Management Area (RMA) is located adjacent to the SLRMA (outside of the Local Study Area) in the Regional Study Area. FLCN exercise their traditional rights, interests and pursuits primarily in this area.

York Factory First Nation

Members of YFFN live on-reserve in the community of York Landing (*Kawechiwasiik*) on Split Lake at the juncture of the Aiken River, and off-reserve in Churchill, Thompson, Winnipeg and other locations. York Landing (*Kawechiwasiik*) is accessible in summer by ferry to Split Lake, which is accessible by all-weather road. Similar to WLFN, York Landing (*Kawechiwasiik*) is accessible in winter via a winter road. York Landing (*Kawechiwasiik*)'s only access for up to 16 weeks during annual fall freeze-up and spring break-up is by air and is weather dependent. Infrastructure and services at York Landing (*Kawechiwasiik*) are managed by the First Nation government. YFFN Members have a small RMA surrounding the community on Split Lake and a much larger RMA on the Hudson Bay coast where they primarily exercise their traditional rights, interests and pursuits.

Analysis of present and future population without the Project helps to understand future capacity with respect to housing, infrastructure, health care, education and a variety of other community facilities and services. The following sections characterize the current and projected future populations for the KCNs

communities, Gillam and Thompson. The sections also examine the available and projected capacity of the land base, housing, facilities, infrastructure and services available to serve those populations. To begin, Section 4.3.1 describes the current population in the Local Study Area, including the KCNs communities, the Town of Gillam and the City of Thompson.

4.3.1 Population/Migration – Local Study Area

In the Local Study Area, a range of factors influence the size and composition of the current population and the way that the population is projected to change in the future. Projected population without the Project is discussed in Section 4.3.1.2 for the KCNs, Section 4.3.1.3 for Gillam and Section 4.3.1.4 for Thompson. In many KCNs communities, the overall availability of housing is often a limiting factor in determining the total on-reserve population. In contrast, economic growth scenarios in Thompson and changes in Manitoba Hydro's workforce in Gillam are the most important factors influencing population in those two communities. As such, different approaches were taken to reflect the current circumstances and the major factors influencing the future population of each of the KCNs communities, Gillam and Thompson.

The first step in each of the approaches consisted of establishing the current population, for which a process of triangulation using multiple data sources was employed. For the purposes of the SEIA, 2006 was considered as the baseline year in order to complement data available from the 2006 Census of Canada, which is the most recent census year that provides a full range of data for the communities in the Local Study Area at the time of the EIS preparation. Other literature or data sources support the historic, current and projected populations where available, including data collected through the community-based KPI programs. Additional tables pertaining to population can be found in Appendix 4B.

In the following sections, the approaches to determining population projections are described in relation to each community.

4.3.1.1 Keeyask Cree Nations Existing Population

As summarized in Table 4-1, the KCNs' Member population in 2006 both on- and off-reserve was approximately 5,350 (INAC 2006a, 2006b, 2006c, 2006d). About 43% of the KCNs population lived off-reserve, with a large proportion of these individuals residing in other communities in northern Manitoba, such as Thompson, Gillam and Churchill. TCN, the largest of the KCNs communities, had a total population of approximately 3,000, while WLFN was the smallest with an approximate total population of 235. YFFN's approximate population was 1,060, while that of FLCN was 1,010. Each of the KCNs' respective populations is discussed in further detail below and in Appendix 4B.

Table 4-1: Keeyask Cree Nations Population (2006)

Source	Location of Population Covered	2006 Population
Statistics Canada ^{1,2,3,4}	KCNs Communities	2,454
Indian and Northern Affairs Canada ^{5,6,7}	Entire First Nations	5,346
	On-Reserve and Crown Land	3,019
	Off-Reserve	2,327
Health Canada ^{8,9,10}	Entire First Nations	5,258
	On-Reserve and Crown Land	3,006
	Off-Reserve	2,252

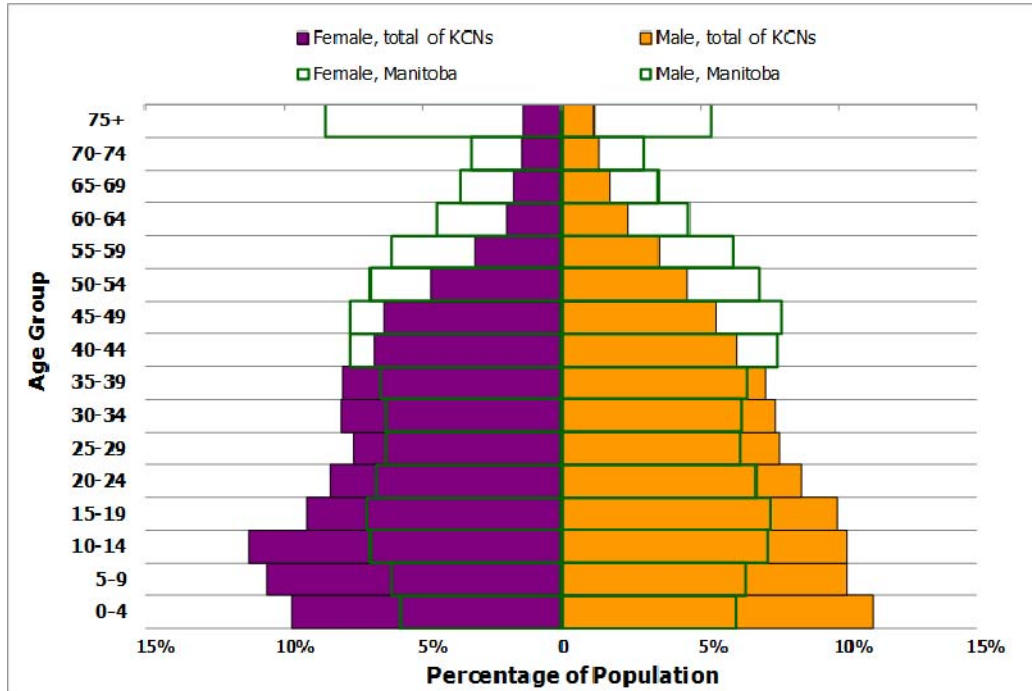
Sources: Statistics Canada 2007a, 2008; INAC 2006a, 2006b, 2006c, 2006d; Health Canada 2006.

Notes:

1. Statistics Canada refers to the KCNs communities as Split Lake 171, Ilford, York Landing, and Bird/Fox Lake 2, respectively.
2. Statistics Canada data represent the population during the Census of Canada on May 16, 2006.
3. Statistics Canada data are subject to random rounding procedure; population totals and individual cells are rounded.
4. Statistics Canada population total calculated by InterGroup Consultants.
5. INAC refers to the KCNs communities as Tataskweyak Cree Nation, War Lake First Nation, York Factory First Nation, and Fox Lake Cree Nation, respectively.
6. INAC data represent the population as of December 31, 2006.
7. INAC population totals calculated by InterGroup Consultants.
8. Health Canada refers to the KCNs communities as Tataskweyak (Split Lake), War Lake, York Factory, and Fox Lake, respectively.
9. Health Canada data represent the population as of June 2006.
10. Health Canada population totals calculated by InterGroup Consultants.

The KCNs' population is young (a large proportion of the overall population is under 25 years old), and reflects the overall trend in the Aboriginal population of growth at rates as high as four times greater than the non-Aboriginal population in Canada (CMHC 2008; Steffler, 2008). This will likely be influenced by recent amendments to the *Indian Act* (the Act) in accordance to the British Columbia Court of Appeal McIvor decision of 2009. The amendment to the Act will provide status to children who lost their status as a result of their grandmother marrying a non-Indian (INAC 2010).

Figure 4-1 demonstrates how the 2006 KCNs population was structured differently than the population of the Province of Manitoba as a whole. While Manitoba's age structure was fairly evenly distributed with slight increases in the 40-50 year old categories, over 41% of the KCNs' population were in age categories under the age of 20. This pattern of population distribution indicates that the Aboriginal population will continue to grow at well above the rate of the provincial population for the foreseeable future. It is also indicative of a sizeable rate of growth in the number of young people who will be entering the labour force and looking for jobs in the near future.



Sources: Manitoba Health 2006; INAC 2006a, 2006b, 2006c, 2006d.

Notes:

- INAC refers to the communities as Tataskweyak Cree Nation, War Lake First Nation, Fox Lake Cree Nation and York Factory First Nation.
- The data are based on a 2006 base year.
- INAC data represent the population as of December 31, 2006.
- Manitoba Health data represent the population as of June 1, 2006.
- 75+ population range of KCNs refers to age groups 75-79, 80-84 and 85 years or older in INAC data.

Figure 4-1: Age and Gender Population Distribution of Keeyask Cree Nations (On- and Off-Reserve) versus Manitoba Population (2006)

4.3.1.1.1 Cree Nation Partners

TATASKWEYAK CREE NATION

The TCN people have lived for centuries in their ancestral homeland in northern Manitoba, with the north shore of Split Lake at the heart of their “homeland ecosystem” where many families of TCN ancestry gathered for thousands of years (Split Lake Cree – Manitoba Hydro Joint Study Group 1996a; CNP 2010c). TCN’s traditional homeland is relatively consistent with, but not confined to, the Split Lake RMA and Registered Trapline (RTL) block (CNP 2010c). TCN, unlike their coastal ancestors, integrated into the European fur trade more slowly, and in 1886, more than 200 years after the Hudson Bay post at York Factory opened, a post was erected at Split Lake followed by a permanent church built by the Anglican missionaries in 1906.

In the early 1900s, TCN had a population of approximately 250 Members residing at Split Lake and Recluse Lake, with TCN Members also using seasonal out-camps at Assean, Waskaiowaka and Billard Lakes to the north and Atkinson Lake to the southeast. In the early half of the twentieth century, the out-

camp were slowly abandoned as the community came to settle in Split Lake. By the late 1960s, the population had grown to 370 people, and by the 1970s, the population had grown to close to 800 people (Split Lake Cree – Manitoba Hydro Joint Study Group, 1996a). As Table 4-2 demonstrates, TCN had a population of approximately 3,000 people in 2006, with approximately 72% of the population living on-reserve and on Crown Land.

Table 4-2: Tataskweyak Cree Nation Population (2006)

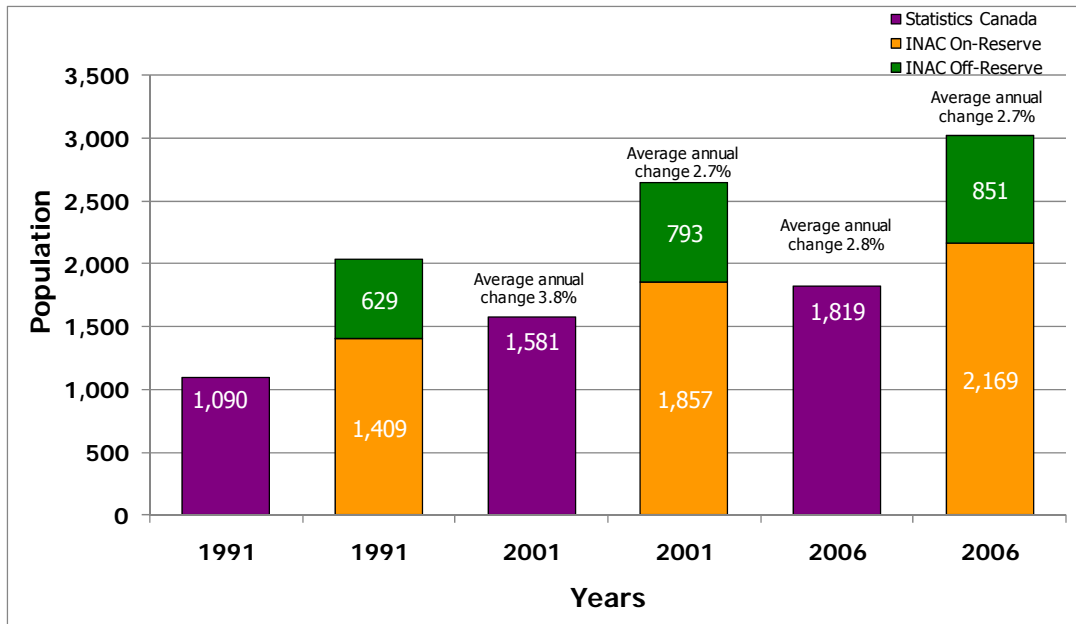
Source	Location of Population Covered	2006 Population
Statistics Canada ^{1,2,3}	Community of Split Lake	1,819
Indian and Northern Affairs Canada ^{4,5}	Entire First Nation	3,020
	On-Reserve and Crown Land	2,169
	Off-Reserve	851
Health Canada ^{6,7}	Entire First Nation	2,969
	On-Reserve and Crown Land	2,131
	Off-Reserve	838

Sources: Statistics Canada 2007a, 2008c; INAC 2006a; Health Canada 2006.

Notes:

1. Statistics Canada refers to TCN as Split Lake 171.
2. Statistics Canada data represent the population during the Census of Canada on May 16, 2006.
3. Statistics Canada data are subject to random rounding procedure; population totals and individual cells are rounded.
4. INAC refers to TCN as Tataskweyak Cree Nation.
5. INAC data represent the population as of December 31, 2006.
6. Health Canada data represent the population as of June 2006.
7. Health Canada refers to TCN as Tataskweyak (Split Lake).

Figure 4-2 demonstrates that TCN's population continues to grow both on- and off-reserve, with the on-reserve population growing at a slightly higher average annual rate compared to the off-reserve population. Similar to other First Nations in northern Manitoba, over 44% of the 2006 population of TCN was under the age of 20 years old (see Figure 4-3).

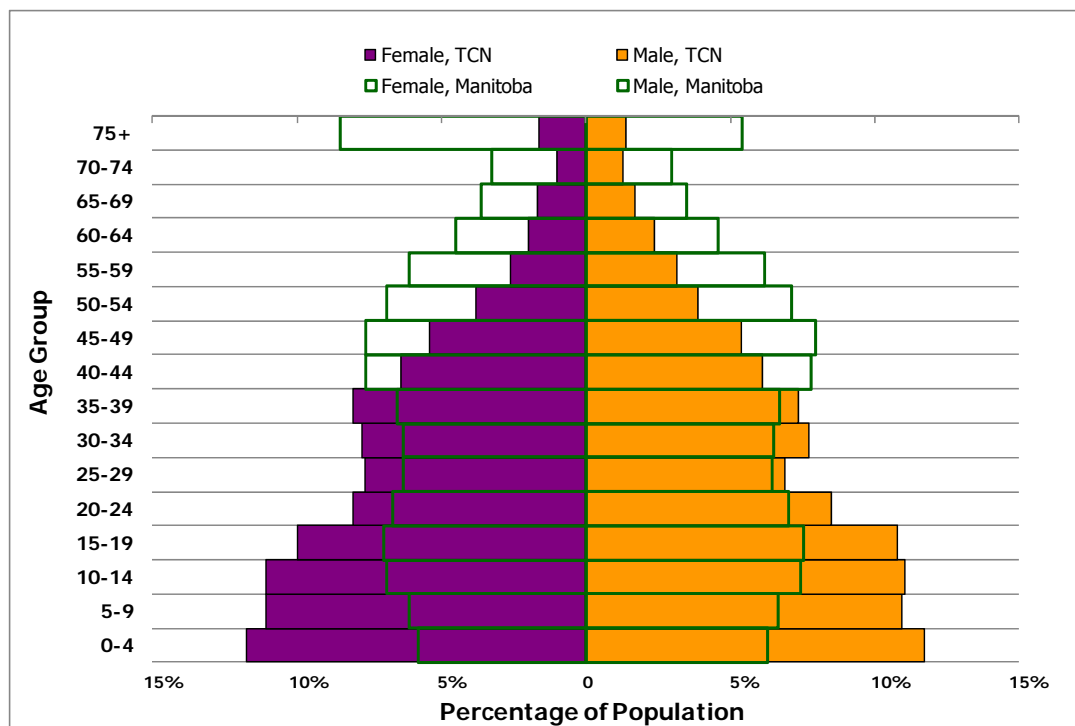


Sources: Statistics Canada 1992, 2002, 2007a; INAC 1991a, 2001a, 2006a.

Notes:

- Statistics Canada refers to TCN as Members living on Split Lake Reserve 171.
- Statistics Canada data represent the population during the Census of Canada on June 4, 1991, May 15, 2001 and May 16, 2006.
- Statistics Canada data are subject to random rounding procedure; population totals and individual cells are rounded.
- Average annual population change was calculated by InterGroup Consultants based on Statistics Canada data.
- INAC refers to TCN as Tataskweyak Cree Nation.
- INAC data represent the population as of December 31, 1991, 2001 and 2006.
- Average annual population change was calculated by InterGroup Consultants based on INAC data.

Figure 4-2: Change in Tataskweyak Cree Nation Population (1991, 2001, 2006)



Sources: Manitoba Health 2006; INAC 2006a.

Notes:

- INAC refers to Split Lake as Tataskweyak Cree Nation.
- INAC data represent the population as of December 31, 2006.
- Manitoba Health data represent the population as of June 1, 2006.
- 75+ population range of TCN refers to age groups 75-79, 80-84 and 85 years or older in INAC data.

Figure 4-3: Age and Gender Population Distribution of Tataskweyak Cree Nation versus Manitoba (2006)

TCN’s current population, as per May 2012 AANDC data is 3,508 Members, with 2,216 (63.2%) living on-reserve (primarily at Split Lake), and 1,292 living off-reserve (including on other First Nation reserves and Crown land) (AANDC 2012).

WAR LAKE FIRST NATION

WLFN has had a timeless presence on the lands of the Hudson Bay Lowlands and northeastern Manitoba. WLFN was formed as a separate band in 1980 establishing their Reserve at the community of Ilford on the Hudson Bay Railway Line. Most Members who joined the WLFN were TCN Members living in and around the Ilford area. From 1917 until the late 1970s, Ilford was a booming economic and supply point and Hudson Bay Railway service centre until the economic collapse in the 1980s when Thompson became the Hub of the North. The reserve lands in Ilford were acquired as part of the community’s TLE selection in 1992. As such, the historical population of WLFN was also closely linked

to the community of Ilford¹. Table 4-3 demonstrates that the 2006 population of WLFN was approximately 230 people, with over 46% living off-reserve.

Table 4-3: War Lake First Nation Population (2006)

Source	Location of Population Covered	2006 Population
Statistics Canada ^{1,2,3}	Community of Ilford	115
	Entire First Nation	235
Indian and Northern Affairs Canada ^{4,5}	On-Reserve and Crown Land	125
	Off-Reserve	110
	Entire First Nation	231
Health Canada ^{6,7}	On-Reserve and Crown Land	124
	Off-Reserve	107

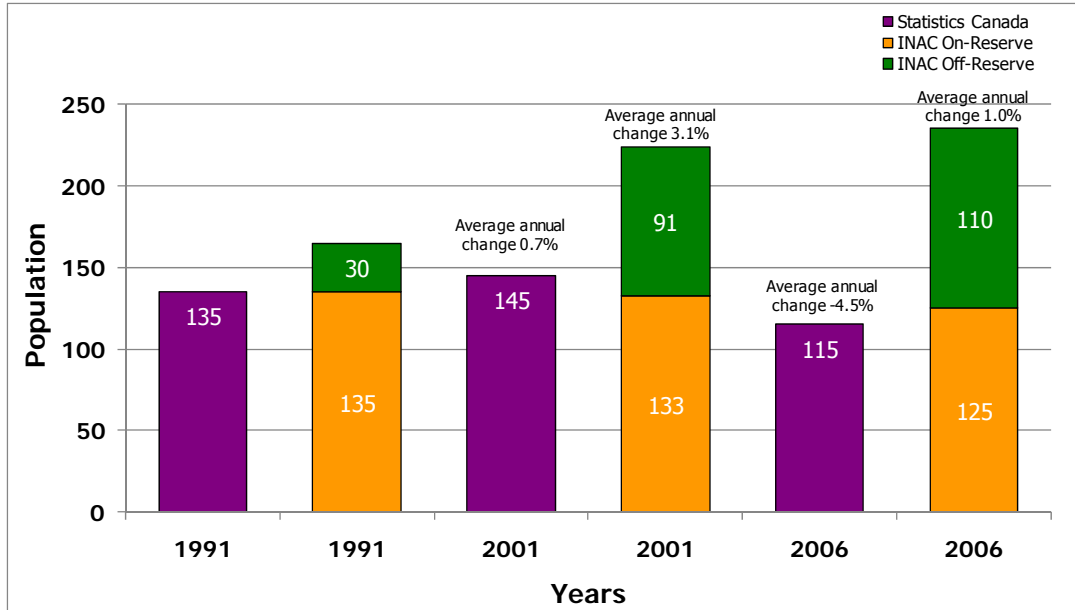
Sources: Statistics Canada 2007a; INAC 2006b; Health Canada 2006.

Notes:

1. Statistics Canada refers to WLFN as Ilford.
2. Statistics Canada data represent the population during the Census of Canada on May 16, 2006.
3. Statistics Canada data are subject to random rounding procedure; population totals and individual cells are rounded.
4. INAC refers to WLFN as War Lake First Nation.
5. INAC data represent the population as of December 31, 2006.
6. Health Canada refers to WLFN as War Lake.
7. Health Canada data represent the population as of June 2006.

Figure 4-4 shows that the community of Ilford and WLFN's on-reserve population have gradually decreased (between -1.2% and -4.5% annually), while the off-reserve population continues to grow. Similar to other First Nations in northern Manitoba, almost 40% of the 2006 WLFN population was under the age of 20 years old (see Figure 4-5).

¹ Statistics Canada does not distinguish the population of WLFN, rather it designates Ilford as an "Indian Settlement".

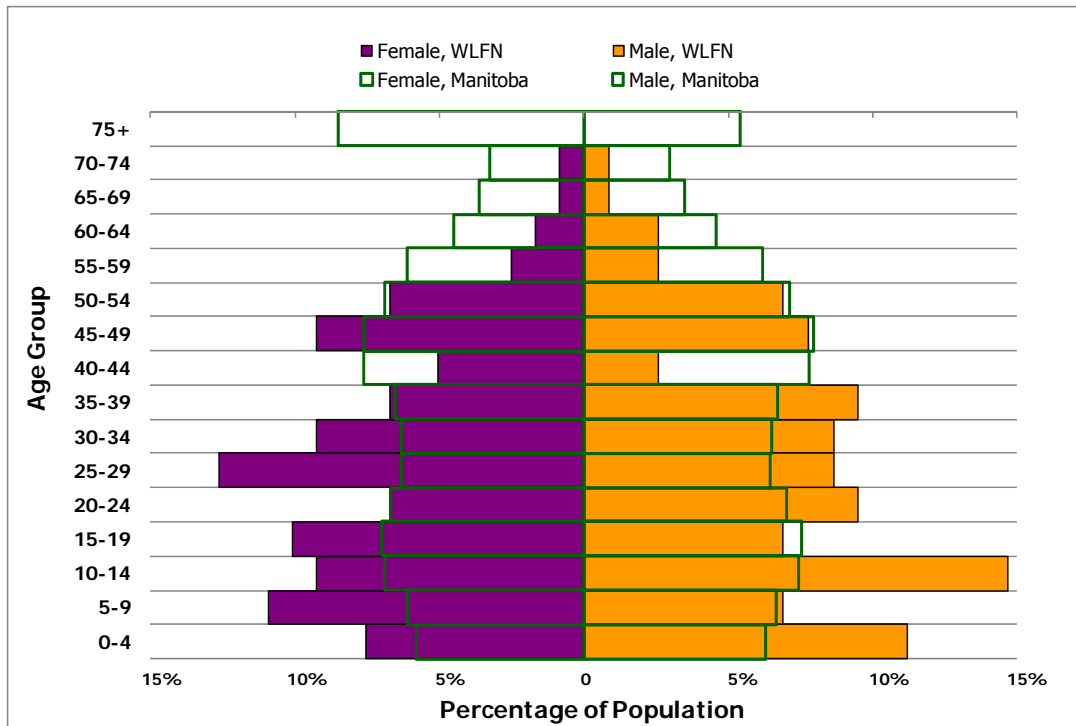


Sources: Statistics Canada 1992, 2002, 2007a; INAC 199b, 2001b, 2006b.

Notes:

- Statistics Canada refers to WLFN as Ilford.
- Statistics Canada data represent the population during the Census of Canada on June 4, 1991, May 15, 2001 and May 16, 2006.
- Statistics Canada data are subject to random rounding procedure; population totals and individual cells are rounded.
- Average annual population change was calculated by InterGroup Consultants based on Statistics Canada data.
- INAC refers to WLFN as War Lake First Nation.
- INAC data represent the population as of December 31, 1991, 2001 and 2006.
- Average annual population change was calculated by InterGroup Consultants based on INAC data.

Figure 4-4: Change in War Lake First Nation Population (1991, 2001, 2006)



Source: Manitoba Health 2006, INAC 2006b.

Notes:

- INAC refers to War Lake as War Lake First Nation.
- INAC data represent the population as of December 31, 2006.
- Manitoba Health data represent the population as of June 1, 2006.
- 75+ population range of WLFN refers to age groups 75-79, 80-84 and 85 years or older in INAC data.

Figure 4-5: Age and Gender Population Distribution of War Lake First Nation versus Manitoba (2006)

Based on May 2012 AANDC data, WLFN had a total population of 284, with 94 (33%) Members living on-reserve (primarily at Ilford) and 190 living off-reserve (including on other First Nation reserves and on Crown land). There are approximately 29 Members living on Crown land (likely in Ilford) (AANDC 2012). Population information from the community supports the overall trend of a steady decline in Members living on-reserve and growth in the number of Members living off-reserve. Off-reserve Members live primarily in Thompson and Winnipeg, with a small number in Gillam and other northern Manitoba communities. Out-migration from the community occurs primarily by young adult Members seeking training and education opportunities that are not available within the community (CNP 2010f).

4.3.1.1.2 Fox Lake Cree Nation

The area traditionally inhabited by FLCN was considerable and centered on the Nelson River system and its tributaries. Before the railway to Churchill was completed, Gillam had earned the Cree name *Kaquayskimukkakab* or ‘the place where trains turned around’. With the closure of York Factory, many FLCN families settled in Gillam and other encampments in proximity to the rail line, which offered convenient access from the coast to other northern communities inland (FLCN 2009a Draft).

As noted in Section 2.2.3.2, adhesions to membership between the 1970s and 1990s have resulted in meaningful increases to FLCN's population. For example, the population more than doubled between 1985 and 1995 (from 399 to 815 Members), of which two-thirds resulted from adhesions. "This re-claiming of membership can most fairly be seen as an assertion of natural affinity and closest kinship to the Fox Lake First Nation" (FLCN 1997).

As Table 4-4 demonstrates, FLCN's population was approximately 1,020 people in 2006, with just over 270 living on-reserve or on Crown land at Fox Lake (Bird), and over 73% of the community living off-reserve (INAC 2006c). Members living off-reserve were located in communities across Manitoba (FLCN KPI Program 2009-2011). Figure 4-6 indicates that population growth rates off-reserve were higher than those on-reserve, which may in part be due to the lack of on-reserve housing restricting growth, and the choice of some Members to live in Gillam. Similar to other First Nations in northern Manitoba, over 36% of the 2006 FLCN population was under the age of 20 years old (see Figure 4-7).

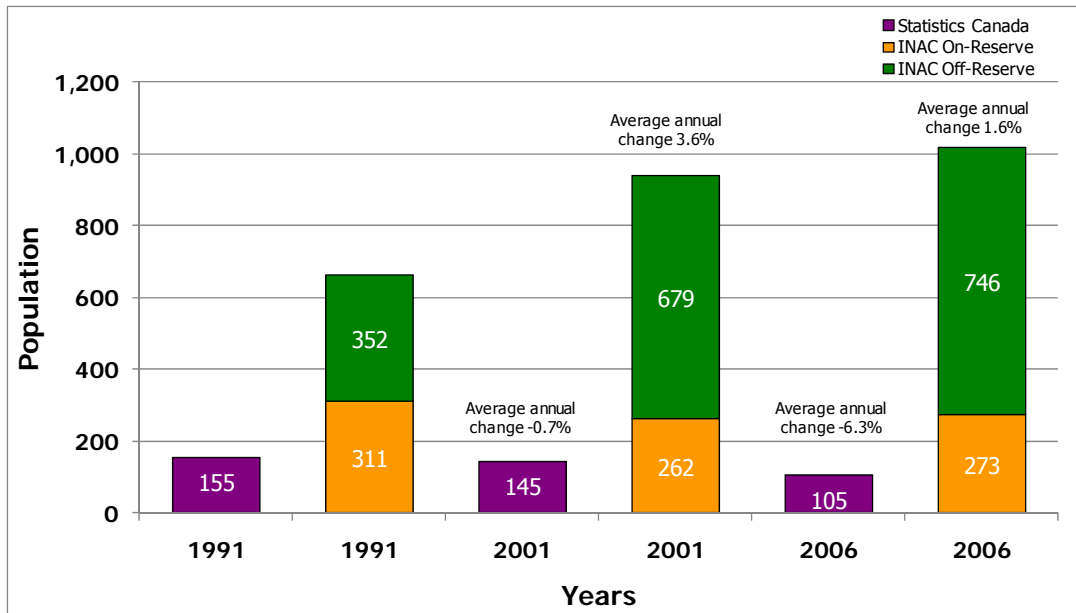
Table 4-4: Fox Lake Cree Nation Population (2006)

Source	Location of Population Covered	2006 Population
Statistics Canada ^{1,2,3}	Community of Bird	105
Indian and Northern Affairs Canada ^{4,5}	Entire First Nation	1,019
	On-Reserve and Crown Land	273
	Off-Reserve	746
Health Canada ^{6,7}	Entire First Nation	1,005
	On-Reserve and Crown Land	271
	Off-Reserve	734

Sources Statistics Canada 2007a; INAC 2006c; Health Canada 2006.

Notes:

1. Statistics Canada refers to FLCN as Bird/Fox Lake 2.
2. Statistics Canada data represent the population during the Census of Canada on May 16, 2006.
3. Statistics Canada data are subject to random rounding procedure; population totals and individual cells are rounded.
4. INAC refers to FLCN as Fox Lake Cree Nation.
5. INAC data represent the population as of December 31, 2006.
6. Health Canada refers to FLCN as Fox Lake.
7. Health Canada data represent the population as of June 2006.

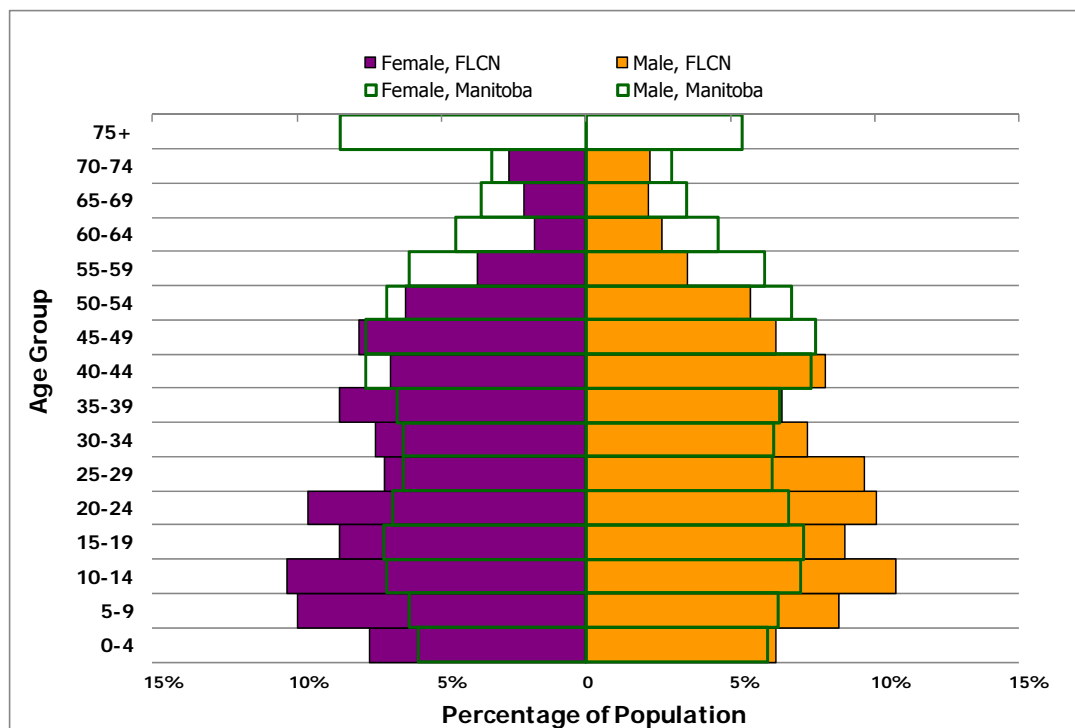


Sources: Statistics Canada 1992, 2002, 2007a; INAC 1991c, 2001c, 2006c.

Notes:

- Statistics Canada refers to FLCN as Bird/Fox Lake 2.
- Statistics Canada data represent the population during the Census of Canada on June 4, 1991, May 15, 2001 and May 16, 2006.
- Statistics Canada data are subject to random rounding procedure; population totals and individual cells are rounded.
- INAC refers to FLCN as Fox Lake Cree Nation.
- INAC data represent the population as of December 31, 1991, 2001 and 2006.
- Average annual population change was calculated by InterGroup Consultants based on INAC data.

Figure 4-6: Change in Fox Lake Cree Nation Population (1991, 2001, 2006)



Source: Manitoba Health 2006; INAC 2006c.

Notes:

- INAC refers to FLCN as Fox Lake First Nation.
- INAC data provided by INAC.
- INAC data represent the population as of December 31, 2006.
- Manitoba Health data represent the population as of June 1, 2006.
- FLCN population breakout by gender for age group 65-69 was prorated based on total population gender breakout.
- 70-74 population range of FLCN includes age groups 75-79, 80-84 and 85 years or older in INAC data.

Figure 4-7: Age and Gender Population Distribution of Fox Lake Cree Nation versus Manitoba (2006)

According to May 2012 AANDC data, FLCN currently has 1,115 Members, with 138 (12.4%) living on their own reserve and 977 Members living off-reserve (including Members located at other First Nation reserves and on own or non-Band Crown land) (AANDC 2012). FLCN indicated that approximately 265 Members were reported to live in Gillam in 2009 (FLCN KPI Program 2009-2011).

4.3.1.1.3 York Factory First Nation

The YFFN Cree have lived with, travelled along and relied on the waters of northern Manitoba since time immemorial. The homeland of YFFN lies along the Hudson Bay coast, where their settlements once stretched from Ontario to Churchill, and inland to Shamattawa and Gillam. The Hudson Bay post at York Factory opened in 1684 as the central hub in the North American fur trade. York Factory also became a social and economic centre for the Cree, who provided provisions to the fort and became middle-men in the region’s fur trade. When the post closed in 1957, YFFN Members were relocated nearly 200 km from their homeland to a small site on the south-east shore of Split Lake, which is now

known as York Landing (*Kawechiwasiik*). The community of York Landing (*Kawechiwasiik*) received reserve status in 1989 (KTC 2008; YFFN 2010).

As Table 4-5 demonstrates, the population of YFFN was approximately 1,070 in 2006, with about 450 living on-reserve at York Landing (INAC 2006d). Currently, and in the past, YFFN has a high proportion (approximately 56%) of Members living off-reserve, with the off-reserve Members living primarily in the communities of Thompson, Churchill, Winnipeg, Split Lake and elsewhere (YFFN KPI Program 2009-2010).

Table 4-5: York Factory First Nation Population (2006)

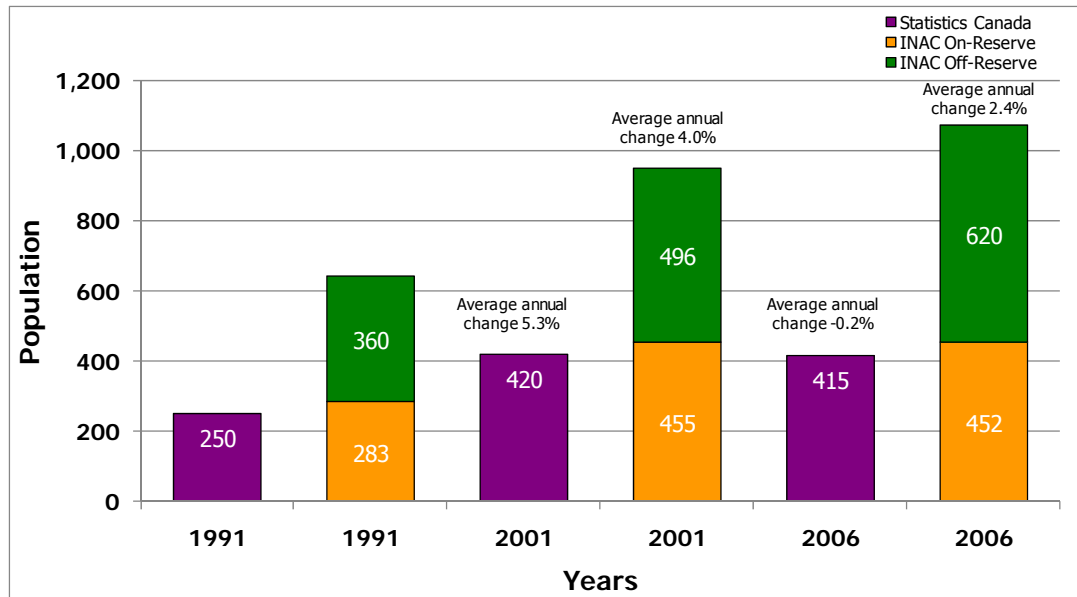
Source	Location of Population Covered	2006 Population
Statistics Canada ^{1,2,3}	Community of York Landing (<i>Kawechiwasiik</i>)	415
Indian and Northern Affairs Canada ^{4,5}	Entire First Nation	1,072
	On-Reserve and Crown Land	452
	Off-Reserve	620
Health Canada ^{6,7}	Entire First Nation	1,053
	On-Reserve and Crown Land	480
	Off-Reserve	573

Sources: Statistics Canada 2007a; INAC 2006d; Health Canada 2006.

Notes:

1. Statistics Canada refers to YFFN as York Landing.
2. Statistics Canada data represent the population during the Census of Canada on May 16, 2006.
3. Statistics Canada data are subject to random rounding procedure; population totals and individual cells are rounded.
4. INAC refers to YFFN as York Factory First Nation.
5. INAC data represent the population as of December 31, 2006.
6. Health Canada refers to YFFN as York Factory.
7. Health Canada data represent the population as of June 2006.

Figure 4-8 demonstrates that the overall population of YFFN has grown steadily since 1991, with a very slight decline in the on-reserve population between 2001 and 2006. Similar to other First Nations in northern Manitoba, almost 40% of the population is under the age of 20 years old (see Figure 4-9).

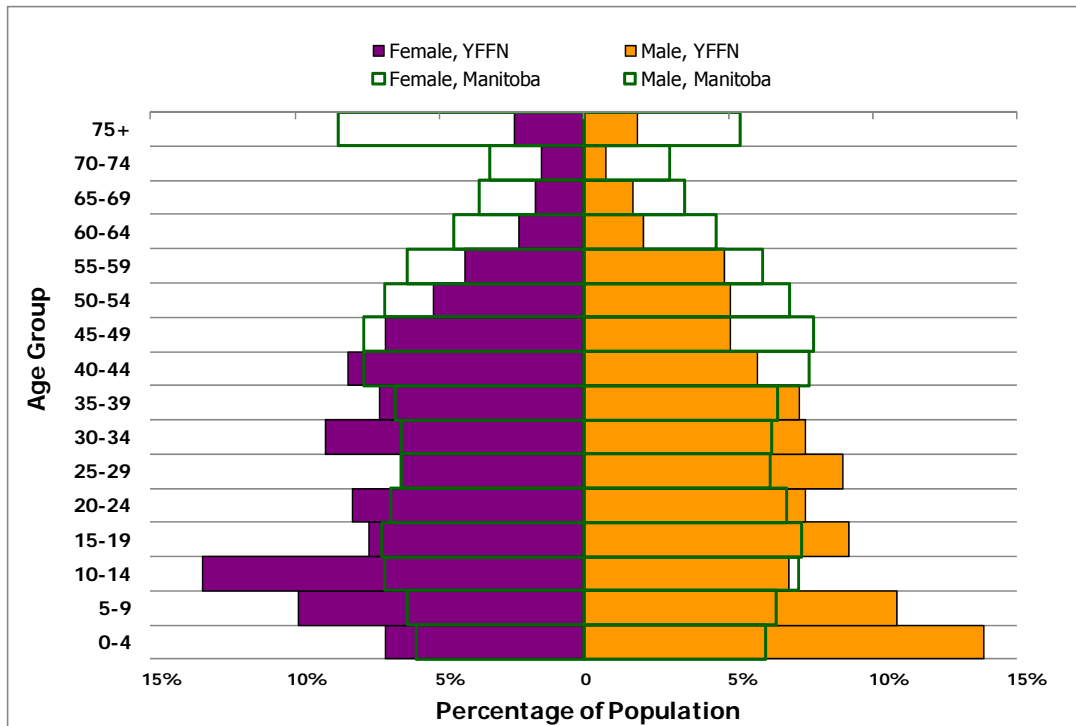


Sources: Statistics Canada 1992, 2002, 2007a; INAC 1991d, 2001d and 2006d.

Notes:

- Statistics Canada refers to YFFN as York Landing.
- Statistics Canada data represent the population during the Census of Canada on June 4, 1991, May 15, 2001 and May 16, 2006.
- Statistics Canada data are subject to random rounding procedure; population totals and individual cells are rounded.
- INAC refers to YFFN as York Factory First Nation.
- INAC data represent the population as of December 31, 1991, 2001 and 2006.
- Average annual population change was calculated by InterGroup Consultants based on INAC data.

Figure 4-8: Change in York Factory First Nation Population (1991, 2001, 2006)



Source: Manitoba Health 2006, INAC2006d.

Notes:

- INAC refers to YFFN as York Factory First Nation.
- INAC data represent the population as of December 31, 2006.
- Manitoba Health data represent the population as of June 1, 2006.
- 75+ population range of YFFN refers to age groups 75-79, 80-84 and 85 years or older in INAC data.

Figure 4-9: Age and Gender Population Distribution of York Factory First Nation versus Manitoba (2006)

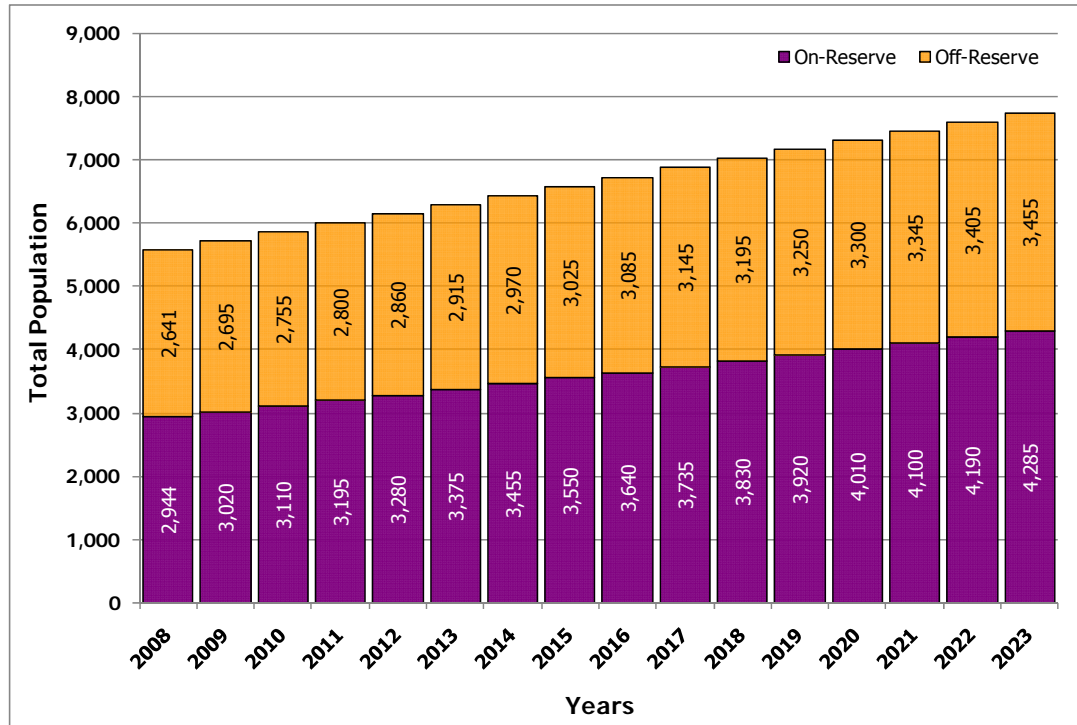
AANDC’s May 2012 population data show 796 YFFN Members living off-reserve (including on other First Nation reserves and Crown land) and 400 Members (33.4%) living on-reserve at York Landing (*Kawechinvasik*), for a total population of 1,196 (AANDC 2012). Membership information collected through the KPI program indicates that a sizeable number of off-reserve Members live in Thompson, Churchill and Winnipeg (YFFN KPI Program 2009-2010).

The population in York Landing (*Kawechinvasik*) exhibits mobility, with families moving in and out of the community on a fairly regular basis. Residents primarily leave the community to access education, training and employment opportunities as well as health services. People often return to the community due to the higher costs associated with living off-reserve, as well as a sense that it is easier to raise a family in their home community (YFFN KPI Program 2009-2010).

4.3.1.2 Keyask Cree Nations Projected Population

Population projections were developed for the KCNs up to 2023 to correspond with the period during which Project construction and the early years of normal operation would occur. For purposes of examining the existing environment, these projections estimate future population in the absence of

Project-related population effects. Figure 4-10 depicts the projected population from 2008 to 2023 for the medium-growth scenario for the KCNs. Under a medium-growth scenario¹, the population would increase by approximately 39% over 15 years, or 2.6% annually. The average annual growth rate on-reserve would be 3% and the average annual growth rate off-reserves would be 2.2%.



Source: Analysis prepared by InterGroup Consultants based on INAC First Nations Population Profiles 2008.

Notes:

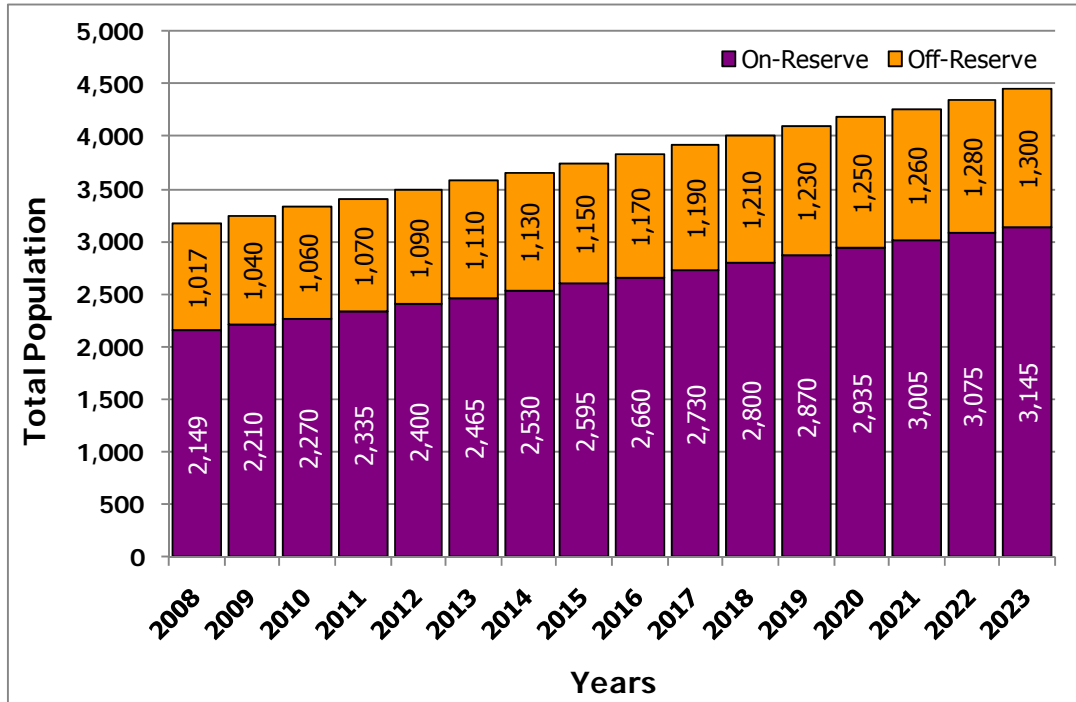
- KCNs data are based on INAC data with a base year of 2008.
- INAC total population as of December 31, 2008.
- INAC data for TCN, WLFN and YFFN are provided by the First Nations and Inuit Health Branch of Health Canada.
- INAC data for FLCN are provided by INAC from the Indian Registry System. Please see the notes for Figure 4-13.
- The figure above summarizes population projections for TCN, WLFN, YFFN and FLCN.
- "On-Reserve" includes individuals living on Crown Land, on other Reserves, and on other lands affiliated with First Nations operating under Self-Government Agreements.
- For the Projection, InterGroup used fertility and mortality ratios derived from The Registered Indian Demography Population, Household and Family Projections, 2004-2029 (INAC 2009c).
- The population projection model rounds the calculated totals from the component equation; this figure shows a total of the rounded numbers in Figures 4.3-11, 4.3-12, 4.3-13 and 4.3-14 which have been rounded to the nearest five.

Figure 4-10: Keyeyask Cree Nations Population Projection (2008-2023 Medium Growth Scenario)

Population projections for TCN, WLFN, FLCN and YFFN are presented in Figure 4-11, Figure 4-12, Figure 4-13 and Figure 4-14, respectively.

¹ Population projections were completed for low-, medium- and high-growth scenarios. The assumptions used for a medium-growth scenario are presented in Section 4.2.1.2, while the assumptions and results of low- and high-growth scenarios are in Appendix 4A.

Based on a medium-growth scenario projection, TCN’s on-reserve growth is expected to outpace growth in its off-reserve population, at an average annual rate of 2.6% compared to 1.7%. In contrast, WLFN’s off-reserve population is expected to grow at an average annual rate of 2.5%, compared to on-reserve growth of 2.0% annually. FLCN’s off-reserve population is expected to grow 2.3% annually, while its on-reserve population is anticipated to grow by almost 2.9% annually. YFFN’s on-reserve population is expected to grow at an annual rate of 2.6% compared to 1.7% for its off-reserve population.

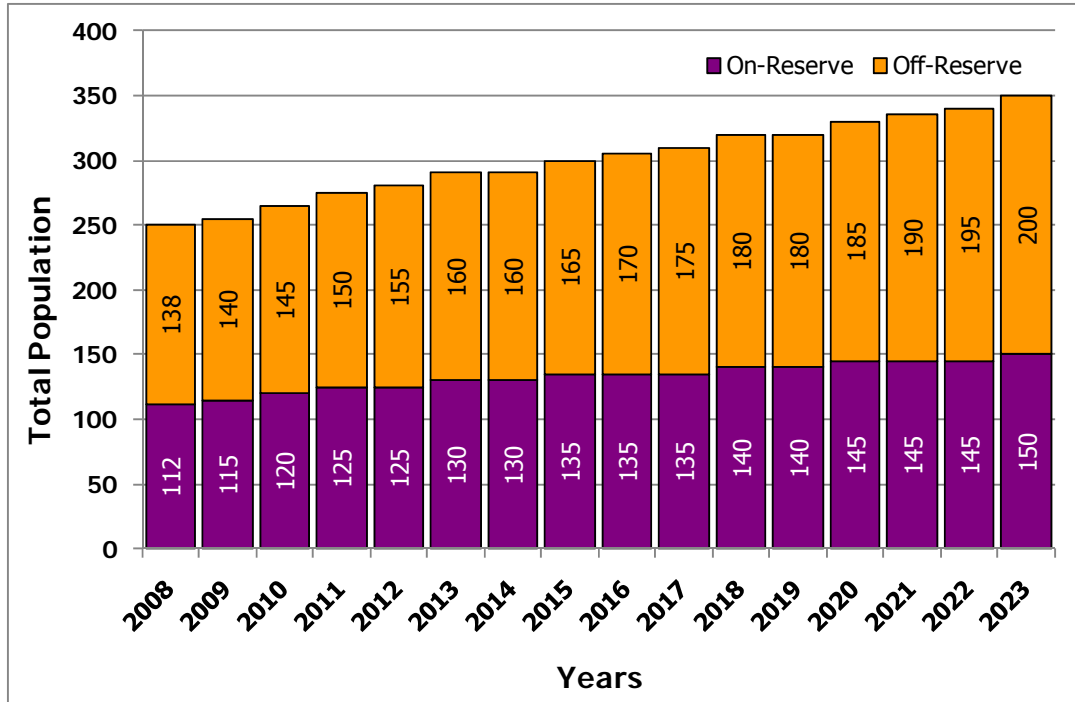


Source: Analysis prepared by InterGroup Consultants based on INAC First Nations Population Profiles 2008.

Notes:

- TCN data are based on INAC data with a base year of 2008.
- INAC total population as of December 31, 2008.
- INAC data provided by the First Nations and Inuit Health Branch of Health Canada.
- “On-Reserve” includes individuals living on Crown Land, on other Reserves, and on other lands affiliated with First Nations operating under Self-Government Agreements.
- For the Projection, InterGroup used fertility and mortality ratios derived from The Registered Indian Demography Population, Household and Family Projections, 2004-2029 (INAC 2009c).
- The population projection model rounds the calculated totals from the component equation to the nearest five.

Figure 4-11: Tataskweyak Cree Nation Population Projection (2008-2023 Medium Growth Scenario)

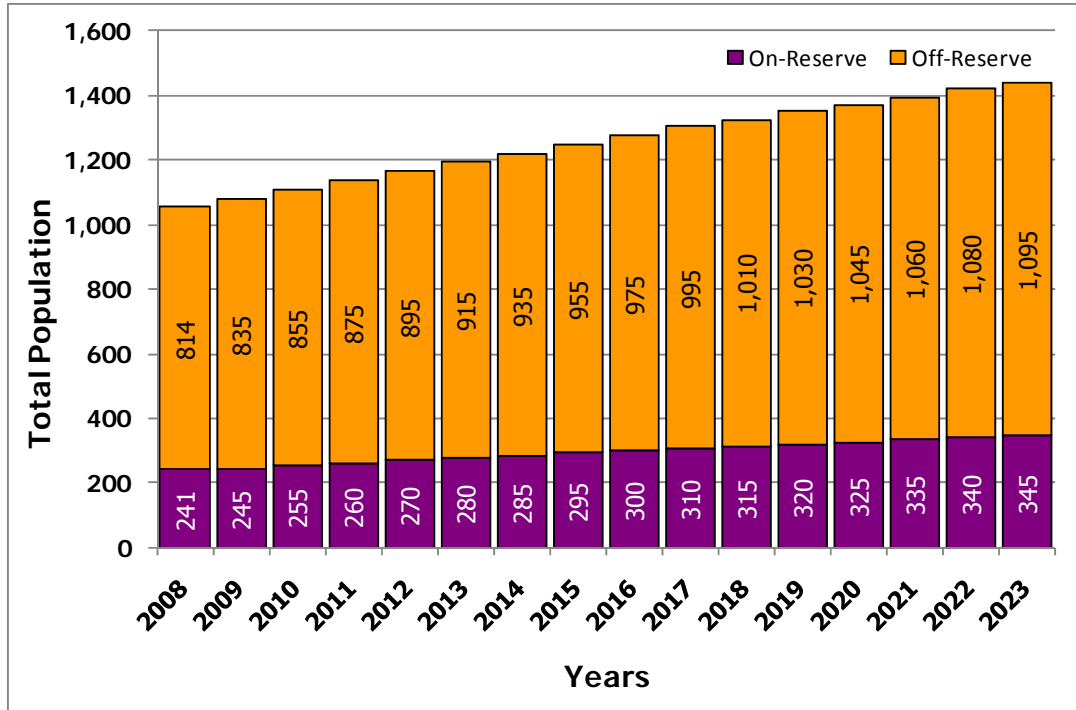


Source: Analysis prepared by InterGroup Consultants based on INAC First Nations Population Profiles 2008.

Notes:

- WLFN data are based on INAC data with a base year of 2008.
- INAC total population as of December 31, 2008.
- INAC data provided by the First Nations and Inuit Health Branch of Health Canada.
- For the Projection, InterGroup used fertility and mortality ratios derived from The Registered Indian Demography Population, Household and Family Projections, 2004-2029 (INAC 2009c).
- The population projection model rounds the calculated totals from the component equation to the nearest five.

Figure 4-12: War Lake First Nation Population Projection (2008-2023 Medium Growth Scenario)

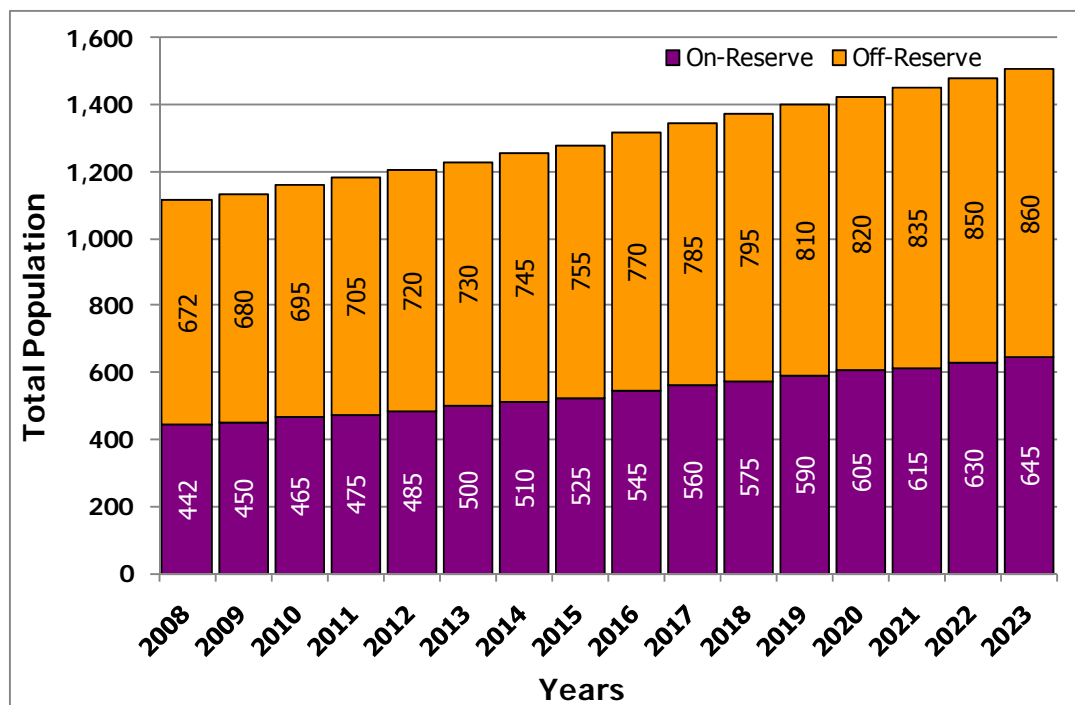


Source: Analysis prepared by InterGroup Consultants based on INAC First Nations Population Profiles 2008 and Manitoba Health Fox Lake Cree Nations Population data 2008.

Notes:

- FLCN data are based on INAC data with a base year of 2008.
- INAC total population as of December 31, 2008.
- INAC data provided by INAC from Indian Registry System.
- “On-Reserve” includes individuals living on Crown Land, on other Reserves, and on other lands affiliated with First Nations operating under Self-Government Agreements.
- INAC data “On-Reserve” population breakout by gender for all age groups, except 10-14 and 15-19, was prorated based on total “On-Reserve” population (excluding age groups 10-14 and 15-19) gender breakout.
- INAC data “On-Reserve” population for age groups above 60 assume Manitoba Health FLCN Population data for the same age groups. Population data for age groups above 75 corrected to make reconcile to total population.
- Total population gender breakout for age groups above 65 was prorated based on total population gender breakout.
- Off-Reserve population numbers are derived as follows: Total population minus “On-Reserve” (note 4 above) population.
- For the Projection, InterGroup used fertility and mortality ratios derived from The Registered Indian Demography Population, Household and Family Projections, 2004-2029 (INAC 2009c).
- The population projection model rounds the calculated totals from the component equation to the nearest five.

Figure 4-13: Fox Lake Cree Nation Population Projection (2008-2023 Medium Growth Scenario)



Source: Analysis prepared by InterGroup Consultants based on INAC First Nations Population Profiles 2008.

Notes:

- YFFN data are based on INAC data with a base year of 2008.
- INAC total population as of December 31, 2008.
- INAC data provided by the First Nations and Inuit Health Branch of Health Canada.
- “On-Reserve” includes individuals living on Crown Land, on other Reserves, and on other lands affiliated with First Nations operating under Self-Government Agreements.
- The population projection model rounds the calculated totals from the component equation to the nearest five.

Figure 4-14: York Factory First Nation Population Projection (2008-2023 Medium Growth Scenario)

The estimated total growth for each of the KCNs communities between 2008 and 2023 is summarized in Table 4-6.

During 2016, the year that would correspond to the peak of construction, it is estimated that TCN would have a total population about 3,830, WLFN would have a population of 305, FLCN would have a population of 1,275 and YFFN would have a population of 1,315. A sizeable portion of each of these populations in 2016 would be a part of the labour force as described in Table 4-7.

Table 4-6: Total Projected Population Estimates for the Keeyask Cree Nations (2008, 2016, 2023 Medium Growth Scenario)

	2008			2016 (Peak Construction Year)			2023		
	On-Reserve	Off-Reserve	Total	On-Reserve	Off-Reserve	Total	On-Reserve	Off-Reserve	Total
TCN	2,149	1,017	3,166	2,660	1,170	3,830	3,145	1,300	4,445
WLFN	112	138	250	135	170	305	150	200	350
FLCN	241	814	1,055	300	975	1,275	345	1,095	1,440
YFFN	442	672	1,114	545	770	1,315	645	860	1,505
KCNs	2,944	2,641	5,585	3,640	3,085	6,725	4,285	3,455	7,740

Source: Analysis prepared by InterGroup Consultants based on INAC First Nations Population Profiles 2008. INAC data for TCN, WLFN and YFFN are provided by the First Nations and Inuit Health Branch of Health Canada. INAC data for FLCN are provided by INAC from the Indian Registry System.

Note:

- See the notes to Figures 4.3-11, 4.3-12, 4.3-13 and 4.3-14 for population projections for each TCN, WLFN, YFFN and FLCN.

Table 4-7: Proportion of the Population Estimated to be in the Labour Force (2008, 2016, 2023 Medium Growth Scenario)

	2008	2016	2023
TCN	62.2%	62.0%	61.3%
WLFN	69.6%	64.6%	61.4%
FLCN	69.6%	64.2%	60.5%
YFFN	64.5%	65.8%	61.0%
KCNs	64.4%	63.2%	61.1%

Source: Analysis prepared by InterGroup Consultants based on INAC First Nations Population Profiles 2008.

Notes:

- KCNs labour force is calculated based on total population of TCN, WLFN, YFFN and FLCN for the years shown and represents those in the age category of 15-64.
- KCNs, as well as TCN, WLFN, YFFN and FLCN population numbers are subject to rounding.
- INAC data for TCN, WLFN and YFFN are provided by the First Nations and Inuit Health Branch of Health Canada. INAC data for FLCN are provided by INAC from the Indian Registry System.
- See the notes to Figures 4.3-11, 4.3-12, 4.3-13 and 4.3-14 for population projections for each TCN, WLFN, YFFN and FLCN.

4.3.1.3 Gillam

Although the people of FLCN historically occupied the territory surrounding Gillam as part of their seasonal round of resource use, the first settlement in the area began in 1912-1913 at Mile 330 of the railway. A population of approximately 350 people settled in this area, consisting largely of railway workers and their families, along with some Members of YFFN (whose Members became part of FLCN in subsequent years; see Section 2.2.3.2 for further details on FLCN history). Construction of the railway

over Kettle Rapids was interrupted by World War I, and the railway was not completed until 1929. “The present Town of Gillam at Mile 326 began after the railway gangs moved on from Mile 330. The Fox Lake people settled on the hill “south switch”[of the railway] and the Split Lake peoples settled on the north side of the tracks”(Town of Gillam 2010).

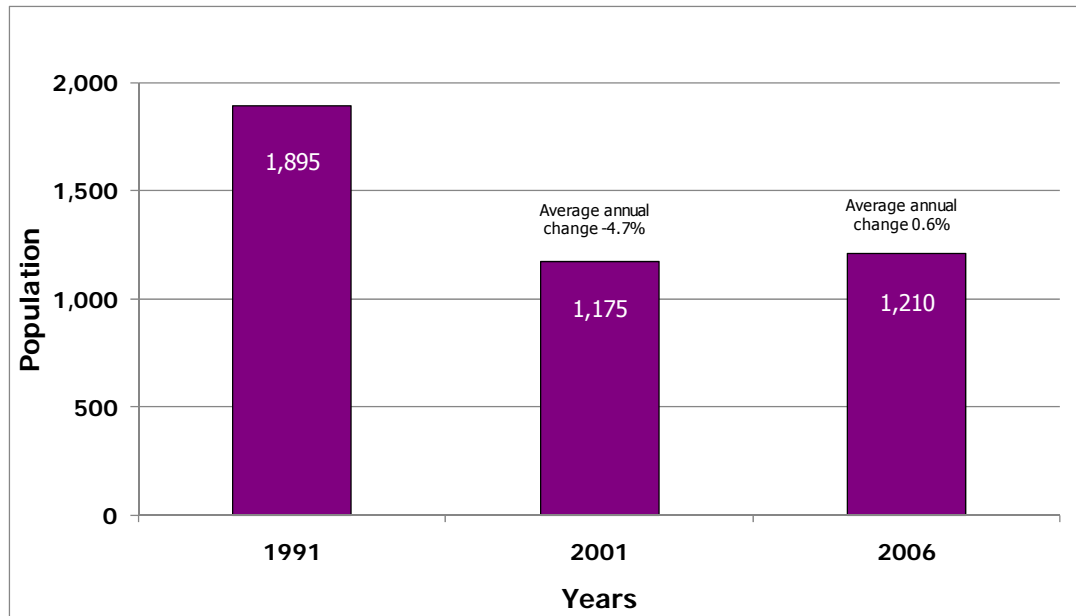
Since the 1960s, the population of the Gillam area has been closely linked to the development of Manitoba Hydro’s generation and transmission facilities. For example, between 1966 and 1979¹, during the period of construction of the Kettle and Long Spruce Generating Stations, a population boom occurred, with an estimated peak of 3,000 at the start of the Kettle Generating Station construction (Town of Gillam 2010). The population increased over 400% during the Census years of 1966 and 1971, an additional 48% between 1971 and 1976, and almost 50% between 1976 and 1981 (HTFC 2009).

4.3.1.3.1 Current Population

In 2006, the population of Gillam was approximately 1,200, of which 580 self-identified as Aboriginal (Statistics Canada 2007a). As shown in Figure 4-15 the population of Gillam declined noticeably in the 1990s as Manitoba Hydro employment in the community fell. Since 2001, the population has slowly increased (by about 0.6% per year), in conjunction with rising Manitoba Hydro employment. The growth in the community’s Aboriginal population² was also a factor in the increase.

¹ Construction of the Kettle Generating Station occurred between 1966 and 1973. Construction of the Long Spruce Generating Station occurred between 1971 and 1979.

² Forty-five percent of Gillam’s population self-identified as Aboriginal in the 2006 Census. According to Statistics Canada, this included identifying as North American Indian, Metis or Inuit, and/or those who reported being a Treaty Indian or a Registered Indian, as defined by the Indian Act of Canada, and/or those who reported they were members of an Indian Band or First Nation (Statistics Canada 2007a).



Sources: Statistics Canada 1992, 2002, 2007a.

Notes:

- 1991, 2001 and 2006 population data consist of 100% of the census population.
- Statistics Canada data represent the population during the Census of Canada on June 4, 1991, May 15, 2001 and May 16, 2006.
- Statistics Canada data are subject to random rounding procedure; population totals and individual cells are rounded.
- Average annual population change was calculated by InterGroup Consultants based on Statistics Canada 1991, 2001 and 2006 data.

Figure 4-15: Change in Gillam Population (1991, 2001, 2006)

The age structure of the Gillam population (see Table 4-8) had characteristics closer to the Regional Study Area than the province as a whole in 2006. The median age of the Gillam Aboriginal population was 23 years, compared to 26 years for the Regional Study Area and 39 years for the province. The overall Gillam population was fairly young, with about 35% under the age of 20; about 46% of the Aboriginal portion of the population was under the age of 20.

What is most notable about Gillam's population is the overall lack of an older generation. Only about 2% of the total and Aboriginal populations were over the age of 65, which was lower than the Regional Study Area (about 6%) and the province as a whole (about 17%). This could have resulted because most Manitoba Hydro employees retired to other communities since housing is no longer provided once employment ends (Gillam KPI Program 2009-2010), and because many FLCN Elders preferred to live in Fox Lake (Bird) (FLCN KPI Program, 2009-2011).

Table 4-8: Age Distribution of the Gillam Population and Comparison Populations (2006)

	Gillam (Total)	Gillam Aboriginal Population	Comparison Populations	
			Northern Manitoba ⁴	Manitoba
Total Population ^{1,2,3}	1,210	580	84,600	1,148,400
0-4 Years – # and %	105	50	8,615	68,100
	8.7%	8.6%	10.2%	5.9%
5-19 Years – # and % ⁵	315	220	26,045	157,075
	26.0%	37.9%	30.8%	13.7%
20-64 Years – # and % ⁶	770	295	45,165	761,350
	63.6%	50.9%	53.4%	66.3%
65 years and over – # and % ⁷	25	10	4,750	198,710
	2.1%	1.7%	5.6%	17.3%
Median age ⁸	29	23	26	39

Source: Statistics Canada 2007a; Statistics Canada 2011b.

Notes:

- 2006 population data consist of 100% of the census population.
- Statistics Canada data represent the population during the Census of Canada on May 16, 2006.
- Statistics Canada data are subject to random rounding procedure; population totals and individual cells are rounded.
- Northern Manitoba region defined by Statistics Canada as census divisions 19, 21, 22 and 23.
- Age category 5-19 years calculated by InterGroup Consultants as the total of Statistics Canada age categories 5-9, 10-14, and 15-19 years.
- Age category 20-64 years calculated by InterGroup Consultants as the total of Statistics Canada age categories 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, and 60-64.
- Age category 65 years and over calculated by InterGroup Consultants as the total of Statistics Canada age categories 65-69, 70-74, 75-79, 80-84, and 85 years or older.
- Median ages were calculated by InterGroup Consultants; assumes equal distribution of population within age groups.

4.3.1.3.2 Projected Population

The population of Gillam today and in the near-term continues to be linked primarily to the availability of employment with Manitoba Hydro and associated housing. The current housing stock in Gillam (described in detail in Section 4.3.2.2) limits community growth. While the total population of the community remains fairly stable, regular turnover among Manitoba Hydro staff moving in and out of the community means that there is flux in the local population. The regular turnover among staff occurs for various reasons, including access to other employment opportunities with Manitoba Hydro elsewhere in the province, or in order to provide family members and/or their children with further education and employment opportunities. Upon retirement, most Manitoba Hydro employees relocate to other communities since they no longer qualify for Manitoba Hydro housing; this affects the structure of the

population (Gillam KPI Program 2009-2010)¹. For these reasons, the cohort component population model could not be applied to project the future population of the Town of Gillam. Instead, an approach based on the relationship between population and the number of Manitoba Hydro employees in the community was used.

Over the next five to 10 years, Gillam is forecasted to almost double, to between 2,300 and 2,800 people assuming Manitoba Hydro projects move forward (Dillon Consulting 2012). This forecast includes growth associated with operation staff of the Keeyask Generation Project (further discussion provided in Section 4.4.2), Bipole III Transmission Project/Keewatinoow Converter Station and the potential Conawapa Generation Project. It is assumed this also includes other Manitoba Hydro related staff growth, retail and services growth, and FLCN population growth (all of which may include families). The cumulative effects of population growth are described in Chapter 7 of the Response to EIS Guidelines document.

As noted in Section 4.2.1, it is likely that overall population trends for FLCN Members residing in Gillam would be similar to that of the general FLCN population. Therefore, a growth rate between 2.3% and 2.9%² of FLCN Members living in Gillam may be expected. It is anticipated that some of the FLCN Members living in Gillam may fill some of the operation jobs associated with the Project.

4.3.1.4 Thompson

The Thompson population was examined using data from the Burntwood Regional Health Authority (BRHA) and Statistics Canada and through the KPI program.

4.3.1.4.1 Current Population

Thompson's early history is tied to mineral development in the Thompson region. In 1956, after 10 years of exploration, the International Nickel Company (INCO Ltd.) discovered a world class nickel ore body at Cook Lake in the Thompson area. This discovery led INCO Ltd. to make a long-term commitment to the area. An agreement was signed between INCO Ltd. and the Manitoba Government to develop a town site for 8,000 people. During the winter of 1957 and 1958 development of the town site occurred rapidly, with the bank, school, store and hospital being located temporarily in houses until more permanent structures were completed (Fraser 1985). The nickel plant (mill, smelter and refinery) and mine site were developed on Cook Lake, and the town site was established a few kilometres away on the Burntwood River (Buckingham 1988).

The City of Thompson was incorporated in 1967 with INCO Ltd turning over infrastructure a year prior. The town site was administered as a Local Government District (Manitoba Hydro and NCN 2003) and an administrator was jointly appointed by INCO Ltd. and the Province of Manitoba (Taunton 1978). In June of 1970, Thompson was incorporated as a City of 20,000 residents, governed by an elected Mayor and Council (Thompson Unlimited 2007).

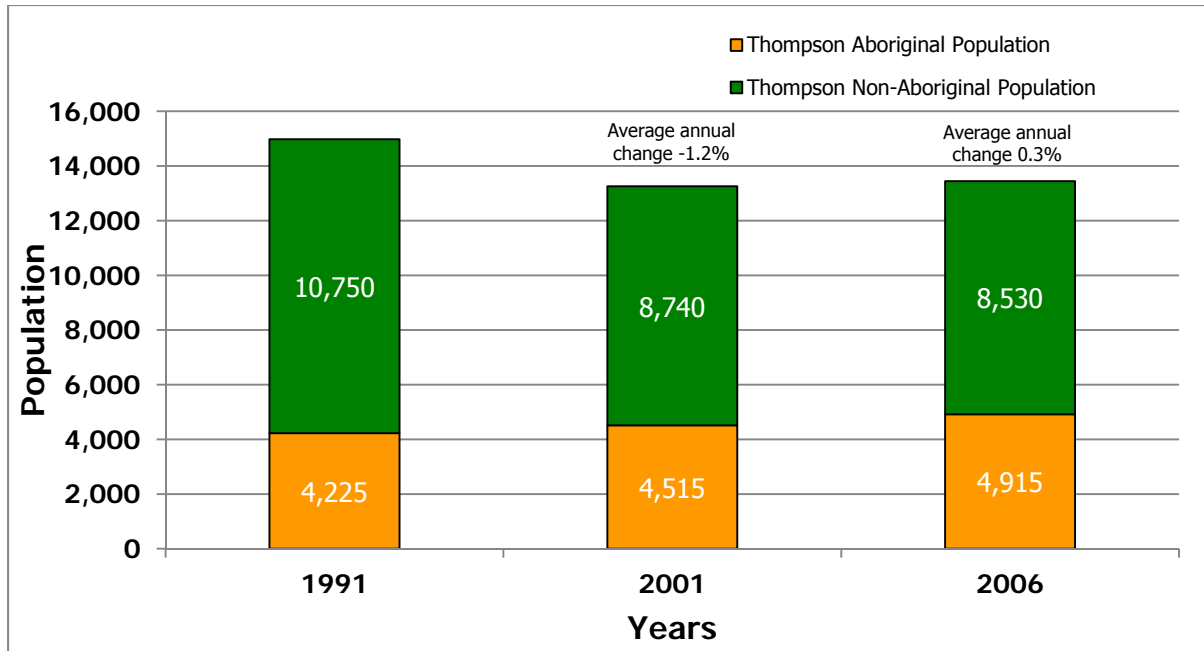
¹ This situation may change in the future with the newly implemented Alternative Gillam Housing program which provides options for employees to purchase their homes, and therefore remain in the community.

² FLCN growth of 2.3% refers to off-reserve projected growth and 2.9% refers to on-reserve projected growth.

During the 1970s, population levels in Thompson increased annually. This trend of consistent growth, which periodically included large annual increases, ended in the mid-1970s. Subsequently, population levels entered a period of decline until about 1981 (Manitoba Hydro and NCN 2003). Since the early 1980s, the population of Thompson has fluctuated from just under 14,000 to just over 15,000 people (Manitoba Health, 1981 to 2008). Statistics Canada recorded the population of Thompson as low as 13,445 in the 2006 census (Statistics Canada 2007a). Within the community, people have indicated that the population in the fourth quarter of 2008 and into 2009 was estimated to be about 18,000 people (Thompson KPI Program 2008-2010). Some community residents felt that the population could grow to 20,000-22,000 people in the next 10 years as a result of increased employment opportunities related to Thompson's role as a service centre (*e.g.*, jobs outside of the mining sector), in addition to increased numbers of Aboriginal people establishing residence in the community (discussed below). An increase in population would place additional stresses on existing infrastructure and services and would require the development of additional serviceable land (Thompson KPI Program 2008-2010).

Figure 4-16 highlights the growth and decline of the Thompson population using data obtained from the Census of Canada. From 1991 to 2001, a decline in the total population was observed, however this was followed by a positive growth rate from 2001 to 2006.

The Aboriginal portion of the Thompson population has experienced similar fluctuations over time, following trends in the total population. In recent years, growth in Thompson's Aboriginal population has been more rapid than in the total population. In 1991, the total Aboriginal population of Thompson was about 4,200 individuals, representing 28% of the total community. By 2006, this had increased to about 4,900 individuals, representing 37% of the overall population. The number of Aboriginal individuals increased between 1991 and 2006 while the overall population decreased. Local residents estimated that the actual Aboriginal portion of the total Thompson population is in the range of 45 to 50%. The in-migration of Aboriginal people to the community has been attributed to various reasons, including better opportunities for individuals and families than in their home communities (*e.g.*, education, training, employment and better access to health facilities and services), and that Thompson acts as an administrative centre for various Aboriginal organizations. (Thompson KPI Program 2008-2010).



Sources: Statistics Canada 1992, 2002, 2007a, 2011a, 2011b.

Notes:

- 1991, 2001 and 2006 population data consist of 100% of the census population.
- Statistics Canada data represent the population during the Census of Canada on June 4, 1991, May 15, 2001 and May 16, 2006.
- Average annual population change was calculated by InterGroup Consultants based on Statistics Canada data.
- Statistics Canada data are subject to random rounding procedure.

Figure 4-16: Change in Thompson Population (1991, 2001, 2006)

Table 4-9 describes the age distribution of both the Aboriginal and non-Aboriginal population of Thompson. The median age of 29 years for the population of Thompson was lower than the median age of 39 years for the Manitoba population. The median age of the Thompson Aboriginal population was younger at 21 years. There were also a larger proportion of school-aged children in Thompson and among the Thompson Aboriginal population compared to the Province of Manitoba as a whole. Approximately half of the youth population (0 to 19 years of age) in Thompson was of Aboriginal descent and about half of the Aboriginal population (49%) was in this age range. The proportion of the population over the age of 65 was quite small for Thompson (3%) as a whole and for the Thompson Aboriginal population (2%), compared to the Regional Study Area (6%) and Manitoba (17%).

Table 4-9: Age Distribution of the Total Thompson and Thompson Aboriginal Population and Comparison Populations (2006)

	Thompson	Thompson Aboriginal	Comparison Populations	
			Northern Manitoba ⁴	Manitoba
Total Population ^{1,2,3}	13,445	4,915	84,600	1,148,400
0-4 Years – # and %	1,140 (8.5%)	605 (12.3%)	8,615 (10.2%)	68,100 (5.9%)
5-19 Years – # and % ⁵	3,630 (27%)	1,815 (36.9%)	26,045 (30.8%)	157,075 (13.7%)
20-64 Years – # and % ⁶	8,245 (61.3%)	2,390 (48.6%)	45,165 (53.4%)	761,350 (66.3%)
65 years and over – # and % ⁷	415 (3.1%)	105 (2.1%)	4,750 (5.6%)	198,710 (17.3%)
Median age ⁸	29	21	26	39

Source: Statistics Canada 2007a, 2011b.

Notes:

1. 2006 population data consist of 100% of the census population.
2. Statistics Canada data represent the population during the Census of Canada on May 16, 2006.
3. Statistics Canada data are subject to random rounding procedure; population totals and individual cells are rounded.
4. Northern Manitoba region defined by Statistics Canada as census divisions 19, 21, 22 and 23.
5. Age category 5-19 years calculated by InterGroup Consultants as the total of Statistics Canada age categories 5-9, 10-14, and 15-19 years.
6. Age category 20-64 years calculated by InterGroup Consultants as the total of Statistics Canada age categories 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, and 60-64.
7. Age category 65 years and over calculated by InterGroup Consultants as the total of Statistics Canada age categories 65-69, 70-74, 75-79, 80-84, and 85 years or older.
8. Median ages were calculated by InterGroup Consultants; assumes equal distribution of population within age groups.

4.3.1.4.2 Projected Population

Scenarios were developed to examine the potential future population of Thompson between 2008 and 2023, including the period during which construction and initial operation of the Project would occur. The scenario approach has been adopted because the cohort-component approach, which calculates natural increase based on birth rates and mortality rates, is unlikely to produce meaningful results for the following reasons:

- Thompson's population has fluctuated with the economic growth and decline cycles of the mining industry.
- More recently, the economy has begun to diversify, resulting in additional economic drivers for the community. While the Vale (formerly Vale-Inco and INCO) operations continue to be the prime

economic driver of the Thompson economy and its population, Vale’s role is not as great as it has been in the past, particularly with their intended closure of their smelter and refinery.

- In-migration and out-migration of workers, students and other people from/to the south and outlying northern communities and their families appears to have an equal or greater effect on the overall population than the birth rate and mortality rate.

The Thompson economy has been strongly linked to the mining sector throughout most of its history. Over the last 15 years, the economy has begun to diversify, with mining still ranked as the top economic activity. With the increase in government services, post-secondary education and health care services and facilities, Thompson has begun to take on more of a regional centre role. This changing role has meant that population change is affected by a wider range of factors than simply mining development.

Using an analysis of the known and potential drivers of change, two scenarios for the future of Thompson’s economy were produced (more complete analysis is attached in Appendix 4C). The two economic scenarios examined include:

- A low growth scenario which maintains growth in the community but at a noticeably lower rate than occurred from 2007 to 2010; and
- A suppressed economy scenario similar to stable and sometimes negative growth experienced from 1981 to 2006.

Population projections were estimated for the City of Thompson for each economic scenario (see Table 4-10). These projections are informed by past and recent population levels that Thompson has experienced under different economic circumstances:

- From 1981 to 2006, while the community was in a stable to slightly negative economic growth situation, Thompson’s population remained steady at between 14,000 and 15,000 people.
- In late 2008, after two years of high growth, the Thompson population was estimated to be 17,000 to 18,000 people, with much of the increase from 2006 consisting of people who were living for short durations in the city, working on construction and upgrading projects.

Table 4-10: Scenario-Based Population Projections for Thompson to 2023

Low Growth Scenario	Suppressed Economy Scenario
14,000 to 17,000	11,000 to 14,000

Source: InterGroup Consultants.

4.3.2 Housing – Local Study Area

This section describes existing housing, including temporary accommodations, in the Local Study Area communities. Where available, data on housing types, overall housing conditions and whether communities face a shortage of housing are provided.

Housing is one of the most basic necessities of life, yet the availability of adequate and affordable housing for First Nations residents is an ongoing concern in northern reserve communities in Canada. In general,

the rapidly growing population and limited availability of on-reserve housing are driving the need for more housing in many areas, including the KCNs communities.

Over the past several decades, high fertility rates and moderate improvements in life expectancy have caused the Aboriginal population to experience higher rates of growth compared to the overall Canadian population; this is a trend that is expected to continue for some time into the future with or without the Project (CMHC 2007; Steffler 2008).

Overcrowding and difficult conditions in which to construct and maintain housing (*e.g.*, harsh northern climate in remote locations) make housing a challenge to provide to residents (CMHC 2008). Many First Nations people who wish to remain in their home communities are placed on housing waiting lists. While waiting for housing, families either share accommodations with existing family members on-reserve or leave their home communities in order to find housing elsewhere. Some who leave do not return to their home reserve despite the desire to do so (*e.g.*, some KCNs Members continue to live in Thompson due to housing shortages in their home communities (Thompson KPI Program 2008-2010)).

Gillam and Thompson housing needs are identified as issues in the following sections as both communities face a shortage of housing units to accommodate the existing demand.

4.3.2.1 Keyyask Cree Nations Housing

4.3.2.1.1 Cree Nation Partners

TATASKWEYAK CREE NATION

According to TCN's fieldwork research program, there are 368 single-family dwelling units in nine housing subdivisions in Split Lake. Of these dwellings, 183 are INAC Capital Housing units, 126 are Canada Mortgage and Housing Corporation (CMHC) subsidized units owned by TCN and rented out to community Members and 59 are CMHC Section 10 units owned by the occupants. Over 2009 and 2010, 10 new homes were built, made up of four duplexes and two single-family units. Despite these new homes, the housing wait list has increased (CNP 2010c). In 2011, two triplex housing units were completed (CNP *pers. comm.* 2011).

Two hundred seventy-two houses have a piped water supply and the rest of the 95 houses are serviced by cisterns or tanks. Two hundred fifty-seven houses have access to piped sewer services, while 110 homes have sewage holding tanks and one home has a pit privy. The majority of homes are heated by electric furnaces and baseboard heaters (CNP 2010c).

Limited housing availability, leading to overcrowding and poor housing quality is a concern in Split Lake. On average, six people live in each three-bedroom home, with as many as 12 to 15 people living in some homes. Extended families typically live together in overcrowded homes, which affects housing quality since overcrowded homes tend to deteriorate more quickly. As of June 2010, there were more than 200 TCN Members on the waiting list for a home, with Members waiting two years on average to acquire a home. In 2005, it was estimated that 502 new housing units would be required by 2035 to meet community demand. In terms of housing quality, 58 houses have been condemned, 137 houses require major repairs, 122 houses require moderate repairs, and 48 houses require minor repairs. Repairs range

from minor problems with plumbing, baseboard heaters and flooring to major problems with mould and ventilation (CNP 2010c).

There is concern in the community that the demand for housing will increase with the development of the Project, but that there will be no financial means of meeting that demand (CNP 2010c).

According to 2006 Census data, between 2001 and 2006 the total number of private dwellings on-reserve at Split Lake increased from 355 to 370 homes. Of those private dwellings, 250 were single-detached housing units, 10 were row-housing units and 110 were moveable dwellings (trailers). In 2001, it was estimated that 89% of the housing was First Nation-owned. Almost 21% of the homes in the community were constructed approximately 20 years or more prior to 2001 and just over one half of the housing in the community was described as needing major repairs¹ (Statistics Canada 2007a).

The census data showed an increase in the average number of people residing in private dwellings from 4.5 in 2001 to 4.9 in 2006 (Statistics Canada 2007a). This was substantially higher than the national average in Canada, which was 2.6 in 2006. More detailed data related to the number of occupied private dwellings and a number of other household statistics were suppressed for the 2006 census year.

Temporary Accommodation

The Kistepinanik Hotel is a modern hotel located within the community of Split Lake and owned by the First Nation. The 14-unit hotel opened in 2003 and has a full-service, 32-seat restaurant. The hotel is used by those visiting the community and the restaurant has the ability to provide take-out lunches for residents and crews working nearby (TCN 2008). The hotel includes Video Lottery Terminals operated by TCN's Gaming Commission. The hotel is staffed with a full-time manager and front desk clerk and part-time kitchen and housekeeping staff (CNP 2010c).

WAR LAKE FIRST NATION

According to the 2006 Census, there were a total of 35 occupied private dwellings in Ilford. These were all single-detached homes (Statistics Canada 2007a). More recent data indicates there are approximately 20 on-reserve single-family homes, all of which are CMHC units owned by the First Nation and rented out to WLFN Members, in addition to 10 occupied houses and five abandoned houses on non-reserve land in Ilford (CNP 2010f).

The federal Rural Native Housing Program funds 10 of the occupied houses in Ilford. The Canadian Mortgage and Housing Corporation owns and manages the houses for this program for off-reserve Members and Metis residents. Under the CMHC-INAC First Nation On-Reserve Housing Program, there are plans to complete four new houses. WLFN also has plans to purchase two four-bedroom trailer units. Many of the off-reserve houses in Ilford have been condemned (CNP 2010f).

According to Statistics Canada, the average number of people residing in private dwellings decreased from 3.4 in 2001 to 3.3 in 2006 (higher than the Canadian average of 2.6 persons per dwelling in 2006).

¹ Major repairs “refer to the repair of defective plumbing or electrical wiring, structural repairs to walls, floors or ceilings, *etc.*,” (Statistics Canada 2006).

The 2006 Census showed that the number of private dwellings that had six or more residents decreased from 25% in 2001 to just over 14% in 2006 (Statistics Canada 2002, 2007a). Currently, however, the community has indicated that overcrowding has become a serious concern, with approximately six people per three-bedroom house. The Moosecoot Housing Authority assesses applications according to family size, age distribution, income and health considerations, and then makes recommendations to the Chief and Council. Families often wait one to two years or longer to upgrade their housing, and demand for available or new housing is greater than the supply. At the time of writing, there are six to ten families on the waiting list to receive First Nation-housing (CNP 2010f).

The quality of WLFN housing in Ilford is a concern, with approximately 50% of houses requiring repair. Major problems include mould and malfunctioning windows and doors. All housing units have running water and indoor plumbing, and the majority have electric furnaces (CNP 2010f).

A lack of reserve land is a factor impeding new housing development. The community believes that the transfer of Crown land at Ilford through the TLE process is important to addressing their need for more housing, and in 2007, the Moosecoot Housing Authority was activated to begin land transfer discussions with the Government of Manitoba, Manitoba Keewatinowi Okimahkanak and the Government of Canada. The 2008 War Lake Long Term Development Strategy also identified the need to further develop the housing policy first recommended in 2005. It is believed that the demand for housing in the community would increase with the development of the proposed Project (CNP 2010f).

Temporary Accommodation

There is no housing designated for visitors or temporary workers other than one First Nation-owned trailer. The WLFN Northern Lights Place of Learning Centre, offers two to three rooms for rent, there is a two bedroom lodge at the Moosecoot Gar Bar and some out-of-town visitors may also use the Laliberty Memorial Centre during the Winter Carnival or Indian Days celebrations (CNP 2010f).

4.3.2.1.2 Fox Lake Cree Nation

FLCN Members live on-reserve at Fox Lake (Bird), on-reserve at the A Kwis Ki Mahka Reserve in Gillam and also off-reserve in Gillam, Thompson, Winnipeg and other centres. According to the 2006 Census, there were 40 occupied private dwellings, either detached or semi-detached, in the reserve community of Fox Lake (Bird). The 2006 Census indicates that on average there were 2.6 people per household (Statistics Canada 2007a). This number should be interpreted with caution, however, as the previous Census indicated an average household size of 3.6 people per household (Statistics Canada 2002), and the community-based research program suggested an average of four persons per household in Fox Lake (Bird) and three persons per household in Gillam. In 2009, data supplied by FLCN noted there were 265 Members living within the Town of Gillam (including the Trailer Court and the new urban reserve) (FLCN KPI Program 2009-2011).

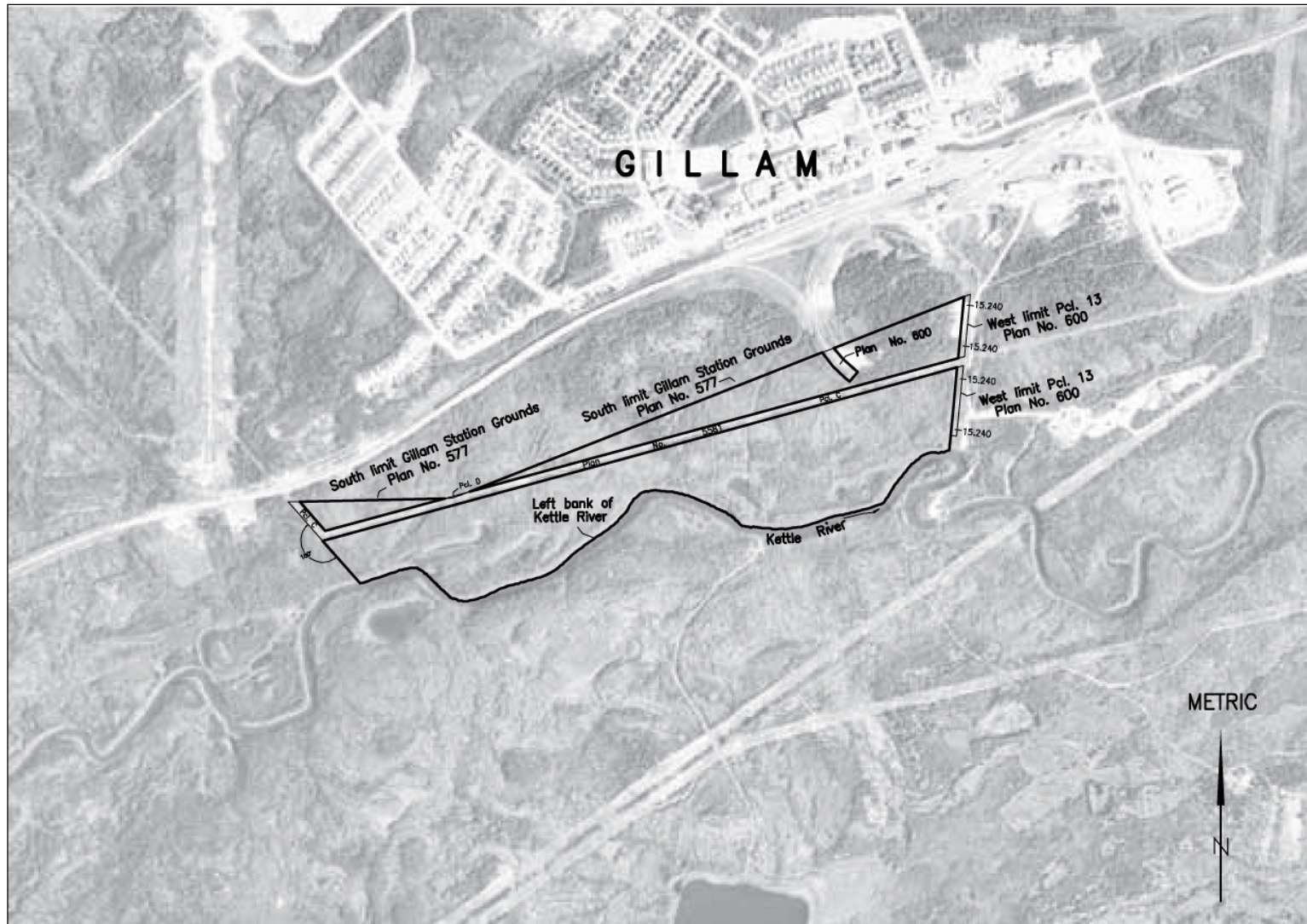
A FLCN housing committee allocates First Nation-owned homes to Members based on priority needs. However, like many First Nation communities in Manitoba, there is a shortage of housing in Fox Lake (Bird) (FLCN KPI Program 2009-2011). The quality of housing at Fox Lake (Bird) is generally considered to range from good to poor. Poor air circulation is believed to be a primary factor

contributing to the presence of mould in some of the housing units (HTFC 2008; FLCN KPI Program 2009-2011). Many FLCN homes are older with the exception of a six-unit modern Elder's complex in Gillam (HTFC 2008).

Many units have multiple families living in them, and over the last 5-10 years the number of FLCN Members waiting for housing has substantially increased. At the time of writing, there were 86 people on the combined housing waiting list for both Fox Lake (Bird) and Gillam, and demand for housing is expected to exceed supply into the foreseeable future (FLCN KPI Program 2009-2011).

On September 9, 2009, the Government of Canada transferred 1.29 ha of land in Gillam in the area known as Kettle Crescent to FLCN to create the A Kwis Ki Mahka Reserve. In 2010, FLCN had 27 First Nation-owned housing units on Kettle Crescent and approximately 12 units on Hudson Bay Railway-owned land. Many FLCN Members also reside in the Gillam Trailer Court. There is limited land available for housing expansion on Kettle Crescent; however, the First Nation plans to purchase 25 trailers for their Members in Gillam. These homes could be placed on empty lots or replace older trailers located in the Gillam Trailer Court (FLCN KPI Program 2009-2011).

Along the Kettle River to the south of the town, FLCN has requested the transfer of 80 acres of land, called the Kettle River Site (see Figure 4-17), from INAC to FLCN for the purposes of reserve land, as a partial fulfillment of their outstanding TLE selections (FLCN, *et al.* 2004). FLCN is also interested in housing ownership related to units in the Gillam Trailer Court noted above, as well as Crown land within the Town boundaries, such as the Limestone Construction Camp and Sundance sites (Grahame McLeod and Associates 2007). A report on the setting aside of lands for FLCN reserve land in Gillam recommended that FLCN prepare a comprehensive proposal on FLCN land requirements in and around Gillam (Grahame McLeod and Associates 2007). No decisions have been made by INAC on additional transfer of Crown land (beyond the A Kwis Ki Mahka Reserve).



Source: FLCN *et al.* 2004. Cropped by InterGroup.

Figure 4-17: Kettle River Site

FLCN also faces challenges in adding to the housing stock at Fox Lake (Bird). Approximately half of the 98 acres of Fox Lake reserve land at Fox Lake (Bird) is presently used for housing or other purposes. Although FLCN wishes to build more housing units in the community with a focus on three- to four-bedroom units and one- to two-bedroom duplexes, the land available is not suitable for housing due to the high water table and poor soil conditions. There is no unused land suitable for housing in the community (FLCN 1997; FLCN KPI Program 2009-2011).

4.3.2.1.3 York Factory First Nation

According to the 2006 Census, the reserve community of York Landing (*Kamechivasiik*) had 115 occupied private dwellings. Of the 115 dwellings, 95 homes were single-detached housing units and the remaining 20 were trailer units (Statistics Canada 2007a). A new sixplex housing unit started in the fall of 2009 is almost complete, with water and sewer connections being finalized. Two families have moved in (YFFN KPI Program 2009-2010).

The majority of housing in the community is First Nation-owned, although recently 18 CMHC housing units were built through a CMHC financing program for houses on reserve land. This approach allows the First Nation administration to pay for the home using a mortgage-like payment system (YFFN KPI Program 2009-2010).

The community housing authority is responsible for the allocation of housing in the community based on priority needs as determined through an application process. The housing authority acts under the direction of the Chief and Council. Larger families are given priority when housing becomes available, but it can take from six months to a year to receive housing in York Landing (*Kamechivasiik*). In recent years, demand for housing has increased and there is an expectation that this trend will continue (YFFN KPI Program 2009-2010).

According to Statistics Canada census data, although the total number of homes in the community increased slightly between 2001 and 2006, the number of households with six or more people living in them remained the same. Community Members indicated that, due to the lack of housing in the community, overcrowding within existing homes is an issue, with multiple families (as many as 12 to 14 people) often residing in the same home. In 2009, the waiting list for housing at York Landing (*Kamechivasiik*) included approximately 60 community Members. The waiting list has seen increases in people waiting for homes over the past three years (YFFN KPI Program 2009-2010).

Housing conditions in York Landing (*Kamechivasiik*) are variable, although many of the homes in the community are older and in need of repair work. The 2006 Census indicated that just over 39% of housing was in need of major repairs, 34% was in need of minor repairs and 27% was in need of regular maintenance. Maintenance of the homes is the responsibility of the YFFN Housing Repairs and Maintenance Program; however, financial constraints on the program affect the level of service. Nevertheless, the YFFN leadership was able to improve the conditions in some homes by accessing funding through the federal Residential Rehabilitation Assistance Program. The funding was put toward renovation and mould remediation in some of the on-reserve homes. Some of the community Members indicated that mould and crowding in some homes were negatively affecting overall wellness of community Members (YFFN KPI Program 2009-2010).

YFFN faces a number of constraints when developing additional on-reserve housing in York Landing (*Kawechimasik*), including limited seasonal access and the cost of transporting building materials to the community (YFFN Future Development 2010). As with the maintenance of existing homes, financial constraints limit the ability of the First Nation to provide new homes for its Members. There are also limitations in terms of the development of serviceable land for expansion of the community. There are two possible locations near the community that could be used for future housing development. One location is an island directly south of York Landing (*Kawechimasik*) that would require existing infrastructure to be expanded and an access causeway to be built. A second location is on the south bank across the Aiken River. In order to access the site, a bridge would need to be built and the land cleared. According to the results of the KPI Program, this land is presently covered by forest and it is estimated that it would take approximately five years for soil moisture and permafrost to disappear and for the ground to settle enough to become suitable for construction (YFFN KPI Program 2009-2010).

Most off-reserve YFFN Members reside in Thompson, Churchill, Winnipeg, Split Lake and elsewhere. No housing support is provided to these YFFN Members unless they are out of the community for education or training purposes (YFFN KPI Program 2009-2010).

Temporary Accommodation

The Evergreen Inn is a YFFN-owned hotel that has been in operation for the past ten years. The hotel has seven rooms with two beds per room, potentially accommodating up to 14 guests. Meals are provided for the guests including a self-serve breakfast and a prepared lunch and dinner. The hotel is used by construction workers, consultants and other visiting workers in the community. The hotel employs one full-time staff and two part-time staff when needed. The hotel was at or near capacity throughout 2009 and 2010 (YFFN KPI Program 2009-2010).

4.3.2.2 Gillam

According to the 2006 Census, Gillam had a total of 435 occupied private dwellings of which approximately 74% were rental units. However, a recent study determined that there were approximately 534 housing units in the Town of Gillam (see Table 4-11), with the majority of homes owned by Manitoba Hydro and rented to employees stationed in the town. Manitoba Hydro homes accounted for approximately 322 units that ranged in size (from 600 to 1,650 square feet) and type (apartment, trailer, townhouse and single family dwellings). The majority of Manitoba Hydro and other institutional units were single-family and duplex homes. Only 37 units were apartments (HTFC 2008). Improvements are being made to many units, including the addition of screened porches, plumbed basements and attached garages; Manitoba Hydro homes are considered more desirable than other homes in Gillam (FLCN KPI Program 2009-2011).

Manitoba Hydro employees are eligible for a corporate housing subsidy as part of their compensation/benefit package (HTFC 2008), although there is a waiting list. Housing units are being built to match the expanding needs of Manitoba Hydro in the region and in order to accommodate growth. Manitoba Hydro has plans to build a minimum of 200 houses in Gillam over the next 10 years for staff employed as a result of upcoming projects in the region (Gillam KPI Program 2009-2010).

Gillam's new Development Plan recommends developing a multi-stakeholder affordable housing strategy

for non-Hydro employees to access a range of housing and living options (Dillon Consulting 2012). Manitoba Hydro recently established an alternative housing program, which will help to address home ownership in Gillam, by providing employees with options to purchase their home or to rent accommodation (Manitoba Hydro, *pers. comm.* 2012).

Gillam Services is responsible for maintaining corporate housing and other corporate facilities in the community (Gillam KPI Program 2009-2010).

Table 4-11: Housing Ownership in Gillam

Owner	Number of Units
Manitoba Hydro	322*
Trailer Court	123
FLCN (units on Kettle Crescent and on Hudson Bay Railway land)	36
Frontier School Division	14
Town of Gillam	10
Her Majesty the Queen (HMQ), Canada (RCMP)	10
Private	8
Manitoba Housing Authority	7
Manitoba Telecom Services (MTS)	3
Canadian Mortgage and Housing Corporation (CMHC)	1
Total	534

Source: HTFC 2008.
 Note:
 *Includes 13 units in the Trailer Court.

In addition to Manitoba Hydro, other organizations that own homes in Gillam identified in Table 4-11 include the Frontier School Division, Town of Gillam, Her Majesty the Queen (HMQ) Canada (RCMP), Manitoba Housing Authority, MTS, Canada Mortgage and Housing Corporation (CMHC) and a few private individuals. Most privately owned housing in the town is in the Gillam Trailer Park and along the rail line. This housing consists of factory built homes and trailers of varying quality and condition. Home ownership in Gillam is restricted by the limited availability of serviced land and high development costs owing to remoteness and soil conditions that require the construction of costly foundations. As a result, trailer homes on surface foundations are the most available and affordable home ownership options in Gillam (HTFC 2008). Manitoba Hydro has recently established an alternative housing program that is designed to help alleviate some of the pressure on housing in the community (Manitoba Hydro, *pers. comm.* 2012).

Temporary Accommodation

Temporary accommodations can be found at the Aurora Gardens Motel (21 original rooms and 14 recently added rooms) and the Gillam Motor Inn (36 rooms), two long-standing businesses in Gillam. In

addition to accommodations, the Aurora Gardens restaurant, Mile 326, (operated by a FLCN/Sodexo partnership) provides buffet-style meals and recently began catering services. The Gillam Motor Inn has a restaurant, a lounge (Lucky's Tavern) and vendor. Throughout the year, both businesses often have no vacancies and the expectation is that this situation will continue into the foreseeable future. Both businesses note that the recruitment and retention of staff is currently challenging, and is expected to remain so into the future (Gillam KPI Program 2009-2010). In 2010, Manitoba Hydro purchased modular units to accommodate up to 60 people. This facility, to be operated as a FLCN/Sodexo partnership, has been targeted to house workers on the Kettle Generating Station upgrade (*i.e.*, stator replacement) and for future capacity in Gillam, including use by workers on future Gillam-area Manitoba Hydro projects.

4.3.2.3 Thompson

The estimated number of housing units in the City of Thompson varies according to source. The Manitoba Provincial Assessment Office indicated that, as of October 1, 2008, there were 3,150 individual housing units in Thompson, including single-detached housing, duplexes, townhouses, row housing and mobile home units and 2,223 apartment units (Thompson KPI Program 2008-2010). In February 2010, the City of Thompson Post Office reported that there were 3,509 single-detached houses, townhouses, duplexes and mobile-home units and 1,700 apartments in Thompson (Thompson KPI Program 2008-2010). The 2006 Statistics Canada Census data indicated that there were 3,355 single-detached houses, row houses, detached duplexes, other single attached houses and movable dwellings and 1,465 apartment units (Statistics Canada 2007a).

In mid-2008, Thompson experienced a period of peak economic growth. At that time, it was estimated that the city needed approximately 750 new housing starts to keep up with demand (Service Canada 2009). The lack of available housing caused some market price inflation and resulted in an increase in housing values. As in other areas of Manitoba, housing prices saw a subsequent increase of 6% in 2009 (CMHC 2009).

To address the very low vacancy rate for rental accommodation (see Table 4-12 below), Vale secured housing for their new hires and temporary workers by signing long-term leases at relatively high rates. Similarly, a number of businesses and service providers in Thompson have acquired apartment blocks to ensure that they will have housing available for their own employees and short-term workers (Thompson KPI Program 2008-2010).

Table 4-12: Rental Property Vacancy Rate in Thompson (2000 – 2009)

Thompson Data	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Apartment Vacancy Rate (%)	18.4	10.6	4.78	2.42	2.6	1.63	0.98	2.4	0.2	0.2	0.3	0.5

Sources: Thompson KPI Program 2008-2010, CMHC 2009; CMHC 2011.

Owners of apartment facilities are given an exemption to rent controls in the *Residential Tenancy Act* (Manitoba) if they undertake a major renovation. As a result, several landlords in Thompson undertook major renovations to their properties and substantially increased their rent. This has affected 499 units in the last few years (Thompson KPI Program 2008-2010). There was also a move to convert some rental units into condominiums, for example, both Princeton Towers and Corayana apartments were targeting conversions; however, poor sales has slowed or eliminated this strategy. In October 2009, Thompson had a total of 1,623 units available for rent; by spring 2011 the number of units had dropped to 1,327 (CMHC 2009, 2011).

These renovations and price increases resulted in a major decrease in the number of affordably priced rental units and an increase in the number of high-end rental units and condominiums in the Thompson market. The demographics of the tenants were also changing. Smaller families with higher incomes were moving into these recently renovated units, displacing as many as 96 families (including some 219 school-age children) who moved from the community. This resulted in the school division experiencing decreased enrolment for the 2008-2009 school year, which had implications for the budget and staffing levels for the 2009-2010 school year (Thompson KPI Program 2008-2010).

The following planned housing projects in Thompson would begin to address some of the affordable housing needs in the city (Thompson KPI Program 2008-2010):

- Twenty-four units for student housing at University College of the North, including housing for larger family units (now approved);
- Twenty family housing units by Manitoba Housing and Renewal Corporation; and
- A 16 unit project involving the Urban Aboriginal Strategy.

In the last few years there have been some individual houses built; however, few are affordable to those with middle to low incomes. There is also no retirement housing, and this has been identified as a growing need. Overall, there is currently a shortage of housing units to accommodate the existing population and this will likely continue into the near future.

Temporary Accommodation

Thompson has several temporary accommodation options available for visitors. Table 4-13 lists temporary accommodation in the nine hotels, three apartment style rental suites and one bed-and-breakfast facility that were available in Thompson in 2011 and indicates that there were a total of 553 rooms available.

Table 4-13: Accommodation in Thompson (2011)

Name of Accommodations	Number of Rooms
Hotels	
Lakeview Inn	60
Days Inn	60
Mystery Lake Motor Hotel	99
Burntwood Hotel	76
Thompson Inn	35
Meridian Motel	42
Interior Inn	54
Northern Inn and Steak House	22
Suburban Extended Stay Hotel	70
Apartment Style Suites for Short-term Rent	
Friuli Apartments and Suites ¹³	13
Home-style Suites	9
Polar Suites	6
Bed and Breakfast	
Northern Lights Bed and Breakfast	7
Total Rooms	553

Source: Thompson KPI Program 2008-2010.

Thompson hotels have been very heavily booked over the last few years with contract workers and temporary workers staying in hotels. The majority of these workers have been in Thompson to work on capital projects at Vale and other construction projects in the community. There were also a number of workers for the Wuskwatim Generation Project staying in Thompson in the early stage of construction; however, this decreased once the main camp was completed. During the winter months, the companies that conduct cold weather testing in the area also take up large blocks of hotel rooms (Thompson KPI Program 2008-2010). More recently, the BRHA has also been using short-term accommodation space (Thompson KPI Program 2008-2010). In response to demand, the new Extended Stay Hotel was constructed in 2010, and opened in May of 2011; and several apartment-style suites have been built focusing on people staying for a week or a month.

4.3.3 Infrastructure and Services – Local Study Area

Infrastructure and services available to people living in the Local Study Area are critical to meeting a wide range of human needs. In addition to housing discussed above, these needs include provision of public infrastructure (potable water, waste handling, electricity, roads and other needs) and public facilities and services to provide education, health care, recreation, social services and other government services. In many northern communities, particularly in northern First Nation communities, provision of infrastructure and services is often hampered by limited financial resources coupled with, in many cases, rapid population growth and demand for services.

This section examines the status of infrastructure and services in communities in the Local Study Area that would be likely to experience the majority of any Project-related migration and associated effects on infrastructure and services. Other Project-related change, *e.g.*, possible investment in infrastructure and services by the KCNs communities with revenue generated from their investment in the Project, could also occur in the Local Study Area. The section looks at the capacity of existing infrastructure and services to accommodate possible Project-related population change and the associated demand for service. To the extent known, future plans for infrastructure and services without the Project are also discussed.

4.3.3.1 Keyask Cree Nations Infrastructure and Services

4.3.3.1.1 Cree Nation Partners

TATASKWEYAK CREE NATION

Water and Sewer Services

The majority of the community of Split Lake has a water and sewer system. By 1992, water and sewer services were available to about 65% of the community (Split Lake Cree – Manitoba Hydro Joint Study Group 1996a). The water treatment plant was built in 1987, expanded in 2002 in anticipation of the development of a new 14-unit motel, community training facilities, proposed community complex and proposed personal care home, and then extended for greater capacity in 2005. Recently, the Government of Canada announced funding to support upgrades to the existing water and sewage facilities through the First Nations Water and Wastewater Action Plan (CNP 2010c). Upgrades in 2010 were planned for the water treatment plant and the sewage lagoon. The sewage lagoon upgrade is to service the entire Split Lake community and a projected 20 year growth. In spring of 2011, construction of the sewer project was ongoing and is expected to be completed in 2012. The project includes the installation of four thousand metres of piping and construction of a truck dump station (CNP *pers. comm.* 2011). Tataskweyak Construction Limited Partnership operates as the public works department to deliver infrastructure services related to water and sewer landfill, housing repairs, and internal roads maintenance to the community (CNP 2010c). It is equipped with a sewage truck, grader and tractor.

Community Members expressed concern about high turbidity and declining or worsening of the community's drinking water quality. This has led to many Members choosing to either boil their water or purchase bottled water (CNP 2010c).

Utilities

Split Lake receives electrical service from Manitoba Hydro via landline from Kelsey Generating Station to a substation approximately 3 km from the community. MTS provides individual line service and digital switching with toll-free calling to Gillam and War Lake. Until recently, the community had no cell phone coverage. Today, Split Lake has 1X Digital Coverage from MTS. The community has satellite television with 80% of the homes subscribing to Bell Satellite TV, Shaw or Star Choice systems. Radio stations include CBC, CHTM (Thompson), NCI Radio and a local volunteer radio service CJKD. TCN owns Northstream Communications Ltd. Partnership, which has provided high-speed internet service to all TCN facilities and 60 homes since 2007. Internet residential installation costs and monthly fees are higher than those for urban centres like Thompson (CNP 2010c).

Fire and Ambulance

In Split Lake, there is a volunteer fire crew of approximately 10 Members, headed by the Fire Chief and a Deputy Chief cross-trained as paramedics. The fire hall is equipped with a fire truck, water truck and ambulance. The community Health Centre has a full-time dispatcher/security guard who is responsible for informing the volunteer fire/ambulance crew of medical emergencies requiring ambulance transportation. Medi-Vac services are provided through the Thompson Airport. Community fire hydrants are limited to those areas of Split Lake serviced with piped water (CNP 2010c).

Policing

The community of Split Lake has two full-time special constables who have received special training and provincial accreditation; two additional full-time constables who have not completed the specialized training and 7-10 part-time, untrained constables. A new three-cell Band Constable station including dispatch office, waiting room and offices has been in operation since early 2011; however, some equipment upgrades are required (CNP *pers. comm.* 2011). Constables patrol the community by car, and are responsible for taking emergency calls.

The RCMP from Thompson travel to the community for investigative work on a weekly basis. A TCN Member is in charge of the restorative justice program in the community; however, no other RCMP programs are delivered in the community (CNP 2010c; CNP *pers. comm.* 2011).

Key person interviews indicated that there is an overall concern for violence and crime in Split Lake. There has been a noticeable increase in vandalism, youth crime and physical violence. Some community Members suggested that better funded recreation programs could help reduce youth crime (CNP 2010c).

Education

In September 1991, the Chief Sam Cooke Mahmuwee Education Centre was opened, which provided K-8 education services at the time. In 1994, six classrooms were added to the Centre to accommodate high

school students. The school has a maximum capacity of 500 students, and in 2010 served 652 students. Overcrowded classrooms and general lack of space due to the increased number of students has been an issue for the school. The music room was recently converted into an additional classroom to better accommodate the overload of students (CNP 2010c).

The Education Centre is divided into elementary, middle and high schools, each headed by a separate principal. In addition to the principals, there are over 30 full-time certified teachers and 20 full-time teaching assistants, as well as a support staff of over 15 including resource coordinators, guidance counsellors and Elders (CNP 2010c).

In 2010, the school gym suffered considerable damage in a fire. Prior to the fire, the gym was available to the community for recreational, conference and public health needs. Recreational activities included tai chi, bingo, league volleyball, and square dancing. The gym has also been used to host the Keewatin Tribal Council Chiefs Assembly conference, as well as other community gatherings, such as the annual Grade 12 graduation ceremony. Public health activities held in the gym include retinal screening and the recent H1N1 mass vaccinations (CNP 2010c). The fire aggravated lack of space and community access issues related to the use of the school for both education and community programming. The length of time for repairs resulted in the closure of the school between April 2010 and November 2010, which resulted in students missing school for a considerable time as there is little alternative space. Eventually, the high school students were housed at the TCN Regional Training Centre and the elementary students were transferred to multiple locations including the Band office, the Keeyask office, the youth centre, the church, the day care centre and the TCN Arena (CNP *pers. comm.* 2011).

The Tataskweyak Education Authority is the responsible agency for delivering the K-12 education to the community. The Authority has a full-time staff of four, including a director, to deliver community education services. The Education Authority follows the provincial curriculum, and has developed culturally sensitive and protective outreach programs for children and youth. Other responsibilities of the Education Authority include finance administration, home school programming for families, off-reserve high school placements, and coordinating post-secondary education needs for community Members (CNP 2010c).

Split Lake also has The University College of the North Regional Centre located about 5 km outside of the community. The Centre acts as a liaison between the University College of the North, enrolled students and on-reserve Members seeking post-secondary training. In 2010, there were 16 TCN Members enrolled in the Recreation Leadership Program and five Members enrolled in the Facilities Technician Program. Staffed by local and visiting instructors, the Centre offers various construction and trades training programs. The Centre is being managed by a full-time regional coordinator. At the time of writing, funding was being sought to continue post-secondary training (CNP 2010c; CNP *pers. comm.* 2012).

Childcare

The Tataskweyak Cree Nation Headstart/Day Care Centre was opened in 1997 and is funded by the Health Canada Headstart On-Reserve Program. The director and six full-time employees are responsible for caring for approximately 30 children, of which less than 10 are infants. Services include basic health

care, meals and early childhood education activities, including reading and writing exercises. At the time of writing, the Day care Centre was operating at capacity, and could not accept more children or hire additional staff due to funding constraints. There were 16 infants on the waiting list. Day care equipment was also in need of upgrading (CNP 2010c). Currently, limited available childcare affects those families that may wish to pursue local employment opportunities.

Health and Social Services

It should be noted that in terms of healthcare services, the 1964 Memorandum of Agreement between the Department of National Health and Welfare (federal) and the Manitoba Department of Health (provincial) stipulated the shared provision of health care services by these two levels of government to select northern Manitoba communities, including fiscal responsibility for transportation of staff and patients between health centres. Split Lake is covered by the federal government in terms of “clinical and public health services in the field” (Memorandum of Agreement 1964).

The community has a 15-unit elderly person home that currently houses 16 Elders. Five full-time shift workers provide 24-hour caretaking, meals and maintenance services. There is an additional unit at the home for a staff member. At the time of writing, the home was at capacity and required upgrades (CNP 2010c).

The John Wavey Health Centre opened in February 2009 as a replacement for the former nursing station. The Health Centre has a dedicated unit for emergency patients, a pharmacy, a kitchen, accommodations, a small meeting room and facilities used for visiting health professionals, public health education and health promotion. The facility is operated through Health Canada’s First Nations and Inuit Health Branch and has more than 12 staff, including a director, five full-time public health nurses, support staff, and a full-time dispatcher for coordinating Medi-Vac and ambulance transportation. A new nurses residence was recently completed to house portions of the staff (CNP 2010c; CNP *pers. comm.* 2011).

In general, residents are concerned with the community’s capacity to deal with increasing diabetes rates and has “stated there was a desperate need for more health facilities and space for workshops to promote healthy lifestyles to combat this trend, in addition to a long-term plan for in-community dialysis and diabetes treatment” (CNP 2010c). The rate of incidence of diabetes and other current health issues are discussed further in the Section 5.3.2, Community Health.

Funded through a contribution agreement with Health Canada, TCN provides a number of health services to its Members, including Brighter Futures Initiative, Canadian Pre-Natal Nutritional Program, Fetal Alcohol Syndrome/Fetal Alcohol Effects Initiative, Aboriginal Diabetes Initiative, Building Healthy Communities, National Native Addictions Drug and Alcohol Program (NNADAP) and Home Care Services (CNP 2010c).

Community and family well-being is promoted through a number of public education and awareness programs, including Youth Healthy Living Education and Awareness, Smoking Cessation Program, Fetal Alcohol Syndrome/Fetal Alcohol Effects Initiative, Health Food Coupon Program, Breast Feeding Education, Aboriginal Mental Health, Aboriginal Youth Suicide, Violence Against Women and Domestic Violence Education and Awareness and Counselling for Residential School Experiences. The community hall and youth centre provide a space for program delivery which usually take the form of workshops or

meetings. Alternatively, programs are also provided through one-on-one monitoring and counselling. A mental health therapist visits TCN once a month to provide support, and Building Healthy Communities and NNADAP workers provide referrals to external therapists and addictions programs. The community's whole health team monitors levels of drug and alcohol abuse, domestic violence and self-injury behaviour (CNP 2010c).

Three Community Health Representatives provide assistance to community Members in coordinating appointments with First Nations and Inuit Health Branch nurses and public health service outside the community, delivering home and community care services and also assist in the delivery of public education and awareness programs. Vans designated for medical travel transport Members to appointments with specialists in neighbouring regional centres such as Thompson (CNP 2010c).

The Community Health Representative home care services provide support concerning infant care, nutritional awareness, physical activities and diabetes control programs as well as other Health Canada initiatives. First Nations and Inuit Health Branch's public health team works in conjunction with the Community Health Representatives to deliver primary and emergency care in Split Lake, including a weekly diabetes clinic (CNP 2010c).

Community Members have expressed concern that Split Lake needs between two and three additional NNADAP workers (at the time of writing Split Lake had one NNADAP worker) to deal with community substance abuse, as well as a substance abuse treatment program located in the community. Community facilities and services are described as "inadequate and greatly underfunded", with upwards of 60% of Members traveling to Thompson and 40% to Winnipeg to obtain treatment for diabetes and to access primary care services, such as dentistry and midwifery. Staff retention, especially First Nations and Inuit Health Branch public health nurses, is a concern, as is coordination between the various health agencies and programs (CNP 2010c).

Social Services

Two full-time social development workers and one membership clerk, who work and report to Chief and Council, are responsible for the delivery of income assistance services such as income assistance, employment and disability insurance, and Indian registry and Treaty payments. To achieve the long-term goal of full employment of the on-reserve workforce, TCN is working with a Thompson-based independent economic development advisor (CNP 2010c).

Split Lake's social services also include the Awasis Child and Family Services Agency which has been operating in the community since 1990. A Unit supervisor and eight full-time workers follow the mandate of the Government of Manitoba for the delivery of family protection services, which includes foster care, while working within the rules and framework of established by Tataskweyak Cree Nation. Community Members expressed concern over increasing substance abuse resulting in more Awasis interventions and placement of children in foster care. Coordination between Awasis, NNADAP and other social services was identified as being very important (CNP 2010c).

TCN has also recently developed community outreach programs. One of these, the Troy Lake Summer Day Camp Program, has operated each summer since 2006 and focuses on empowering youth and strengthening community cohesion through traditional pursuits. This program has been funded by

Manitoba Hydro; however, continued funding is not guaranteed. Approximately 100 children and youth aged 7-14 participate annually over a four- to six-week period (CNP 2010c).

Multi-year funding for the Tataskweyak Cree Nation Ooskahtisuk Club Project was recently approved by Public Safety Canada. The project is designed to reduce substance abuse and anti-social behaviours among children/youth and is expected to encourage community cohesion by strengthening intergenerational exchanges between Elders, parents and children/youth; teaching skills and appreciation for traditional pursuits; and promoting a strong understanding of cultural history and tradition (CNP 2010c).

The community also receives social, spiritual and emotional support through the St. John Baptist parish, including such programs as the Diocese of Keewatin Cross-Cultural Canoe Experience and Bible Camp (CNP 2010c).

Recreation

The Tataskweyak Trust Secretariat is responsible for administering cultural and recreational programs and institutions, including the Youth Centre and TMC Arena which was funded by the Tataskweyak Trust Secretariat. Built in 2005, the Youth Centre was established as a space to host sports and cultural activities for youth; however, the facility is currently vacant and requires major repairs to its flooring. At the time of writing, the Youth Centre had not been fully staffed for two years, and programming responsibilities rested with the one full-time recreation director. The director is assisted by a 10-member recreation committee to plan, develop and administer recreational programming in Split Lake. TCN would like to have two full-time and two part-time staff involved in recreational programming. The following major events are planned by the recreation committee: Winter Festival, Indian Treaty Days and Troy Lake Summer Day Camp (CNP 2010c).

The TMC Arena, built in the mid-1990s, is a multi-purpose facility that houses a hockey rink and skate-sharpening services, an equipment shop, a floor hockey and fitness area, indoor volleyball courts, video lottery terminals and a canteen. The arena is used for training workshops and also has an outdoor baseball diamond for use in the summer months. Operation and maintenance of the arena are provided by the Tataskweyak Trust, which is also responsible for the delivery of community youth activity programs (*e.g.*, sports tournaments). The arena is staffed with a full-time manager, two full-time maintenance workers, part-time security personnel, and a seasonal ice maintenance crew. A hockey league with over 400 participants is run by the recreation director and arena manager. The recreation director is also responsible for running the volleyball league and roller blade events in the summer months, when the arena is converted to summer time use (CNP 2010c).

Some community Members suggested that better funded recreation programs could help reduce poor behaviour among youth, and improve general community health through physical activity, cultural strengthening and better lifestyle choices. One suggestion was to initiate a canoe club; other suggestions included improved access to traditional pursuits (CNP 2010c).

The Tataskweyak Education Authority provides extra-curricular activities for children and youth, including a square dance club, after-school sports (such as badminton, basketball and cross-country skiing), and other programs, including art, music, woodworking and scholastic competitions in math and

science. High school intramural sports include volleyball, basketball, soccer and track and field. Programs available to adults include weight loss and tai chi (CNP 2010c).

Offset Programs identified in TCN's Adverse Effects Agreement (AEA), which encourage greater outdoor physical activity through traditional pursuits in the bush, are managed by the Tataskweyak Future Development Program (CNP 2010c).

The TCN Gaming Commission owns and manages the video lottery terminals located in the arena and the hotel. Video lottery terminal revenues are retained for community improvements. The Gaming Commission, with a full-time staff of six, is also responsible for organizing bingo nights and community events, such as the annual fishing derby on Split Lake (CNP 2010c).

Other Services

The Band office was constructed in 1990. The office was recently upgraded and houses many of TCN's government services and public service employees. Community programs, institutions and processes including culture and recreation, home care, commercial and domestic resource use, housing construction and renovation and the TMC Arena are administered through the Band Office (CNP 2010c).

TCN's Band hall is the hub of the community, housing Membership meetings, cultural festivals and other informational sessions. The radio station is also operating out of this facility (CNP 2010c).

Construction is set to begin on the Keeyask Centre, an 8,000 square foot building which will provide facilities for the administration of the Offsetting Programs, such as the Healthy Food Fish Program and the Spring and Fall Access Programs (described further in Section 4.4.1.3). The project will be funded through the Keeyask AEA (TCN 2011).

The St. John the Baptist Anglican Church opened in 2009 after the original Church burnt down in 2006. Six ordained priests and eight lay readers serve the community and report to the Diocese of Keewatin. The church now features a new organ and piano for the TCN Junior Church Choir and an active Women's Auxiliary Group provides many community services (CNP 2010c).

WAR LAKE FIRST NATION

As indicated in Section 2, Historical Context, WLFN and the Ilford Community have been closely linked for many years. Services are shared between the Ilford Community and the WLFN reserve, with responsibilities for delivery and maintenance either jointly shared (as is the case for the roads) or managed by one group for the benefit of both (as is the case for the water and sewage treatment plant).

Water and Sewer Services

The fresh water source for the Town of Ilford is Moosenose Lake. Water is pumped from the lake, chlorinated and delivered to two standpipes for use by community residents. The water treatment plant was built in the early 1990s to serve approximately 25 households and all public facilities in the community. The water system is prone to issues, particularly in the winter when intake freezing at Moosenose Lake and air locked lines can occur (CNP 2010f).

Sewage is disinfected using a UV light system at a community sewage plant that was installed in 1994. This system was intended to serve 25 families with some capacity for growth.

In March 2009, the Government of Canada announced funding for upgrades to the existing water and sewage treatment plants to address the community's current and future needs (Government of Canada n.d.). Construction has since been completed in 2011 and the plant is being operated according to INAC's standards. Currently, the Ilford Community's public works department operates the plant, employing WLFN Members as the plant operator (full-time) and technician (part-time). Responsibility for water and sewer services is expected to be transferred to WLFN (CNP 2010f). Plans are also in place for a new sewage lagoon; however, no funding has been allocated at time of writing (CNP *pers. comm.* 2011).

Landfill

A new landfill site was selected in 2008, approximately 8 km from Ilford. The new site has over ten separate garbage deposit areas, each handling approximately 20 tonnes of garbage. The old site continues to be used for scrap metal. Garbage pick-up is twice weekly. At the time of writing, there was no recycling program, although WLFN has expressed an interest in having one (CNP 2010f).

Utilities

Manitoba Hydro provides electricity to Ilford and WLFN, serviced through Gillam. MTS provides individual line service and digital switching, with toll-free calling to Gillam and Split Lake. High-speed internet was recently provided by Northstream Communications, a TCN-owned business, to all WLFN facilities and about 80% of the homes. Costs for this service are considerably higher than for Manitoba's urban businesses and residences in major centres (CNP 2010f).

Since reception improvements were made out of Thompson in 2003, radio reception in the community includes CBC Radio 1 and 2, CHTM out of Thompson and NCI Radio. Most Members (about 80% of homes) rely on satellite television, with most subscribing to Bell Satellite TV, Shaw or Star Choice systems (CNP 2010f).

Fire and Ambulance

The community relies on the Ilford Community Council, which is responsible for fire-fighting. Ilford has a fire hall and volunteer fire-fighting staff. Fire-fighting capability includes a well-equipped pumper truck from the community fire hall and portable forestry equipment for grass and brush fires. Medi-Vac services are available through the Ilford airport and are coordinated by the Ilford Community Health Centre (CNP 2010f).

Policing

A community-based Band constable works closely with the RCMP Gillam Detachment. The Band constable is responsible for routine patrols and takes occasional emergency calls (primarily domestic disturbances). WLFN previously employed two Band constables and at the time of writing, were investigating funding programs to restore the additional position. The RCMP detachment provides once-

a-month visits and is on-call for emergencies. It often takes two hours to respond to an emergency call. The RCMP provides some youth focused initiatives through the Julie Lindal Public School, however the community is not involved in any of the RCMP's Crime Prevention, Restorative Justice and Alternative Justice Programs (CNP 2010f; CNP *pers. comm.* 2011).

Education

The Moosecoot Education Authority manages and administers education for WLFN Members on-reserve attending Julie Lindal Public School. The nursery to grade eight school is located in Ilford and falls under the jurisdiction of the Frontier School Division. The school is staffed by a principal, one teacher and three support staff and is equipped with four classrooms that can each accommodate 15 students, a library, a gymnasium and a playground. The school uses mixed grade classes by subject for grades one to eight and serves approximately 25 students annually. There were 25 children enrolled in the 2009/2010 school year (CNP 2010f). Students must leave the community to attend high school and often go to communities such as Thompson or Gillam. The school has sufficient capacity to accommodate population growth. WLFN Members expressed interest in having a high school program located in the community (CNP 2010f).

The War Lake First Nation Band Office is also equipped with a boardroom with computers that is available for adult education programs (CNP 2010f).

Childcare

The WLFN Day Care Centre was re-opened in 2009 in response to an increase in the number of WLFN Members undergoing training or working outside the community and is operating at capacity. The Day Care Centre is funded through the Aboriginal Human Resources Development Agreement and operates through the Band office. The Day Care Centre employs two full-time childcare workers and one part-time assistant and can care for up to five children at a time (infant to toddler) (CNP 2010f).

Health and Social Services

As previously noted, the 1964 Memorandum of Agreement between the Department of National Health and Welfare (federal) and the Manitoba Department of Health (provincial) stipulated the shared provision of health care services by these two levels of government to select northern Manitoba communities (including fiscal responsibility for transportation of staff and patients between health centres). Ilford (and therefore WLFN Members residing at Ilford) is covered by the province in terms of "clinical and public health services in the field" (Memorandum of Agreement 1964).

The 275 m² Ilford Community Health Centre was opened in November 2007. The facility includes two patient examination rooms, sleeping accommodations for visiting physicians and health providers, secure supply storage areas and wheelchair access. The facility is run by the BRHA and funded by the Province with primary medical care provided by a public health nurse. The public health nurse is responsible for providing blood work and attending to IV lines as required, as well as administering medications and mental health referrals. A physician is scheduled to visit the community once every three weeks, although the schedule can vary due to weather conditions and transportation challenges. The community has

noticed an improvement in basic, primary and emergency health care since the opening of the new health centre (CNP 2010f).

The First Nation provides a number of health services funded under a contribution agreement with First Nations and Inuit Health Branch and coordinated by the WLFN health director who is supported by three Community Health Representatives. Programs offered through the Health Centre include the Brighter Futures Initiative, Building Healthy Communities, Canadian Pre-natal Nutrition Program, NNADAP and the Home and Community Care Services, which focuses on caring for Elders. Counselling services are also provided, although the community recently stopped having a mental health worker from Gillam come to visit. Efforts are underway to start a mental health healing circle. The NNADAP worker provides counselling for drug and alcohol use, residential school victim support and victims of spousal abuse. There is a safe-house for women experiencing domestic violence (CNP 2010f).

Social Services

A social development worker and an education and training coordinator deliver social services under the direction of the Band Chief and Council. Primary responsibilities include social income assistance, employment assistance, disability assistance, Indian registry and Treaty payments, job search services, training placement and educational upgrade coordination. The First Nation also provides specific community outreach programs, such as the Healing to Build Family and Community Project, a multi-year program that ended March 31, 2010, which had been funded by the Aboriginal Healing Foundation (CNP 2010f).

The Northern Lights Place of Learning Centre, opened in 1997, was previously owned and operated by the Awasis Child and Family Services Agency. The facility features a training room, breakout session rooms, a dining room and overnight accommodations. WLFN has recently taken over operation of the building, to be used as a fitness facility and as lodging for contractors and guests. The community can now accommodate approximately 25 guests: six at the trailer, 15 at the Learning Centre, and four at the Lodge (CNP 2010f; CNP *pers. comm.* 2011).

Recreation

The community's Laliberty Memorial Centre was built in 2008 as a multi-purpose, 278.7 m² community hall that is used for community meetings and feasts, weddings, funerals, indoor sports and other recreation activities. The Centre is equipped with a large kitchen. The Mooseocoot Education Authority is involved with planning youth-focused recreational activities and events. Most activities and events take place in either the school gym or the Laliberty Memorial Centre (CNP 2010f).

Recreational programming is the responsibility of a five-member committee that reports to Chief and Council. Youth-focused recreational programs and associated infrastructure are key concerns for WLFN. There is a ballpark (outdoor baseball diamond); however, the portable ice rink installed previously had to be dismantled due to maintenance problems. The Recreation Committee is currently pursuing funding for an arena/ice rink and a youth drop-in centre to address the need for more youth-oriented facilities. The Mooseocoot Education Authority is also involved in youth-focused recreational activities and events (CNP 2010f).

WLFN holds annual community events including a winter carnival, Indian Days Summer Festival and a pike fishing derby, the latter being a community fundraising event for adults and children. Approximately 70 fishermen participate annually. The Summer Festival is focused on youth and is generally well attended by community families for such activities as foot and canoe races, arm and leg wrestling, archery and square dancing. Other sports and cultural activities are held at the school, including badminton, floor hockey, trap setting, archery and fiddling (CNP 2010f).

Other Services

In April 2010, WLFN opened an on-reserve convenience store and gas bar facility called the Moosecoot Convenience Store and Gas Bar that offers groceries, confectionery items, fast foods, gas and diesel fuel. The facility also houses Video lottery terminals, a coffee area, game tables, and a one-bedroom on-site house that is planned to be a part of a future motel complex (CNP 2010f).

4.3.3.1.2 Fox Lake Cree Nation

The following information on infrastructure and services relates to FLCN's on-reserve community at Fox Lake (Bird). Information related to infrastructure and services accessed by FLCN Members living in either Fox Lake (Bird) or Gillam has been included under Section 4.3.3.2 on Gillam. As a part of their AEA, FLCN intends to address some of its immediate infrastructure needs in both locations (Neepin *pers. comm.* 2011).

Water and Sewer Services

The on-reserve community at Fox Lake (Bird) obtains its water from the Nelson River and since 2006, a water treatment plant has been treating the community's drinking water. The plant filters and chemically treats the water and has the ability to supply clean drinking water for up to 500 people. Overall, the water treatment system is in good working order and, based on INAC and Health Canada estimates of FLCN population living on-reserve or on Crown land at Fox Lake (Bird) at approximately 270 people, the system has the ability to accommodate growth in the population (FLCN KPI Program 2009-2011).

All homes and buildings in the community are serviced by a sewer line and a mechanical aeration system is used to treat wastewater. No sewage lagoon or sludge bed is available in the community, so all heavy sludge is transported to Gillam. Upgraded in 2004, the sewage treatment system in Fox Lake (Bird) can serve approximately 60 homes and is operating at capacity; therefore, it cannot accommodate an increase in population. The existing system requires a major upgrade to adequately serve the community. At the time of writing, a proposal for an upgrade of the system was being prepared (FLCN KPI Program 2009-2011).

Landfill

Garbage pick-up in the community of Fox Lake (Bird) occurs three times per week. The existing landfill, located approximately 2 km from the community, is already operating at capacity and the community has plans underway for a new landfill site within the next five to ten years (FLCN KPI Program 2009-2011).

Utilities

Manitoba Hydro provides electricity and Manitoba Telecom Services provides telephone service to the on-reserve community of Fox Lake (Bird). Residential internet access is via no-charge dial-in service.

Fire and Ambulance

In the past, a volunteer Fire Department operated in the community of Fox Lake (Bird). However, due to a shortage of funding, inadequate equipment and an apparent lack of interest, the program has been inactive for several years. Fire and ambulance services are currently provided by the Town of Gillam (FLCN KPI Program 2009-2011).

Policing

The community of Fox Lake (Bird) has one Band constable for community policing. The Band constable reports to the Chief and Council and is responsible for alcohol, drug and curfew enforcement, and keeping the peace. The community also relies on the Gillam RCMP detachment, which is called upon for more serious matters. It was noted that there is a positive working relationship between the Band constable and the Gillam RCMP detachment (FLCN KPI Program 2009-2011).

FLCN has identified a need for additional support staff, particularly a female Band officer who can search female suspects. FLCN has also indicated that additional funding and staff are needed for the Band constable to adequately provide services to the existing population. Any growth in the population would place additional stress on community policing efforts (FLCN KPI Program 2009-2011).

Education

The Fox Lake School in Fox Lake (Bird) opened in September 2005, replacing the portable classrooms previously used. The 1,468 m² kindergarten to grade eight school has three classrooms, a computer room, a library, a kitchen, and a full-size gymnasium, as well as 432 m² of living space for teachers. At present, the school has 10 full-time staff including eight educators and two administrative staff. Recruiting and retaining teaching staff remains a key challenge, primarily due to salaries and housing. At the time of writing, 29 students were enrolled in the school; however, the school had capacity for another 30 students. Some families choose to send their children to the Gillam School rather than the Fox Lake School in Fox Lake (Bird). After grade eight, students must attend school elsewhere, with the majority of students attending school in Gillam. Students are bussed into Gillam on a daily basis to attend the Gillam School (FLCN KPI Program 2009-2011).

There is a home school coordinator who acts as a liaison among the students, parents and school and provides services and resources for special needs students. The coordinator also makes home visits and coordinates a number of other school-related functions. In fall 2009, the home school coordinator was responsible for 120 students attending school in both Fox Lake (Bird) and Gillam (FLCN KPI Program 2009-2011).

Childcare

A day care program associated with the Adult Education Program at the Fox Lake School was provided for one year (2007-2008); however, the day care program was unable to continue due to a lack of funding. The First Nation is currently discussing options to provide day care services in both Fox Lake (Bird) and Gillam and is seeking a qualified early childhood educator (FLCN KPI Program 2009-2011). Any population growth would exacerbate the shortage of childcare services in Fox Lake.

Health and Social Services

As previously noted, that in terms of healthcare services, the 1964 Memorandum of Agreement between the Department of National Health and Welfare (federal) and the Manitoba Department of Health (provincial) stipulated the shared provision of health care services by these two levels of government to select northern Manitoba communities (including fiscal responsibility for transportation of staff and patients between health centres). Fox Lake (Bird) and Gillam are covered by the province in terms of “clinical and public health services in the field” (Memorandum of Agreement 1964). Further information as it relates to FLCN concerns regarding this arrangement are provided in Section 5.3.2, Community Health.

Fox Lake (Bird) does not have a full nursing station but does have a community health centre. The health centre is over 20 years old; during the community-based research program, staff noted that plans for a new nursing station are part of FLCN’s 20-year capital development plan. However, FLCN indicated frustration in dealing with the various levels of government that are responsible for funding infrastructure, health services and programming in the community as delays and lack of progress are common issues.

FLCN Members use the Gillam Hospital when in need of primary health care. It was noted that having FLCN Members in Fox Lake (Bird) use their local community health services instead of traveling to Gillam was also a challenge. This is because the health centre can only provide some basic services including access information, transportation for medical appointments, and provision of a home care nurse for clients with a Community Health Representative worker. At the health centre, a community health program is in place that focuses on health education and outreach. In addition, a nurse provides wound care, changes bandages, helps people with their medication and does checkups (FLCN KPI Program 2009-2011).

Health services provided through the program include the NNADAP, Building Healthy Communities and Brighter Futures programs. The NNADAP program is in need of additional supports to help manage the caseload and there are plans to expand in the near future. The community health program also provides services associated with other aspects of community health, mental health, medical transportation (for Members requiring help getting to Gillam for medical reasons), diabetes and pre-natal classes, support for Fetal Alcohol Syndrome, home care and others.

Recruitment and retention of nursing staff is a challenge for the community health program at Fox Lake (Bird) and, as of spring 2011, the program was operating with one nurse on a two-weeks in/two-weeks

out rotation. The community is hoping that one of their own Members will pursue education in the health field to fill the gap in the long-term.

The Gillam office of the Awasis Agency of northern Manitoba provides child and family services to FLCN Members living in Fox Lake (Bird) as well as Gillam. As noted in Section 4.3.3.2, Awasis provides education, prevention and crisis response/protection relating to family issues in the community, as well as foster care for children in need. Awasis also works with other programs such as NNADAP, Brighter Futures, Building Healthy Communities, the RCMP and the school. For further details on Awasis and other health and social services available to FLCN Members living in Fox Lake (Bird) and/or Gillam, please see Section 4.3.3.2.

Other than the identified need of a nursing station, community Members would like to have an independent living facility built for Elders with a nurse on staff. Elders don't want to move to Gillam, but there is no assisted living in Fox Lake (Bird). Fox Lake (Bird) is where their family is; however, some Elders need to have access to 24-hour care while living independently (FLCN KPI Program 2009-2011).

It has been noted that outdoor pursuits, including fishing, boating, canoeing, snowmobiling, hunting and swimming are enjoyed by youth and other Members of the community. While there are currently no dedicated recreation facilities at Fox Lake (Bird), the school is often used throughout the year for community activities. For example, Treaty Days, sports nights and community feasts have been held at the school in past years, along with non-school meetings. The drop-in centre is no longer able to be used as a facility for youth to get together. Youth in the community have expressed a need for more facilities and recreational opportunities and activities at Fox Lake (Bird.) This was echoed during the community-based research program where it was noted that a facility for kids' recreation would go a long way to improving overall health in the community (FLCN KPI Program 2009-2011). Recently, FLCN has held a spring Goose Camp for the past five years and in 2011 a Moose Camp of one week was held (FLCN KPI Program 2009-2011).

FLCN Members attend various events and activities in Gillam, including bingo nights. Gillam's Recreation Centre and the Nelson River Aquatic Centre are also utilized by some Members, including the youth drop-in centre, although concerns have been raised regarding barriers to their involvement (for example, user fees, the need and cost for the hour's one-way travel from Fox Lake (Bird) to Gillam, and in the case of the drop-in centre, irregular hours) (FLCN KPI Program 2009-2011).

4.3.3.1.3 York Factory First Nation

WATER AND SEWER SERVICES

The community draws its potable water from the channel on Split Lake where the Aiken and Nelson rivers meet. The water is then treated in a chemical water treatment system that was built in 1997 and piped throughout the community to each home and to other buildings. A second source of potable water treated by a reverse osmosis system is available through faucets located at the water treatment plant where individuals can fill their own containers with water. This alternate source of water is preferred for drinking and cooking (YFFN KPI Program 2009-2010).

The current water treatment system has four underground reservoirs that can hold 600,000 litres of water. The existing water treatment system is complex, complicated by seasonal shifts in the mixing point of water from Slit Lake and the Aiken River. Some of the electrical components and system piping need upgrading. At the time of writing, there were plans to expand the physical size of the water treatment plant to accommodate larger tanks, although there was still capacity for an additional 15 to 25 housing units (YFFN KPI Program 2009-2010).

Despite the use of the water treatment system, water quality is a major ongoing concern in the community. Individuals have strong concerns about the odour, taste, colour and health effects of the water, as well as the frequent boil water advisories (YFFN 2010). There are also concerns about skin rashes and itchy skin believed to be caused by the water supply. The same types of concerns are noted by individuals who swim near the community (YFFN KPI Program 2009-2010).

To handle sewage disposal, the community uses a lagoon system, built in 1998, with a series of lift-stations and pumps. The lift-stations are operated manually, since the electrical system related to the lift-stations requires repair. Two sewage pumper trucks are used in the community to move the sewage from the lift-stations to the sewage lagoon. Samples from the sewage lagoon are sent to Environment Canada for testing in order to determine when the processed fluid can be discharged into the lake (YFFN KPI Program 2009-2010). The sewage lagoon has been able to accommodate growth in the community to date and is expected to be able to handle modest future growth. Some concerns were expressed that the primary cell is inadequate to accommodate additional community growth. However, expansion of the primary cell could give the community an additional 20 years of service (YFFN KPI Program 2009-2010).

LANDFILL

The landfill site is located 2 km west of the community. There is garbage pickup every second day (three times per week). At the time of writing, the capacity of the landfill was exceeded and could not meet existing community needs. In addition, the current site does not meet existing guidelines because it is too close to the community, the lake and the airport. Discussions with INAC have been ongoing about building a new landfill site, but no location had been determined at the time of writing¹ (YFFN KPI Program 2009-2010).

There is no recycling program in the community. A recycling program was implemented in the past, but was discontinued due to storage concerns and the high cost of transporting material to market (YFFN KPI Program 2009-2010).

UTILITIES

Manitoba Telecom Services provides single and party line telephone access, as well as no-charge dial-in internet service. Wireless internet is available in public community buildings, including the Future

¹ Information provided through a key person interview suggested that a potential location for the next landfill site would be between York Landing (Kawechiwasiik) and Ilford if the communities are connected by an all-weather road sometime in the future (YFFN KPI Program 2009-2010).

Development office, the school, arena and Band Office. Manitoba Telecom Services also provides other special communication services if required (YFFN Future Development 2010).

York Landing (*Kawechinwasik*) has a local satellite TV system that services the community. The system consists of 12 channels, one being a community channel. The community channel is used for local communication of events and other special services offered by the community. Many households also have Global satellite TV. The local radio station, CHYL 93.5 FM, has a broadcast range of 10 to 15 miles, but is not currently operating. The Canadian Broadcasting Corporation (CBC) broadcasts from Winnipeg on local channel 10, via a microwave tower located 14 miles east of the community (YFFN KPI Program 2009-2010).

FIRE AND AMBULANCE

YFFN has a fire hall, fire truck and associated equipment. There is a volunteer firefighter crew with trained Members in the community¹.

Funding was previously made available through the Kitche-Waskahigan Trust, but within the last three years, funding for a fire fighting program was not available. The department is described as severely underfunded and much of the equipment is in need of repair or replacement (YFFN KPI Program 2009-2010).

No ambulance service is provided in York Landing (*Kawechinwasik*). In the case that emergency medical attention is required, patients are flown by Medi-Vac to Thompson or Winnipeg (YFFN KPI Program 2009-2010).

POLICING

The Band Constable program has six constables providing services in York Landing (*Kawechinwasik*), with two or three on duty at all times. The RCMP has a small facility in York Landing (*Kawechinwasik*) that is used when officers are visiting the community. The facility has two holding cells (YFFN KPI Program 2009-2010).

EDUCATION

The nursery to grade eight George Saunders Memorial School had 115 students registered in the fall of 2009. The school has five classroom teachers, one physical education/computer teacher, one resource teacher, one principal, one home school coordinator, eight teacher assistants, two custodians, one facility technician and one bus driver; all employees work full-time. Students leave the community for high school, with many going to Thompson or Cranberry Portage (YFFN KPI Program 2009-2010).

It is felt that the school is close to capacity with the current student population. There is need for additional space for a science lab and more space for a larger computer lab (YFFN KPI Program 2009-2010). The school is also used for large community events such as funerals and large-group

¹ Information provided through key person interviews suggested there were six to ten trained firefighters in the community.

meetings. In the winter of 2009/2010, the school was closed for a prolonged period due to flooding; however, it is now back in full operation (YFFN KPI Program 2009-2010; YFFN *pers. comm.* 2011).

The Learning Institute provided adult education upgrading and post-secondary training in York Landing (*Kawechimasiik*). This program was funded by the Hydro Northern Training and Employment Initiative until March 31, 2010 when the funding ended (YFFN KPI Program 2009-2010). Currently, the Learning Institute continues to coordinate training under Band funding (YFFN *pers. comm.* 2011). The facilities include two video-conferencing rooms, three classrooms, one computer lab and a number of offices. When the building has required maintenance, students in the training programs have been used to make repairs in order to give them hands-on skill development opportunities (YFFN KPI Program 2009-2010). Due to a fire at the Band office, the Learning Institute is currently also used as the Band administration office (YFFN *pers. comm.* 2011).

CHILDCARE

YFFN operates a childcare program through YFFN Childcare Inc., which shares a building with the Awasis Agency of Northern Manitoba. The day care looks after children aged six months to seven years and has 27 spaces for the Head Start Program and five spaces for children aged six months to one year who require day care services. All of the spaces are typically filled and, in the last two years, the numbers have increased slightly. At present, there is a waiting list and, for those children who are not able to get into the day care, the only alternative is for family members to look after them. At the time of writing, there were five early childcare workers on staff, however, not all had Early Childhood Education training. In the past, it has been a challenge to maintain an appropriate worker-to-child ratio and it has sometimes been difficult to find people qualified to work at the day care. The cost of the day care is also prohibitive for some families (YFFN KPI Program 2009-2010; YFFN Future Development 2010).

HEALTH AND SOCIAL SERVICES

As previously noted, the 1964 Memorandum of Agreement between the Department of National Health and Welfare (federal) and the Manitoba Department of Health (provincial) stipulated the shared provision of health care services by these two levels of government to select northern Manitoba communities (including fiscal responsibility for transportation of staff and patients between health centres). York Landing (*Kawechimasiik*) is covered by the federal government in terms of “clinical and public health services in the field” (Memorandum of Agreement 1964).

York Landing (*Kawechimasiik*)’s new nursing station opened in late 2009, with greater space to provide medical services to the community. Due to the small population and isolated location of York Landing (*Kawechimasiik*), the limited health services available include a nurse-in-charge and one other registered nurse in residence at the facility. Doctors, dentists and mental health workers visit the community one or two times per month for three to four days at a time.

Thompson is one centre that YFFN Members have a heavy reliance on in terms of health and social services. For illnesses of a more urgent nature, community Members are flown by Medi-Vac to either Thompson or Winnipeg. A paid ticket on Greyhound Bus Lines (11.5 hours one-way) is provided for non-urgent appointments requiring travel to Winnipeg, including specialized procedures and

appointments. Community Members have expressed concern regarding the overall limited nature of health services within their community, as well as with challenges with accessing services outside of the community, particularly Thompson. These issues are related to lodging, transportation to and from appointments, escorts for the elderly, the need for pregnant women to travel to Thompson to give birth and translation services, particularly for the Elders (YFFN KPI Program 2009-2010; YFFN *pers. comm.* 2011).

Concerns expressed by community Members noted that the quality of care varied among health care providers who visit the community. Delays in treatment between a nursing station visit and the resulting appointment with a specialist were noted, and a concern was expressed that this meant people could become sicker during the waiting period (YFFN KPI Program 2009-2010).

YFFN has a Community Health Representative who works with the staff at the York Landing Nursing Station. The community also has a number of health-related programs delivered in York Landing (*Kawechimasiĕ*), including the NNADAP, Brighter Futures Initiative, Tuberculosis Program, residential school counselling, sexual abuse support and an optometrist who visits the school; however, these programs are not consistently funded and/or operational (YFFN KPI Program 2009-2010). Awasis Agency of Northern Manitoba has an office in York Landing (*Kawechimasiĕ*), sharing the building that houses the YFFN Childcare Inc. Program.

The Band office deals with requests for other services, such as bringing in people to offer cultural/traditional healing and spirituality programs. Funding for health-related facilities and services are provided by First Nation and Inuit Health, a department of Health Canada (YFFN KPI Program 2009-2010).

RECREATION

There are limited recreation services and facilities in the community. The (*Kawechimasiĕ*) Mochikikamik Arena, completed in August 1998, has a regulation indoor hockey rink. The arena, complete with a concession stand, provides recreation year round since it can also be used for indoor functions in the summer. The arena has artificial ice and a zamboni for ice maintenance. In 2009, six video lottery terminal machines were installed in the lobby area (YFFN KPI Program 2009-2010).

Recreation facilities at the school include a gymnasium, baseball diamond, basketball court, playground equipment and a quarter-mile oval track. Outdoor recreation equipment in the community is managed and supervised by the recreation coordinator who also provides programming for young people; however, the position was vacant in the fall of 2009. In the past, the community has also offered recreation programming that included taking youth to Thompson to use the swimming pool. In the past, families would use the local beaches for swimming and family get-togethers; however, due to fluctuating water levels and shoreline erosion, community Members noted their concern over the loss of community beaches, particularly Sandy Beach on the west side of the community. This activity is no longer available (YFFN KPI Program 2009-2010; YFFN 2010). A more detailed discussion is noted in the YFFN Evaluation Report *Kipekiskwaywinan*.

Considerable concern was expressed by both youth and adults about the lack of recreational opportunities for young people, contributing to a number of youth-related issues in the community (YFFN KPI Program 2009-2010).

OTHER SERVICES

The YFFN Band office was lost to fire in January 2011; it was the primary office facility for all YFFN administrative functions. As noted above, the administration office has been transferred to the York Factory Learning Institute. Additional planning and Manitoba Hydro-related negotiations are managed through the Future Development office in a separate facility (YFFN KPI Program 2009-2010; YFFN *pers. comm.* 2011).

4.3.3.2 Gillam

The Town of Gillam is the location of Manitoba Hydro's northern operations. The Town is located in FLCN's traditional territory and is the home to many Members of FLCN. FLCN Members live both on the A Kwis Ki Mahka Reserve and on other lands within Gillam's boundaries. Facilities and services provided to the residents of the Town of Gillam also apply to FLCN Members, some of which are covered under the Municipal Services Agreement discussed below. Where differences in services occur, or concerns have been identified by FLCN, they are highlighted in this section; otherwise, this section references Gillam infrastructure and services for the sake of readability.

As noted in Section 2, FLCN has a long history of living in the environs of Gillam. In the early 1900s, FLCN Members lived in this area during the construction of the Hudson Bay Railway. In the mid-1960s, construction began on the Kettle Generation Project, the first of three major hydroelectric projects in the vicinity of the community. As Manitoba Hydro's operations and presence expanded, the town expanded and grew to its current size and scale. Manitoba Hydro is also the major landowner in the community and provides funding for most housing (with the exception of FLCN housing) and major infrastructure and facilities.

Over the course of the next 10 to 25 years, even in the absence of the Project, Gillam is expected to experience the next wave of growth as Manitoba Hydro plans a series of proposed developments, including the Bipole III Transmission Project (including the Keewatinoow Converter Station) and the potential Conawapa Generation Project. These projects will have an effect on the infrastructure and services of the town, which will require advance planning and design to accommodate such growth.

In February 2007, FLCN and Manitoba Hydro signed a Joint Statement on Harmonized Gillam Development (HGD) recognizing that both FLCN and Manitoba Hydro are major stakeholders in the development of Gillam; FLCN because the Gillam area is the ancestral homeland of the First Nation, and Manitoba Hydro due to its ongoing development activities in the area. The parties agreed on a collaborative approach to Gillam planning and development that respects the goals and objectives of FLCN, Manitoba Hydro, the Town of Gillam and, where applicable, Manitoba. The Joint Statement notes that "the Harmonized Gillam Development must focus on building a community where all residents live, work, play and prosper together, where there is a mutual use and enjoyment of community

facilities and services and where residents respect and support the interests and ambitions of their neighbours” (Joint Statement on Harmonized Gillam Development 2007).

The Joint Statement identified three key features of the harmonization process:

- A clarification and sharing of the long-term goals and objectives of Fox Lake Cree Nation, Manitoba Hydro, the Town of Gillam and, where applicable, Manitoba in the Gillam area;
- Identification of challenges and issues that have arisen in the past and with future developments, and of opportunities to implement planning and development activities that provide for mutual gain; and
- A regular process of interaction to discuss issues of mutual interest (Joint Statement on HGD 2007).

As part of the HGD process, the Town of Gillam, Manitoba Hydro, FLCN and, where applicable, the provincial government are working together to ensure that community growth could take place in a manner that satisfies the needs of all parties. As part of the HGD process, Hilderman Thomas Frank Cram (HTFC) were contracted to assist the parties in the development of a land use and allocation strategy for land in the Town of Gillam. A draft Land Use Requirements and Availability Study was released in December 2008 (HTFC 2008).

WATER AND SEWER SERVICES

The primary source of water for the Town of Gillam is Stephens Lake and the secondary source is the Kettle River. The town has a treated-water reservoir with a capacity of 1,409,287 L (310,000 imperial gallons), which can supply the town for an estimated eight hours. The water treatment plant “is designed to treat raw water for the removal of colour, odour, taste, turbidity, micro-organisms, and other impurities to provide a high quality effluent for potable and domestic use” (Town of Gillam 2008). Upgrades are planned to bring the system up to provincial standards with respect to the issue of turbidity (Town of Gillam 2008).

New pumps and controls were installed at the Stephens Lake pumping station in 1997 and new controls were installed in the Kettle River pumping station. One Kettle River pump was replaced in 2007 and there are plans to replace the second one in 2010 (Town of Gillam 2009).

All infrastructure in the Town of Gillam has piped water and all lines are said to be in relatively good condition, including water lines in the Trailer Court where many FLCN Members reside, which were replaced in 1996/1997 (HTFC 2008; Gillam KPI Program 2009-2010). In the event of a fire, where a great volume of water is needed, there is a stand-by 120 horsepower fire pump in the water treatment plant. The water treatment plant has the capacity to serve between 3,000 and 3,500 residents, almost three times the 2006 population of Gillam of 1,210¹ residents (Town of Gillam 2008).

The existing wastewater treatment facility was constructed approximately 10 years ago and has a capacity to service approximately 2,500 residents. Most of the sewer lines in the Town of Gillam are in reasonable condition, but the majority of those in the Gillam Trailer Court are in poor condition and require

¹ Gillam population is from Statistics Canada (2007a).

replacement (HTFC 2008; Gillam KPI Program 2009-2010). The wastewater treatment facility is presently able to accommodate roughly a doubling in community growth from a current population of 1,210 to the facility's capacity of 2,500.

LANDFILL AND RECYCLING

A landfill site is located just outside of the community. Weekly curb-side pick-up is provided by the Town of Gillam, with larger items picked up on call. Curb-side pickup is also offered for recycling and the town has a sorting depot from where, after sorting, all recyclables are shipped to the Thompson Recycling Centre¹. It is estimated that the landfill has approximately 20-25 years before it reaches capacity and can, therefore, accommodate the existing population and any expected growth in the community into the near future; the Town is also planning to change the way materials are accepted at the landfill to divert more items and encourage recycling (HTFC 2008; Gillam KPI Program 2009-2010).

FIRE AND AMBULANCE

Gillam fire and ambulance service provides fire protection and emergency medical services to the town, the surrounding area and the community of Fox Lake (Bird). Currently, there are 20 volunteer firefighters, including a chief and deputy chief, with crews receiving mutual aid from the Manitoba Hydro stations nearby when required (Gillam KPI Program 2009-2010). Members are trained as National Fire Protection Association standard level one firefighters and emergency medical responders are accredited through the Manitoba Emergency Services College. The department has one pumper and two ambulances; however, staff retention has been a concern. It is felt that the community has adequate emergency services and could accommodate a growth in the population (details on level of growth were unavailable) (Gillam KPI Program 2009-2010).

POLICING SERVICES

The RCMP has a detachment located in Gillam, consisting of six constables and one administrative assistant. The majority of the service calls occur within Gillam, but a few times a month the RCMP provides assistance with calls outside of the community in places such as Fox Lake (Bird) and Ilford (Gillam KPI Program 2009-2010; FLCN KPI Program 2009-2011).

The detachment currently has two holding cells and one other holding area with no bed. The detachment is adequately staffed to provide services to the existing population. The RCMP is anticipating discussions with Manitoba Hydro concerning a new, stand-alone detachment to deal with holding areas, as well as health and safety issues anticipated with increased development in the area and the potential need for increased staff (Gillam KPI Program 2009-2010).

The RCMP has been involved in, and initiated, a variety of programming and activities in the community:

¹ It was noted that effective in 2010, the provincial regulations regarding landfills will change. These new regulations include a charge per ton of waste delivered which may encourage more recycling in the community and may divert some material from the landfill.

- Kids Are the Responsibility of Everyone (KARE): Formerly known as Youth at Risk. According to the Gillam KPI Program (2009-2010), one RCMP member manages the program and sits on the board. The group raises money and collects used sports equipment. This enables KARE to sponsor children in organized community activities when financial needs arise.
- School liaison: Three members of the detachment are assigned to the school (Gillam KPI Program 2009-2010). The program helps to build rapport and trust and provides mentoring. There is an officer at the school once or twice a week. One of the junior officers is tasked specifically with female youth aggression in partnership with the school.
- Drug Abuse Resistance Education (DARE) Program: DARE is a collaborative program in which local law enforcement and local schools join together to educate students about the personal and social consequences of substance abuse. The DARE interactive lessons include a strong message of abstinence, as well as lessons about learning assertiveness, managing stress, reducing violence, combating media influences, making decisions about risky behaviours, having positive role models and building self-esteem. The detachment has one trained DARE officer who is actively involved in implementing and teaching this curriculum to grade six classes at the Gillam School (Gillam KPI Program 2009-2010).
- Drop-in centre: RCMP members are involved in community recreation and play hockey against community youth once a week, most of the year (Gillam KPI Program 2009-2010).
- Community and youth corrections: There is one full-time probation officer who travels in from Thompson on a monthly basis (Gillam KPI Program 2009-2010).

EDUCATION

The nursery to grade 12 Gillam School was built approximately 40 years ago and is part of the Frontier School Division.

There has been an increase in high school enrolment over the last few years and, as of June 2009, there were 335 students enrolled with an additional 50 adult education students. Increases in high school enrolment were attributed in large part to changes and improvements in the programs, including the introduction of university math, as well as the Senior Years Apprenticeship Program that allows students to get credit for on-the-job training related to trades. A student mentoring program has also been established, where students are mentored by teachers to help them with their studies.

The school has expanded as needed and, approximately eight years ago, a library wing was added. A recent addition has included \$80,000 - \$100,000 of upgrades to the playground, including a new track and soccer pitch. The school is currently operating at capacity and, based on trends over the last five to ten years, there is an expectation that enrolment will increase further. The school could accommodate approximately 400 students if there was a fairly even distribution of students across grades (Gillam KPI Program 2009-2010; Manitoba Hydro *pers. comm.* 2012). Discussions have taken place regarding the school's capacity and the town is exploring whether to expand the current infrastructure, construct a new school at the same site, or construct a new school at a different site. A feasibility study to determine the best approach, which included discussions with Manitoba Hydro, FLCN, the Town of Gillam and the

Gillam School Administration and Committee, is expected to be completed in 2012 (Manitoba Hydro, *per. comm.* 2012). The Frontier School Division's capital plan does include increasing the school capacity in Gillam. (Gillam KPI Program 2009-2010).

The school has approximately 54 staff members, of which 32 are teachers. One full-time, certified counsellor is on staff (Gillam KPI Program 2009-2010).

After hours, the school is open for the community's volleyball team (North Stars), arts club and boxing and archery clubs (Gillam KPI Program 2009-2010).

CHILDCARE

The Gillam Pre-School Co-op Daycare has been in operation for the last seven years. It offers preschool services for three-year olds that run two days per week from October to June. The facility offers full-time day care for children aged two to twelve. The day care is licensed for 40 children (25 pre-school and 15 school-aged), but typically only accepts between 30 and 35 children due to a lack of space and staffing challenges. There are currently two full-time positions and seven part-time staff; however, there are challenges recruiting and retaining staff that have childcare-related training. Demand for this service is high and already at capacity and, at the time of writing, there were 60 children on the waiting list (HTFC 2008; Gillam KPI Program 2009-2010). There are no alternatives to the day care run at the school and it was reported to be difficult to find dependable babysitters (Gillam KPI Program 2009-2010). In 2011/2012, a new childcare centre was under construction with capacity for 75 children (including one year olds); this facility is expected to be completed in the summer of 2012 (Manitoba Hydro, *pers. comm.* 2012).

HEALTH SERVICES

Gillam Hospital is owned and operated by the BRHA and is the primary health centre in the community. The hospital operates the medical clinic and local retail pharmacy and provides a variety of health, mental health and homecare services (HTFC 2008; Gillam KPI Program 2009-2010). It is a ten-bed facility of which three beds are designated for long-term care, two for paediatrics and one for observation (with flexibility in apportioning as required). There are a sufficient number of beds to handle the current volume of patients. (Gillam KPI Program 2009-2010). The hospital has an emergency department and x-ray department, which are capable of handling non-critical patients. When critical care is required, patients are flown to either Thompson or Winnipeg. The hospital employs 32 full-time employees, including one physician (it previously had two) and 10 nurses (HTFC 2008; Gillam KPI Program 2009-2010). There are emergency services with an ambulance and attending physician available 24 hours per day. A public health nurse is employed at Gillam Hospital, along with a full-time mental health worker. An urgent care clinic is currently operated in Gillam Hospital from Monday through Friday. This is not a walk-in clinic and requires appointment bookings between 1:30 and 4:00 in the afternoon (Gillam KPI Program 2009-2010).

As part of their staff benefits package, Manitoba Hydro pays the cost of travel for health service providers since it is more cost-effective to bring the specialists to the community than to pay for Manitoba Hydro employees to travel south to access treatment. A massage therapist is brought into the

community every two weeks and uses space provided by the hospital; the same is done for chiropractic services (Gillam KPI Program 2009-2010). Similarly, Manitoba Hydro brings an optometrist to the community twice per year, a physiotherapist once per month and Assiniboine Dental Services twice in spring and twice in fall. The Burntwood Regional Health Authority (BRHA) provides a dietician and some occupational and physiotherapy programming. The hospital also uses an interactive health service to access health services, doctors and specialists outside of the community through a system called Tele-Health. Home-care is offered through part-time workers coordinated out of Thompson (Gillam KPI Program 2009-2010).

The Burntwood Regional Health Authority (BRHA) is responsible for providing housing to doctors, nurses and x-ray technician staff, but a lack of housing has made it difficult to recruit medical staff to Gillam (HTFC 2008).

In the future, the hospital staff may be expanded to include a second physician or nurse practitioner, and a walk-in clinic (Gillam KPI Program 2009-2010).

SOCIAL SERVICES

The Awasis Agency of Northern Manitoba “is committed to working towards the vision of healthy communities that promote and nurture the physical, emotional, mental and spiritual growth, development and well being of First Nations Children and Families” (Awasis Agency of Northern Manitoba 2009). The agency is responsible for child and family services protection work in the community. They provide education and crisis response relating to family issues in the community and work with NNADAP, Brighter Futures, Building Healthy Communities, the RCMP and the school. The Gillam office services the population of both Gillam and Fox Lake (Bird). The Awasis Agency currently has four full-time employees who undertake the following:

- Work with local foster homes in the community to provide foster parents with support;
- Work with local families in crisis and provide family support; and
- Work with children in care and their families by providing protection services, case management, case planning, support and counselling services.

COMMUNITY RECREATION

Recreation facilities in the community include the Gillam Recreation Centre and the Nelson River Aquatic Centre.

The Gillam Recreation Centre is a multi-use facility that includes an arena, curling rink, meeting room space, gymnasium, weight room, library and bowling alley. A variety of activities and programming in the community take place at the Centre, including seasonal youth dances, aerobics, tae kwon do, hockey, figure skating, badminton, youth drop-in centre, adult slow pitch and others. Many of the programs have fees associated with participation (Gillam KPI Program 2009-2010). As noted in the FLCN section on recreation (Section 4.3.3.1), this has often created a barrier for FLCN Members to access the facilities (FLCN KPI Program 2009-2011). Although lacking an organized team that is part of a league, hockey is

by far the most popular activity at the facility. Shiny hockey and unorganized noon hour hockey are very popular. Although the Recreation Centre is generally under-used, the popularity of hockey means that the Centre is more heavily used in winter than summer, when people generally take to the outdoors and do not use the facilities. Office and fitness/weight room space appear to be inadequate to meet current or future needs. The facility and associated programming is likely able to accommodate an increase in the population as the facility is currently not used to capacity, with the exception of the fitness/weight room (Gillam KPI Program 2009-2010)¹.

The Nelson River Aquatic Centre opened in 2005 with a swimming pool for adults and children, as well as a water slide. A variety of programs are offered at the pool, such as swim fit, Aquasize and parent and toddler swimming lessons.

Other recreational facilities in the town include parks and playgrounds, a driving range, baseball diamonds, soccer fields, a beach and boat launch (Gillam KPI Program 2009-2010).

OTHER SERVICES

Telephone and internet service in the community are provided by MTS. Manitoba Hydro provides electricity to the community.

MUNICIPAL SERVICE AGREEMENT

The Town of Gillam and FLCN signed a Municipal Service Agreement in 2001. Under this agreement, services to be provided by the Town of Gillam to FLCN Members living on designated lots identified in Schedule A as land to be set aside in the future as “Reserve Land” included the following:

- Fire suppression;
- Road Maintenance and snow clearing; and
- Recreation facility, library and all other public facility access at standard fees for admission rates.

FLCN agreed to pay the town a fee amount outlined in the Agreement under Schedule B.

In addition, the agreement outlined how normal direct services would be supplied by the town and paid for by FLCN. Those direct services that the town would normally provide to residents for a direct charge or user fee include the supply of water, the disposal of sewage, ambulance services, the removal of garbage, land drainage and recreation levies. Charges for direct services are billed to the First Nation twice per year, in April and October (The Town of Gillam and FLCN 2001).

¹ Details on capacity to accommodate population growth were not available.

4.3.3.3 Thompson

Water and Sewer Services

The Burntwood River supplies fresh water to Thompson's water treatment plant. Vale owns and operates the water treatment plant and provides the water for free to the City of Thompson. The city is responsible for supplying the residents with drinking water by means of a piped water distribution system. An agreement between the City of Thompson and Manitoba Hydro was established pertaining to the effects of the Churchill River Diversion on the City of Thompson (City of Thompson 1976).

In 2007, the City of Thompson commissioned a study of the water and sewer infrastructure with the goal of implementing a water metering system. It was determined that the water distribution system was in an advanced state of deterioration. Since 1993, the city has been dealing with 75 to 145 water main breaks per year, but has not implemented an annual water main or sewer replacement program to reduce these system breaks (CH2MHILL 2008). Given the state of the current system, the capacity for additional residential and commercial growth is limited (Thompson KPI Program 2008-2010).

The current sewage collection and treatment system has excess capacity and can accommodate an increase in the population, although the extent of increase was not identified. The system has a high level of inflow and infiltration from either groundwater or storm water entering the system due to the deteriorating state of the water and waste distribution and collection system (CH2MHILL 2008). With the waste water treatment plant currently providing only primary treatment, this will require upgrading to a secondary treatment system when the infrastructure is renewed in order to provide an appropriate level of treatment for the existing population (CH2MHILL 2008).

Landfill and Recycling

The waste disposal site is owned and operated by the Local Government District of Mystery Lake and is located approximately 5 km south of the City of Thompson. In 2009, the city upgraded equipment to accommodate an automated collection system and collection is once per week.

A study commissioned in 2008 has helped the Local Government District extend the life of the current waste disposal grounds for an additional 31 years by implementing a vertical cell approach. A new location has been identified adjacent to the existing site. The landfill can accommodate an increase in the population (Thompson KPI Program 2008-2010).

The Thompson Recycling Centre provides the City of Thompson with residential and commercial recycling services. The Thompson Recycling Centre offers free curb-side pickup with or without a blue box, has several recycling drop-off containers throughout the city and has no requirements to sort materials. This service has been intermittent due to difficulties with staffing and existing facilities (Thompson KPI Program 2008-2010).

Fire and Ambulance

The Thompson Fire Department is located at city hall and consists of one chief, one deputy chief, 24 full-time firefighters trained in Emergency Medical Services and fire services, five dispatchers and 19

auxiliary firefighters. The department responds to calls in Thompson and the surrounding area (Thompson KPI Program 2008-2010). The City of Thompson does not have a 911 emergency call system; rather, emergency calls are made to a local number (Thompson KPI Program 2008-2010).

For the purposes of fire protection, the city has a main and hydrant system. The fire department utilizes a variety of equipment, including four support/utility trucks, a medical attack vehicle ambulance, a 100-foot aerial ladder pumper truck, two additional pumper trucks, three ambulance units, a zodiac boat, floatation suits and water rescue equipment and two snowmobiles with rescue sleds (Thompson KPI Program 2008-2010; City of Thompson 2008). The fire hall has limited space for future staff expansions and equipment acquisitions (Thompson KPI Program 2008-2010).

Police Services

The Thompson RCMP detachment is the largest in Manitoba, consisting of City and Rural units, a Community Policing Unit and General Investigation Section. The City Unit currently has 39 members, including one inspector, one administrative Non-Commissioned Officer staff/sergeant, one Operations Non-Commissioned Officer sergeant, five corporals, and 31 constables. The unit is divided into four watches of one corporal and six or seven regular members each. The General Investigation Section plainclothes watch consists of one corporal and three constables. The Rural Unit consists of one corporal and five constables and they are responsible for the communities of Split Lake, York Landing (*Kawechinvasik*), Tadoule Lake, Pikwitonei and Thicket Portage (RCMP 2009; Thompson KPI Program 2008-2010).

The current RCMP facility, built in 1998, includes three holding cells without bunks and eleven cells that can each hold two or more individuals. While the infrastructure is sufficient to accommodate the existing population, staffing at the Thompson RCMP detachment is based on the local population. However, the city has a large transient population that increases the detachment's case load per member significantly, and sources indicate that the non-resident policing costs are a significant portion of policing costs and caseloads per member in the community. As such, the detachment has one of the highest criminal caseloads per member of any detachment in Canada (Thompson KPI Program 2008-2010). Additional growth and/or transient population likely would put additional strain on the services provided by the RCMP in Thompson.

Education

There are six elementary¹ schools and one high school in the School District of Mystery Lake. Each elementary school offers classes for students in kindergarten to grade eight. In September 2009, a new francophone elementary school, École Communautaire de Thompson, opened within the Burntwood School. The Wapanohk Community School is a Cree bilingual school. As of September 30, 2009, there were 2,980 students registered in classes from K-12 in the School District of Mystery Lake (Thompson KPI Program 2008-2010).

¹ Burntwood School, Deerwood School, Wapanohk Community School, Juniper School, Riverside School and Westside School.

R. D. Parker Collegiate serves 1,100 high school students from Thompson and outlying areas. Along with traditional academic courses and French Immersion, the collegiate offers a variety of electives. It also offers vocational and apprenticeship training in trades, such as carpentry, power mechanics, heavy-duty equipment mechanics and aircraft maintenance engineer training. Other job training includes food services, cosmetology, small engine repair, electronics, First Aid/CPR and emergency medical responder training and many others.

All schools have well maintained infrastructure and provide sufficient space for current programming. R. D. Parker Collegiate has been working with community partners to develop space for their vocational programming (Thompson KPI Program 2008-2010).

Overall, the student base has fluctuated over the years, with a marginal decline in enrolment/student base in the last few years. The student base fluctuation is expected to continue into the foreseeable future. All schools are expected to have enough capacity to accommodate some additional growth in the population. One challenge the community faces is accommodating children with special needs. Since Thompson is a major centre in the north, people often move to Thompson so their children can have better quality education/care. This is putting a strain on those individuals and infrastructure that provide services for children with special needs. Thompson's high schools (along with other communities such as Cranberry Portage) are also used by First Nation communities that do not have high school facilities. YFFN for example, sends their youth outside York Landing (*Kawechiwasiik*) for grades 9-12 (Thompson KPI Program 2008-2010; YFFN KPI Program 2009-2010).

Adult, Post-Secondary Education in Thompson

Organizations offering adult education programs in the City of Thompson include the following:

- University of Manitoba, Northern Social Work Program;
- Brandon University Northern Teacher Education Program;
- University College of the North (Thompson KPI Program 2008-2010); and
- The Ma Mow We Tak Friendship Centre, which provides adult basic education programming (Ma-Mow-We-Tak 2009).

Over the last few years, much of the post-secondary education has been consolidated within the University College of the North. Currently, the University College of the North uses facilities in a series of buildings on Princeton Road to serve approximately 400 students. About 40% of students are from outside of the community of Thompson and many move to Thompson with families. Thompson's lack of affordable housing and shortage of childcare spaces are affecting the growth of the University College of the North programming and student participation from outlying communities (Thompson KPI Program 2008-2010).

In April 2010, the Manitoba Government announced that it is investing \$82 million to build the new 84,000-square-foot Thompson campus of the University College of the North, with construction to start in the fall of 2010. The new campus will be 19,000 square feet larger than the original campus and will include facilities such as housing for students, and a childcare facility (Government of Manitoba 2010b).

Childcare

The City has a chronic shortage of day care spaces and the shortage likely will continue into the foreseeable future (Prentice 2007; Thompson KPI Program 2008-2010). In 2007, there were 337 day care spots providing childcare in a variety of forms including group day care, family day care, nursery school, pre-school and school-age childcare (Prentice 2007). Some services are provided by eight licensed family day care homes, each caring for a small number of children. The shortage of childcare was exacerbated in 2004 when the YWCA closed their childcare program, and when the Juniper Pre-School closed in 2006. There are few trained early childhood educators in the community, but efforts are underway to improve childcare opportunities. Vale and North Central Development both have committees actively looking for ways to add more day care spaces in the city.

The lack of childcare spaces in Thompson has been identified as “hurting the local economy” by restricting care-giving family members from entering the labour force (Thompson KPI Program 2008-2010). In 2006, the existing childcare facilities in Thompson contributed over \$2,000,000 to the local economy. Further growth in this sector would result in more direct and indirect employment (Prentice 2007).

Health and Social Services

The provision of healthcare services in Thompson falls under the authority of two levels of government. The BRHA is the provincial authority in charge of healthcare for non-First Nation members, while most First Nations health concerns fall under the jurisdiction of the federally operated First Nations and Inuit Health Branch. Jurisdictional concerns are an ongoing issue in the BRHA (BRHA 2008) as more than 72% of residents in the BRHA are of Aboriginal descent. The BRHA works closely with its First Nation neighbours on many health-related concerns and has strong partnerships with Aboriginal organizations, such as Manitoba Keewatinowi Okimakanak Inc. and the Keewatin Tribal Council and has opened dialogues with many of the First Nations in the Regional Study Area (BRHA 2008).

The Thompson General Hospital is designated as the regional hospital and is the largest in the BRHA. Services provided at the Thompson General Hospital include medical, surgical, paediatric, maternal, psychiatric, operating theatres, an endoscope suite, a laboratory, a state of the art emergency department, a special care unit, mammography, ultrasound, occupational therapy, physiotherapy, respiratory therapy, radiology and CT scanning and dialysis and chemotherapy through Cancer Care Manitoba. The Northern Consultation Clinic, also situated in the Thompson General Hospital, provides specialist services in obstetrics, gynaecology, paediatrics, internal medicine, anaesthesia, surgery, psychiatry and otolaryngology (Thompson Guide 2009). As a regional hospital, the Thompson General Hospital provides health care services that are used widely by KCNs community Members.

The hospital has 74 beds, including a ten-bed Mental Health Unit and a three-bed Special Care Unit (BRHA 2009a). In February 2008, the Acquired Brain Injury Residence, a five-bed facility servicing patients 18 to 64 years of age, was opened at the Thompson General Hospital (BRHA 2008), and, in 2009, the capacity of the dialysis unit was expanded from 16 to 40 patients (BRHA 2009a).

The number of available beds in the hospital fluctuates and is dependent on staff and funding levels. Staff shortages among nurses, doctors, specialists, or technicians can have an impact on the number of beds that the hospital can keep open for patient use (Thompson KPI Program 2008-2010).

The Burntwood Community Health Resource Centre is the main health centre in Thompson and provides community health services to Thompson residents. The Burntwood Community Health Resource Centre provides a primary medical clinic and services, as well as health promotion, education, community outreach and illness prevention programs. The facility houses a resource library, a breastfeeding room, a traditional healing room and offers clinical care by a variety of health care professionals. The Burntwood Community Health Resource Centre typically has 11 family physicians and a specialist clinic and employs general practitioners, midwives, nurse practitioners, community health nurses, a health promotion coordinator, a family counsellor, Aboriginal liaison workers, a dietician and foot care workers (Thompson Guide 2009).

Overall, there is a shortage of health services in the community, especially services such as clinics and walk-ins, forcing people to use the hospital emergency room for minor health problems. Compounding this problem, there are not enough family doctors and other health care professionals and support workers in the community (BRHA 2008). Similarly, nursing shortages have had an effect on local healthcare. According to the BRHA, the situation has been improving in recent years: in 2008, the staff turnover rate in Thompson was around 15% compared to over 30% in 2001 (Thompson KPI Program 2008-2010). However, recruitment and retention of medical staff is a greater problem than the infrastructure, and any growth in the population would put additional strain on medical services in the community. KCNs Members also rely on the health services provided in Thompson as not all communities have a full range of services located within their community. Growth in population and/or increased use by KCNs Members would put added strain on health and social services in Thompson.

The Northern Spirit Manor, a personal care home located on the Thompson General Hospital campus, opened in January 2007 and provides long-term care to 35 residents. The home was the first of its kind operated by the BRHA and allows Elders and seniors to remain in the region while receiving care in their later years (BRHA 2007; Thompson Unlimited 2007).

Additional medical services offered in the City of Thompson include the following:

- Two private medical clinics;
- Four dental centres and a denture clinic (City of Thompson 2010b);
- Visiting ophthalmologists and optometrists and six resident opticians (City of Thompson 2010b);
- Two chiropractors, one massage therapist and one physiotherapist (City of Thompson 2010b); and
- Four retail pharmacies (City of Thompson 2010b; Thompson KPI Program 2008-2010).

The Addictions Foundation of Manitoba offers a range of prevention and awareness programs related to the use of drugs and alcohol, gambling and other addictive behaviours that can have a negative effect on individuals, families and society (Thompson KPI Program 2008-2010). A total of 1,140 clients participated in addictions programs in Thompson in 2008 (Government of Manitoba 2009a). The

Addictions Foundation of Manitoba opened a new facility in Thompson in June 2009 that offers short- and long-term residential treatment programs and provides community-based day programs (AFM 2009; Government of Manitoba 2009a). The programming includes health assessment, counselling, prevention, education and regional administration, as well as treatment programs for clients at home and in the residential program at the facility (Government of Manitoba 2009a; Thompson KPI Program 2008-2010). The Addictions Foundation of Manitoba have worked with some workers from the Wuskwatim construction site.

Social Services

The delivery of social services and mental health programming by the Province of Manitoba was restructured in 2003. This resulted in several agencies providing the programming that used to fall under the umbrella of Child and Family Services. These services are now provided by the following:

- Awasis Agency of Northern Manitoba;
- Manitoba Family Services and Housing;
- Nisichawayasihk Cree Nation Child and Family Services; and
- BRHA.

The purpose of having multiple agencies is to allow clients to choose the agency that would meet their particular needs. Now that several agencies provide similar services, there is a perception among some that services may be more difficult to obtain (Thompson KPI Program 2008-2010).

There is a wide range of not-for-profit and charitable organizations delivering programming in Thompson including a non-profit, 24-hour emergency homeless shelter called the Nanatowihō Wikamik Homeless Shelter. The facility has spaces for 24 people and offers public bathrooms, daily breakfast and supper, clothing, showers, assistance with personal hygiene and transportation services to and from medical appointments and to the airport, bus and train station (Thompson Guide 2009).

Recreation

Recreation services for Thompson are primarily provided by the City of Thompson Recreation, Parks and Culture Department. A wide range of volunteer and non-profit organizations also provide recreation and cultural programming year-round (Thompson KPI Program 2008-2010).

The Regional Community Recreation Centre and the Norplex Pool are the primary indoor recreation facilities operated by the City of Thompson. The Norplex Pool includes a 25 metre, six-lane pool with a shallow area for recreational water activities. The Regional Community Recreation Centre includes two arenas (C. A. Nesbitt and Gorden Beardy arenas), three racquetball/volleyball courts, an indoor walking/running track, a multi-purpose room, two meeting rooms with a variety of equipment and the City of Thompson Recreation Services offices. On the grounds of the Regional Community Recreation Centre, there is a 400 m running track, two hardball baseball diamonds, three tennis courts, one full-size and two mini soccer fields, the Thompson Zoo and an indoor shooting range in the Wildlife Building (Thompson KPI Program 2008-2010).

There are a variety of other recreation facilities in the city, including parks, ice rinks, playgrounds, baseball and soccer fields, tennis and basketball courts, golf courses and ski trails. There are also a number of commercial recreation and fitness facilities in Thompson offering bowling, movies, dance classes, fitness facilities and martial arts training (Thompson KPI Program 2008-2010).

Overall, there is a wide range of recreation opportunities in the city and outlying areas with enough capacity that they can accommodate population growth.

Other Services

Manitoba Hydro offers electricity services to all households and other facilities in Thompson, the Local Government District of Mystery Lake and in cottage areas to the south of Thompson.

Propane gas is provided by Stittco Utilities in Thompson. The company operates a limited underground pipeline system in Thompson and sells propane in a wide range of container sizes for commercial, industrial and remote domestic use (Stittco Energy Ltd. 2010).

Telecommunications services are provided by MTS including landline telephone, cell phone and internet service to Thompson and Paint Lake. Uninterrupted cell phone service along PTH 6 between Thompson and Winnipeg is available (MTS 2010). Digistar Internet Services also provides internet services to Thompson residents and other locations (City of Thompson 2010b).

4.3.4 Land – Local Study Area

Map 1-1 shows the location of First Nation communities and KCNs reserve parcels in the Local Study Area. Resource Management Areas for the KCNs communities are shown on Map 1-1 in the Resource Use Section and an explanation of these areas is included in the Resource Use Section 1.1.3.

4.3.4.1 Keyask Cree Nations - Land

4.3.4.1.1 Cree Nation Partners

TATASKWEYAK CREE NATION

Indian Reserve Parcels

TCN reserve lands are approximately 19,055 ha and located entirely in the Province of Manitoba (CNP 2010c). TCN historically made use of a large territory in a seasonal round of traditional resource use activities, including in areas along Split Lake and down the Nelson River 240 km northeast to York Factory at the Hudson Bay coast and upstream along the Burntwood River to Tasitnigup Falls at Wareham Lake. TCN's traditional territory around the Assean River and Split Lake were part of the Hudson Bay fur trade corridor, which led to a more permanent community of Cree in the region. TCN signed their Adhesion to Treaty 5 in 1908 and original reserve lands around Split Lake were chosen and surveyed in 1913 (CNP 2010c). This land was subsequently legally recognized as reserve land by the Government of Canada in 1959. There are three original reserve parcels comprised of Split Lake 171 (14,468.30 ha), which is the main reserve and where the majority of community Members reside, Split

Lake 171A (2,990.70 ha), which is across the Nelson River channel from the community, and Split Lake 171B (135.60 ha) located at the south end of Split Lake near York Landing (*Kamechivasiik*).

TCN's Comprehensive Implementation Agreement (1992) was signed by the Government of Canada, the Government of Manitoba and Manitoba Hydro with TCN. The Agreement gives a practical application to provisions set forth in the Northern Flood Agreement and gives TCN additional rights relative to future development within the SLRMA. The Agreement increased the amount of reserve land by several times, creating additional reserve land at Assean Lake (12,420.61 ha) and Waskaiowaka Lake (2,048.11 ha), as shown in Map 1-1. The community also acquired permit/fee simple lands comprised of 38 parcels on 22 lakes (approximately 1135 ha).

Split Lake Resource Management Area

The SLRMA falls within the traditional territory of TCN and was formally recognized in the 1992 Agreement. The RMA covers more than 43,000 km² (TCN 2010c).

WAR LAKE FIRST NATION

Indian Reserve Parcels

As noted in Section 2, WLFN's early history is tied to TCN. In 1980, Cree Members of TCN living in and around War Lake and Ilford formally became recognized as War Lake First Nation at Ilford. WLFN originally shared the use of the SLRMA and has since gained some reserve parcels of land under the TLE within their traditional use area.

WLFN has three reserve parcels. Moosecoot 1 is 6.80 ha and located adjacent to Ilford (CNP 2010d). Moosecoot 2 and Moosecoot 3 were converted to Reserve parcels in September 2008. Moosecoot 2 is 142.40 ha and Moosecoot 3 is 52.00 ha (CNP 2010f).

Treaty Land Entitlement

Treaty Land Entitlement (TLE) refers to federal obligations to provide sufficient amounts of reserve land under Treaty agreements. Nineteen First Nations with validated TLE claims signed the TLE Framework Agreement with the governments of Canada and Manitoba in 1997. According to their Adhesion to Treaty 5, WLFN has a TLE of 2,896 ha of land. Approximately 2,730 ha have already been selected and approximately 166 ha remain to be selected (CNP 2010f).

The Moosecoot Housing Authority began land transfer discussions in 2007 through the TLE process with the governments of Canada and Manitoba, Manitoba Keewatinook Ininew Okimakanak, Inc. and the Ilford Community Council. Eventually all of the community of Ilford is targeted to be turned over to WLFN since they have selected these parcels of land through the TLE process. Many Members of WLFN live on Crown land in Ilford and many land use issues, such as housing expansion and economic growth, cannot be resolved until the land transfer process is complete (CNP 2010f).

Traditional Use Area

WLFN does not have a RMA recognized under their 2005 Past Adverse Effects Agreement with Manitoba Hydro. The traditional use area of WLFN falls within the SLRMA (CNP 2010f). WLFN has a representative on the SLRMA Board who makes recommendations on the allocation of land and resources within the SLRMA.

4.3.4.1.2 Fox Lake Cree Nation

Indian Reserve Parcels

Like other KCNs, Members of FLCN are people with deep ancestral ties to the land and waterways of the Hudson Bay region that date back thousands of years. Family ancestral regions linked to FLCN extend from the coast of the Hudson Bay to the interior.

Between the decades of the 1910 Treaty and York Factory's closure in the late 1950's, several groups of Cree gradually moved their seasonal patterns of camping away from the coast at York Factory to other regions, including Gillam and Fox Lake. As early as 1944, those who maintained their seasonal pattern of camping between Fox Lake and Gillam began to be referred to as the Fox Lake Band, and in 1947 Fox Lake First Nation (now known as FLCN) was formalized, but remained without reserve land for almost four decades. In 1985, the Fox Lake No. 2 reserve community of Bird (now known as Fox Lake) was created on 39.5 ha of land at the mouth of the Limestone River, northeast of the Town of Gillam.

On September 9, 2009, a 1.29 ha parcel of land in the Town of Gillam, formerly known as Kettle Crescent, was established as the A Kwis Ki Mahka Indian Reserve in partial fulfillment of their outstanding TLE. In anticipation of the establishment of the reserve in Gillam, a Municipal Services Agreement was negotiated in 2001 between the First Nation and the town for the provision of municipal services. The agreement noted that the new reserve parcel would fall within the purview of FLCN, including responsibility and costs associated with infrastructure located on the reserve (*e.g.*, housing and sewage and water pipe connections). FLCN and the Town of Gillam are undertaking further discussions regarding the Municipal Services Agreement to address any issues not contained in the agreement (FLCN KPI Program 2009-2011).

FLCN's 2004 Impact Settlement Agreement with Manitoba Hydro and the Government of Manitoba also provided for Manitoba to transfer a number of land selections to FLCN (totalling 2,169.1 ha); as noted above, the Kettle Crescent site has already been set aside as reserve land. The Kettle River Site of 32.4 ha (see Section 4.3.2.1) was the location of many FLCN homes prior to the formation of the Local Government District of Gillam. The Kettle River Site was purchased by INAC to be set apart as a reserve for FLCN in partial fulfillment of FLCN's outstanding TLE. The site includes an additional 2 ha to be transferred "for the benefit of Fox Lake, subject to a Project Easement" although the land has not yet received reserve status (FLCN 2004; HTFC 2008).

In addition to the reserves at Fox Lake (Bird) and in Gillam, FLCN has two additional reserves located at Fox Lake (Fox Lake No. 1) and Armstrong Lake (Fox Lake West No. 3). The 561.7 ha reserve at Fox Lake is located about 35 km south of Gillam. Although FLCN derive their name from Fox Lake and the area has long been used and occupied by FLCN Members, for a number of decades it was also known as

Atkinson Lake. This reserve has no road access and no permanent residents (FLCN 1997). The Armstrong Lake reserve contains 1,138.80 ha of land and is located about 190 km southwest of Gillam on the Hudson Bay Railway Line. The site was not historically, and is not now, used or occupied by FLCN (FLCN 1997). FLCN is currently in the process of examining the potential of the parcel of land.

In addition to the above, the FLCN 2004 Settlement Agreement also provided for a study to be undertaken on the establishment of a reserve in the Gillam Trailer Court. The Gillam Trailer Court Committee was formed with representatives from FLCN, the Town of Gillam, Manitoba Hydro, and the Government of Manitoba. It was agreed that FLCN was responsible for sharing findings and engaging with the Government of Canada for any needed support to move forward once the proposal and recommendations were clear. The Committee released a report on the major issues and recommendations in early 2007 called *The Report on the Issues Related to the Setting Apart of the Gillam Trailer Court as a "Reserve" within the Meaning of the Indian Act for the Use and Benefit of the Fox Lake Cree Nation* (Graham McLeod and Associates 2007). One of the key challenges identified in the report was addressing the differing perspectives of the major stakeholders, which include the Town of Gillam, FLCN, Manitoba Hydro, and the governments of Manitoba and Canada).

The key recommendation from the Gillam Trailer Court report was that FLCN was to prepare a detailed formal proposal to negotiate a separate agreement (apart from their 2004 Settlement Agreement with Manitoba Hydro) that would outline how the interests of each party would be addressed. In 2007, FLCN, Manitoba Hydro, the Town of Gillam and the Government of Manitoba joined together in the HGD process. In late 2008, the Gillam Land Use Requirements and Availability Study assessed and documented the land use and planning needs of each party in the Town of Gillam. It was observed that both Manitoba Hydro and FLCN have interest in the Gillam Trailer Court as valuable residential land. At this time, the settlement of the Gillam Trailer Court as FLCN reserve land is still unresolved; however, discussions are ongoing through the HGD process (FLCN KPI Program 2009-2011).

Treaty Land Entitlement

FLCN has not executed its agreement regarding 10,680 ha of land owed to them under the TLE Framework Agreement stemming from their Adhesion to Treaty 5 and the Manitoba Natural Resources Transfer Agreement (FLCN 1997; INAC 2009e).

Fox Lake Resource Management Area

Under the 2004 Settlement Agreement, the 802,600 ha Fox Lake RMA was established within the FLCN traditional territory to address the land use and community issues of FLCN Members that were not properly dealt with during the development of hydro dams in their traditional territory (see Resource Use Map 1-1). Fox Lake's RMA lies northeast of the SLRMA and southwest of the York Factory RMA at the Hudson Bay coast.

Other Lands

Under the FLCN 2004 Settlement Agreement, there are three other parcels of land to be transferred in fee simple to the FLCN Land Corporation:

- The Angling Lake Site, which has been surveyed and is currently in the process of being registered at the Land Titles Office under the Band's Land Corporation name;
- The Sundance Site, which has been surveyed and is currently in the process of being registered at the Land Titles Office under the Band's Land Corporation name; and
- The Limestone Construction Camp, which is still needed by Manitoba Hydro. Action is expected when Manitoba Hydro no longer requires the site for the potential Conawapa Generation Project.

4.3.4.1.3 York Factory First Nation

Indian Reserve Parcels

York Factory First Nation, as part of the lowland Cree of the Hudson Bay area of northern Manitoba, historically made use of a large territory in a seasonal round of traditional resource use activities, including in areas along the Hudson Bay coastline from Churchill to York Factory and Fort Severn, and inland to Shamattawa, Gillam and Big Trout Lake, Ontario. Following establishment of the Hudson Bay trading post at York Factory in the late 1600s, the Cree who continued to camp and make more permanent residence at York Factory became well established as Homeguard Cree and instrumental in the fur trade. With the closure of the York Factory post in 1957, YFFN Members were relocated approximately 200 km away to York Landing on the southern end of Split Lake.

YFFN has one reserve parcel of 967.4 ha at York Landing (*Kawechimasiik*). The reserve is located 120 km northeast of Thompson, where the Aiken River meets Split Lake (INAC 2008).

Treaty Land Entitlement

Under the TLE Framework Agreement, YFFN is entitled to 11,805.9 ha of Crown land (INAC 2009). The First Nation has been considering some selections of land at the coast in their traditional territory, but the process is not yet complete and YFFN has not yet executed its TLE agreement.

York Factory Resource Management Area

The York Factory RMA was established under their 1995 Comprehensive Implementation Agreement. The land is along 60 km of the Hudson Bay coastline, the Hayes River and in the environs of York Factory National Historic Site (based on YFFN's traditional land use of this area). YFFN's RMA was reduced from their original Registered Trapline Section of the 1940s when the community was relocated to York Landing (YFFN 2010). After relocation, YFFN was also given Trapline 13 (originally part of the SLRMA) as a local community trapline and part of their RMA. Community concerns regarding their RMA and information related to their traditional lands use for harvesting, travel and settlements are found in YFFN's Evaluation Report *Kipekiskwaywīnan*. YFFN has indicated that Trapline 13 is "small, crowded and insufficient to support our people, even though it is still being used today" (YFFN 2010).

Other Lands

The community has identified Compensation and Fee Simple lands related to their 1995 Comprehensive Implementation Agreement with Manitoba Hydro, and the Governments of Manitoba and Canada. The

process is ongoing and land has been selected; however, as of the winter of 2012, an agreement had not been finalized (YFFN KPI Program 2009-2010).

4.3.4.2 Gillam

Gillam is located on the Hudson Bay Railway Line between Thompson and Churchill (see Map 1-1). Land in the town is mostly owned by the Town of Gillam and Manitoba Hydro, although other parcels of land are owned by the Provincial Crown, FLCN and the Hudson Bay Railway (Omnitrac) and other private interests (Dillon Consulting 2011). Based on a range of population growth scenarios, it was determined that there is adequate land available for residential and commercial development in and around the community for the next 5 to 20 years (HTFC 2008), although privately owned land within and near Gillam is limited. There is limited availability of land for sale in Gillam due to constraints, including the reservation of certain lands for residential development by Manitoba Hydro (HTFC 2008).

4.3.4.3 Thompson

The City of Thompson (see Map 1-1) has a limited amount of land available for commercial and residential development. The city is exploring the development of commercial and residential property north of the Burntwood River and the expansion of the city boundaries in several locations to accommodate future growth.

Urban Reserve

On February 2, 2005, the Thompson City Council approved Nisichawayasihk Cree Nation's plan for an Urban Reserve. Nisichawayasihk Cree Nation met the requirements of the City of Thompson, completed a service and access agreement with Manitoba Hydro, obtained an agreement from Vale and met all provincial requirements to obtain urban reserve status. Nisichawayasihk Cree Nation owns the Mystery Lake Hotel and adjacent lands (NCN n.d.) and would like to develop additional business and commercial facilities on these lands (NCN 2008).

4.3.5 Transportation Infrastructure – Local Study Area

The main access route to the Project site would be via the north access road, which is being constructed under the Keeyask Infrastructure Project, in advance of the Keeyask Generation Project. The north access road would be a two-lane all-weather gravel road starting at kilometre 174 on PR 280, approximately 185 km east-northeast from Thompson, and extending approximately 25 km east to the north shore of Gull Rapids. Table 4-14 shows the travel distances between communities and the Project within the Local Study Area and Map 4-1 shows the travel distances by section within the Local Study Area.

Table 4-14: Travel Distances in the Local Study Area

Road Segment	Length/Distance (km)
Thompson to Split Lake junction	135.4
Split Lake Access Road (approximate length)	5
Thompson to Split Lake community	140.4
Thompson to Keeyask junction (NAR)	182.7
Split Lake junction to Keeyask junction	47.3
Thompson to PR 290 junction	269.5
PR 290 junction to Bird	23.2
Thompson to Bird (via PR 280 and PR 290)	292.7
PR 290 junction to Gillam	29.8
Gillam to Bird	53
Thompson to Gillam (via PR 280)	299.3

Sources: Dillon Consulting 2001; Thompson KPI Program 2008-2010; Gillam KPI Program 2009-2010.

The north access road is under construction; it will maintain existing drainage patterns and will conform to current Manitoba Infrastructure and Transportation Geometric Design Criteria for Secondary Arterial Roadways (Manitoba Transportation and Government Services 1998). A fully developed by-pass intersection is also being built at the intersection of PR 280 and the proposed road to ensure the safety of local road users. Additional facilities associated with the access road will include a security gatehouse, communication tower, clear-span bridge and signage (Keeyask Hydropower Limited Partnership 2009).

The two principal roads in the Local Study Area that will be used during the construction of the Project are PR 391 and PR 280. PR 391 connects the City of Thompson with PR 280 (distance: 12 km), which in turn is used to access the communities of Split Lake, Fox Lake (Bird), Gillam and, by winter road, York Landing (*Kawechiwasiik*) and Ilford. The distance from Thompson to the Split Lake access road and the Keeyask north access road is 135 km and 183 km, respectively. The distance from Split Lake to the Town of Gillam, is approximately 164 km.

As noted above, PR 280 connects Thompson to Gillam and PR 290, as well as several other communities. It is a two-lane, undivided, gravel roadway and is designated as a secondary arterial by Manitoba Infrastructure and Transportation (MIT). PR 280 is built on rolling terrain with roadway widths of about 10 m between PR 391 and Split Lake, and 7 m between Split Lake and the north access road junction. Between the PR 290 intersection and Gillam, the roadway is a combination of paved and gravel surfaces. The condition of PR 280 is described by many users as in poor condition and hard on vehicles. YFFN Community Members who regularly use PR 280 have noted the need for frequent windshield repair/replacement (YFFN KPI Program 2009-2010).

In 2003, a safety analysis of PR 280 and the potential impact of additional Project-related traffic was undertaken (Dillon Consulting 2003). The study indicated that the road did not meet current MIT standards for alignment and cross-section guidelines and the safety improvements should be undertaken prior to construction of the Project.

Upgrades to PR 280 between Thompson and Gillam have been initiated by Manitoba Infrastructure and Transportation (MIT) as part of its 2012 infrastructure projects. In conjunction with Manitoba Hydro, MIT identified 45 locations between PR 391 and the north access road (km 177) that required improvements. The upgrades have been divided into two major components: 1) crushing and stockpiling road aggregates and rock cuts, and 2) re-grading, re-aligning, and re-surfacing. The first component of upgrades between Thompson and Gillam have been completed by MIT and the contract for the second component was awarded in 2012. The upgrades are intended to meet a standard that will improve safety and accommodate increased traffic. The upgrades include widening and curve shaving (Government of Manitoba 2010a).

4.3.5.1 Keyask Cree Nations

Most roads within the KCNs communities are gravel and in poor condition due to underlying muskeg, and the roads experience slumping and drainage issues. The roads can become rutted when wet and dusty when dry.

Some of the communities in the Local Study Area are remote and difficult to access depending upon the season and weather conditions.

Table 4-15 below shows the various ways by which the KCNs communities can be accessed.

Table 4-15: Methods of Accessing Keyask Cree Nations Reserve Communities

	Split Lake	Ilford	York Landing (<i>Kawechiwasiik</i>)	Fox Lake (Bird) ¹
Rail	No	Yes	No	Yes
Ferry	Yes (to York Landing)	No	Yes (via Split Lake)	No
Road/Bus	PR 280/Bus	No	No	PR 290
Airport	No	Yes	Yes	No
Winter Road²	Yes	Yes	Yes	No

Source: YFFN KPI Program 2009-2010; FLCN KPI Program 2009-2011, Gillam KPI Program 2009-2010; CNP 2010c, CNP 2010f.

Note:

1. FLCN Members living in Gillam have rail, road/bus and air access.
2. Winter roads connect Split Lake to York Factory First Nation at York Landing (*Kawechiwasiik*) and War Lake First Nation at Ilford.

4.3.5.1.1 Cree Nation Partners

TATASKWEYAK CREE NATION

Split Lake is located approximately 140 km northeast of the City of Thompson along PR 391 and PR 280, including the 5 km community access road from PR 280 (see). Year round delivery of materials and services is available via PR 280 and Grey Goose Bus Lines and other companies provide the community with freight and goods on a daily basis. Greyhound provides daily bus service from Split Lake to Thompson (Greyhound 2009).

A winter road that is 32 km long connects Split Lake to York Landing (*Kawechiwasiik*) and extends another 32 km from York Landing (*Kawechiwasiik*) to Ilford. Contracted by MIT, YFFN constructs and maintains the 32 km stretch of the winter road between Split Lake and York Landing (*Kawechiwasiik*). TCN Members use the road to travel to and from York Landing (*Kawechiwasiik*) and Ilford. The winter road is typically open from mid-January to late March. TCN Members have noticed that the winter road season appears to be getting shorter. Between 2004 and 2010, the number of days that the road was open varied from 44 days to 64 days, with an average of 57 days. During that same period, on average, northern winter roads in Manitoba were open between 54 and 74 days, with an average of 65 days (CNP 2010c).

Provincial Road 280 is a mostly gravel road that extends about 136 km from Split Lake to Thompson; the last 9 km of road into Thompson is asphalt. Residents have complained that maintenance problems with PR 280 have caused damage to school buses and personal vehicles (CNP 2010c).

The ferry has been owned and operated by MIT, Northern Airports and Marine Branch since 1977. Split Lake has two ferry landing sites, which are in operation from about the 1st of June to the end of October. However, permanent ferry landing structures are required, since existing ferry tie-up cribs were not meant to be permanent. Ferry landing site maintenance is currently handled through contract by Tataskweyak Construction Limited Partnership. TCN ferry operation staff handle minor repairs, while two professionals from Selkirk do major vessel maintenance and repairs (CNP 2010c).

In-season, the ferry runs twice daily except for Tuesdays, which is a general maintenance day. The 20-mile trip between Split Lake and York Landing (*Kawechimwasik*) takes about two hours, with the ferry typically operating around half-capacity. The maximum capacity of the ferry is 15 vehicles, 40 passengers and one super B (tractor/trailer train). Housing materials, food, fuel and heavy machinery are brought to York Landing (*Kawechimwasik*) via the ferry freight service. Service is rarely cancelled; however, approximately twice a year service will be cancelled due to weather-related events (CNP 2010c).

WAR LAKE FIRST NATION

With no permanent road access to the community of Ilford (see Table 4-14), rail service is heavily relied upon for travel and for freight: approximately 60% of all supplies are shipped by rail to Ilford. Via Rail provides passenger rail service three times per week to Churchill, Thompson and Winnipeg, and Omnitrax provides car load freight service up to three times per week out of The Pas. Passenger rates are reasonable, but the service is unreliable, particularly in the summer months. Both Gardewine North and Motorways also provide freight transportation service to Ilford by Hudson Bay Railway or by the winter road network (CNP 2010f).

Air transportation is available through the Ilford Airport, which has been operated by MIT, Northern Airports and Marine Operations since 1974. About 3 km from the community is a 914 m crushed-rock runway with remote-controlled lighting operated by MIT. There are plans to extend the runway by 300 m, which would permit larger aircraft to land, making larger freight loads possible. Currently, the largest aircraft the airport can accommodate is the turbo prop Fairchild Metro, which seats 10 to 12 passengers. There is no scheduled passenger service; however, chartered flights and Medi-Vac services are available. Air traffic is mainly influenced by Manitoba Hydro activities, with less than 5% of all supplies coming into the community arriving by air (CNP 2010f).

A winter road connects Ilford to York Landing (*Kawechimwasik*), and extends across Split Lake to PR 280. Contracted by MIT, WLFN (CORR certified) constructs and maintains the stretch of the road between Ilford and York Landing. This portion of the winter road network has a shorter operating season due to a number of stream crossings that influence road/ice conditions (Dillon Consulting 2001). The shorter operating season creates challenges for residents of Ilford who rely on the winter road to travel to York Landing (*Kawechimwasik*) and Split Lake. In addition, approximately 35% of supplies are delivered to the community by winter road (CNP 2010f). The winter road is typically open from mid-January to late March. Between 2004 and 2010, the number of days that the road was open varied from 44 days to 64

days, with an average of 57 days, compared to an average 65 days for northern Manitoba winter roads noted above. WLFN also has wanted to have an all-weather road connecting Ilford to York Landing (*Kawechiwasiik*) (CNP 2010f).

WLFN and Ilford Community Council jointly maintain the roads within the community. The Airport Road is approximately 1.5 km long and the main street (Railway Road) is approximately 3 km long. Both roads are gravel and lit by streetlights. There are currently plans to build 8 km of new road to the new landfill (CNP 2010f).

4.3.5.1.2 Fox Lake Cree Nation

The community of Fox Lake (Bird) is accessible by all-weather Provincial Road 290 (see Table 4-14). A number of FLCN shuttle buses run between Fox Lake (Bird) and Gillam. The shuttles provide transportation for community Members to attend medical appointments, school and for work and training opportunities. A shuttle bus also provides services for Fox Lake (Bird) residents who wish to purchase groceries in Gillam. The grocery shuttle operates on Monday, Tuesday, Friday and Saturday. FLCN Members living in Gillam have access to the same transportation network described under Section 4.3.5.2 below (FLCN KPI Program 2009-2011).

4.3.5.1.3 York Factory First Nation

As noted in Table 4-15 above, accessing the community of York Landing (*Kawechiwasiik*) is possible by ferry, winter road and by air. Map 1-1 shows the location of York Landing relative to other communities in the Local Study Area. Generally, YFFN Members are concerned over not having all-weather road access to the community, resulting in feelings of isolation (especially during freeze-up and break-up of the lake). Community Members rely on the ferry, winter road and air travel for basic necessities such as groceries, country food harvesting, visiting family and friends and traveling to Thompson for social, economic and health related activities (YFFN 2010; YFFN KPI Program 2009-2010).

Manitoba Infrastructure and Transportation's Northern Airports and Marine Operations is responsible for the operation of the ferry, the M. V. Joe Keeper. The ferry operates between Split Lake and York Landing (*Kawechiwasiik*), beginning in the spring when the ice on Split Lake breaks up and continuing until the end of October just prior to freeze-up. During the spring thaw, and at other times of the year, debris and floating logs present obstacles to the navigation of the ferry. Manitoba Infrastructure and Transportation hires a community Member to move debris closer to shore where it is less likely to be affected by wind and river currents (YFFN KPI Program 2009-2010).

The ferry transports people, vehicles, construction materials, fuel and heavy construction equipment. The ferry takes two hours to travel between York Landing (*Kawechiwasiik*) and Split Lake. It has two scheduled trips per day, except on Tuesdays when it has a prolonged stop at Split Lake for weekly general maintenance. The schedule of the ferry is modified occasionally to accommodate special events, such as large funerals. Occasionally in October, as the days grow shorter, the ferry's service is often reduced to one trip per day since it cannot operate at night (YFFN KPI Program 2009-2010).

The M.V. Joe Keeper can accommodate 15 to 16 vehicles and 40 passengers and has four crew members. Over the years, vehicle traffic on the ferry has been increasing; however, on an average trip, the ferry

carries six to seven vehicles and 39 people. The ferry operates on a first-come, first-served basis and if it reaches capacity, YFFN residents trying to get home may have to stay overnight in Split Lake with family or friends. In 2009, the M. V. Joe Keeper had been in service for 32 years. Ferry workers expect that a replacement ferry will be put into service sometime within the next five years (YFFN KPI Program 2009-2010).

Greyhound provides daily bus service from Split Lake to Thompson for those who take the ferry from York Landing (*Kawechiwasiik*). Returning by bus requires an overnight stay in Split Lake (Greyhound 2009; YFFN KPI 2009-2010).

A 32 km winter road connects York Landing to PR 280 by way of two access points: 1) an access point located 3 km east of the Split Lake Access Road; and 2) another access point directly into Split Lake at the bay near the TCN gas bar. The winter road is typically in use from mid-January to mid-April, depending on weather conditions. As with all winter roads, safety is an issue. YFFN Members have noted increased risks in using the winter road due to slush ice and thin spots along the road (YFFN 2010). Drivers of large vehicles have reportedly found it difficult to negotiate the steep topography at selected locations, and occasionally heavy equipment is required for assistance (Dillon Consulting 2001). The winter road is considered too narrow in places (YFFN KPI Program 2009-2010) and winter water/ice level fluctuations (on Split Lake) of up to 0.6 m can make access at the transition of ice road to land a challenge (Dillon Consulting 2001). Details related to travel safety are included in Section 5.3.5.

When the winter road system to Ilford is in operation, YFFN residents can take advantage of rail service at Ilford (YFFN KPI Program 2009-2010). However, the on-land portion of the winter road system between York Landing (*Kawechiwasiik*) and Ilford has a shorter operating season than other portions due to a number of stream crossings that affect road/ice conditions (Dillon Consulting 2001).

YFFN has been gradually acquiring the equipment and staff needed to manage and maintain local roads within the community and for a number of years they have been exploring options for an all-season permanent road to the community. However, at the time of writing, no plans or funding were in place to develop the project (YFFN KPI Program 2009-2010).

An airport is located on the northern edge of York Landing (*Kawechiwasiik*) and has been in operation since 1972. Eight years ago, the airstrip was extended by 213.4 m to accommodate larger airplanes. It is now 1,065.3 m long and can accommodate a variety of small- and medium-sized aircraft (YFFN KPI Program 2009-2010).

Air transport companies providing services to the airport in York Landing (*Kawechiwasiik*) include Gillam Air Service and Missinippi Airways/ Missinippi Air-Care. Perimeter Aviation also provides air transport and has seven scheduled flights between Thompson and York Landing each week.

The airport experiences more traffic during spring break-up and in the late fall when ice road and ferry access is unavailable. Mail, groceries for the store and medical supplies are transported into the community each month via aircraft. (YFFN KPI Program 2009-2010).

4.3.5.2 Gillam

Gillam is accessible by all-weather gravel road from Thompson via PR 391 and PR 280 (see Table 4-14). The total distance from Thompson to Gillam is approximately 300 km. The condition of the roads within the community varies, but a recent Province of Manitoba budget allocated funds to improve roadways in the community (Gillam KPI Program 2009-2010).

Grey Goose Bus Line provides passenger service to and from Gillam once daily (Gillam 2009). Freight and trucking services to the community are provided by Gardewine and Reimer; and Gillam Taxi provides services within the town.

A rail line and station grounds are found on the south side of the town. VIA Rail provides service to Gillam three times weekly (Gillam 2009). The Town and FLCN have partnered to consider redevelopment of the train station, and planning is in the early stages. The facility would ideally be designed as a multi-function building and include office and meeting spaces as well as room for a museum (Gillam KPI Program 2009-2010).

The airport is found on the north side of the town. The runway surface is gravel and 1,524 m in length (Gillam KPI Program 2009-2010). Calm Air International provides daily regularly scheduled air service to Gillam from Thompson. Direct flights between Winnipeg and Gillam are available on weekdays and Sunday (Calm Air 2009).

4.3.5.3 Thompson

Thompson is accessible from the south by PTH 6 and is shown on Map 4 -1. Within the city limits PTH 6 turns into a four-lane divided street called Mystery Lake Road. This is the primary thoroughfare in the city and it follows the natural contour of the Burntwood River. Mystery Lake Road was widened and resurfaced by MIT through Thompson to the Thompson Airport in 2006. As part of the ongoing strategic resurfacing program, MIT has been upgrading PTH 6 for several years and has invested nearly \$45 million since 1999. In the next five years, there will be an additional investment of approximately \$68 million, including \$10.2 million for bridges (Thompson KPI Program 2008-2010; MIT 2009).

Within the city, approximately 75% of the streets are in need of resurfacing. This work is linked to the overall need for infrastructure renewal since the main water and sewer lines under the streets in many locations also require upgrading. Roads in Thompson are presently being repaired on an as-needed basis, although Mystery Lake Road and the infrastructure beneath it have already been renewed as part of the Province's Highway Renewal Plan (Thompson KPI Program 2008-2010).

Thompson is also served by the Hudson Bay Railway, which is owned and operated by Omnitrax with a network that connects with Canadian National Railway in The Pas. According to Hudson Bay Railway, the tracks are in good condition in the industrial area and there have been a number of upgrades along the Hudson Bay Railway line in 2010 including surfacing, tie installation and general equipment repairs. The main track between Gillam and Wabowden was upgraded with 3,120 feet of rail replacement in 2010 (Community Futures North Central Development 2011).

The Thompson Regional Airport and terminal are owned and maintained by the Thompson Regional Airport Authority and are situated in the Local Government District of Mystery Lake, approximately 5 km northwest of the city. The Thompson airport has daily scheduled service offered by Calm Air International and Perimeter Airlines, and by chartered flights from several other carriers. Calm Air International is based out of Thompson and has scheduled service to several locations in Manitoba and Nunavut. The Thompson airport is also the base for Custom Helicopters, Manitoba Government Air (air ambulance), the RCMP Air Division and various private contractors.

To accommodate increased numbers of users at the airport, the Thompson Regional Airport Authority completed the construction of a new sewage lagoon in 2007, and there are plans to develop a new terminal on the north side of the airport by late 2012. This is part of an overall ten-year development plan that would see the majority of the public infrastructure move to the north side of the airport, along with the development of additional cargo handling and commercial space along the access road (Thompson KPI Program 2008-2010).

There is also a floatplane base on the Burntwood River east of the PR 391 bridge across the Burntwood River. Venture Air flies out of the floatplane base and has one charter aircraft at the airport (LGD of Mystery Lake 2005; City of Thompson 2008; Thompson KPI Program 2008-2010).

Overall, the existing airport and associated services can accommodate the existing air traffic, and it is expected that, with the expansion of the airport in the near future, the airport will be able to accommodate additional growth in air traffic. Calm Air has implemented additional flights from Winnipeg to Thompson to meet increasing demand (Thompson KPI Program 2008-2010).

Thompson has an extensive west and east bus route. The bus service runs regularly every half-hour and is provided by Grey Goose Bus Lines (City of Thompson 2011). Daily Grey Goose bus service also links Thompson to Winnipeg and other destinations. The Grey Goose buses have a 54-person seating capacity and, at the time of writing, there were no capacity issues with the bus service.

4.3.6 Regional Study Area – Population

Table 4-16 indicates that the population of the Regional Study Area is approximately 84,600 in 2006. The table also shows annual average changes in population between Census years ranging from -0.17% to 1.65%. The overall annual average increase is 0.67% between 1991 and 2006. A large proportion (approximately 72%) of the Regional Study Area population is Aboriginal (see Table 4-17), which includes those who identified themselves in the Census as being North American Indian, Metis, Inuit, and/or those who reported being a Treaty Indian or a Registered Indian as defined by the Indian Act of Canada, and/or those who reported they were Members of an Indian Band or First Nation.

Table 4-16: Regional Study Area Total Population and Average Annual Population Change (1991, 1996, 2001 and 2006)

	Northern Manitoba ^{1,2}			
	1991	1996	2001	2006
Total Population³	76,590	83,135	82,435	84,600
Average Annual Population Change⁴ (%)	n/a	1.65%	-0.17%	0.5%

Source: Statistics Canada 1992, 1997, 2002, 2007a.

Notes:

1. 1991, 1996, 2001 and 2006 population data consists of 100% of the census population.
2. Northern Manitoba is defined as Statistics Canada Census Divisions 19, 21, 22 and 23.
3. Total Population calculated by InterGroup Consultants. Data are subject to Statistics Canada random rounding procedure; population totals are rounded.
4. Average Annual Population Change calculated by InterGroup Consultants as total population change since the previous census, divided by the number of years. Average Annual Population Change for 1996 is measured from 1991, 2001 is measured from 1996 and for 2006, from 2001.

Table 4-17: Total Population of Regional Study Area by Aboriginal Identity (2001 and 2006)

	Northern Manitoba ^{1,2}	
	2001	2006
Total Population³	82,435	84,600
Total Aboriginal Identity Population⁴	55,985	61,045
Aboriginal Identity Population⁵ (%)	67.9%	72.2%

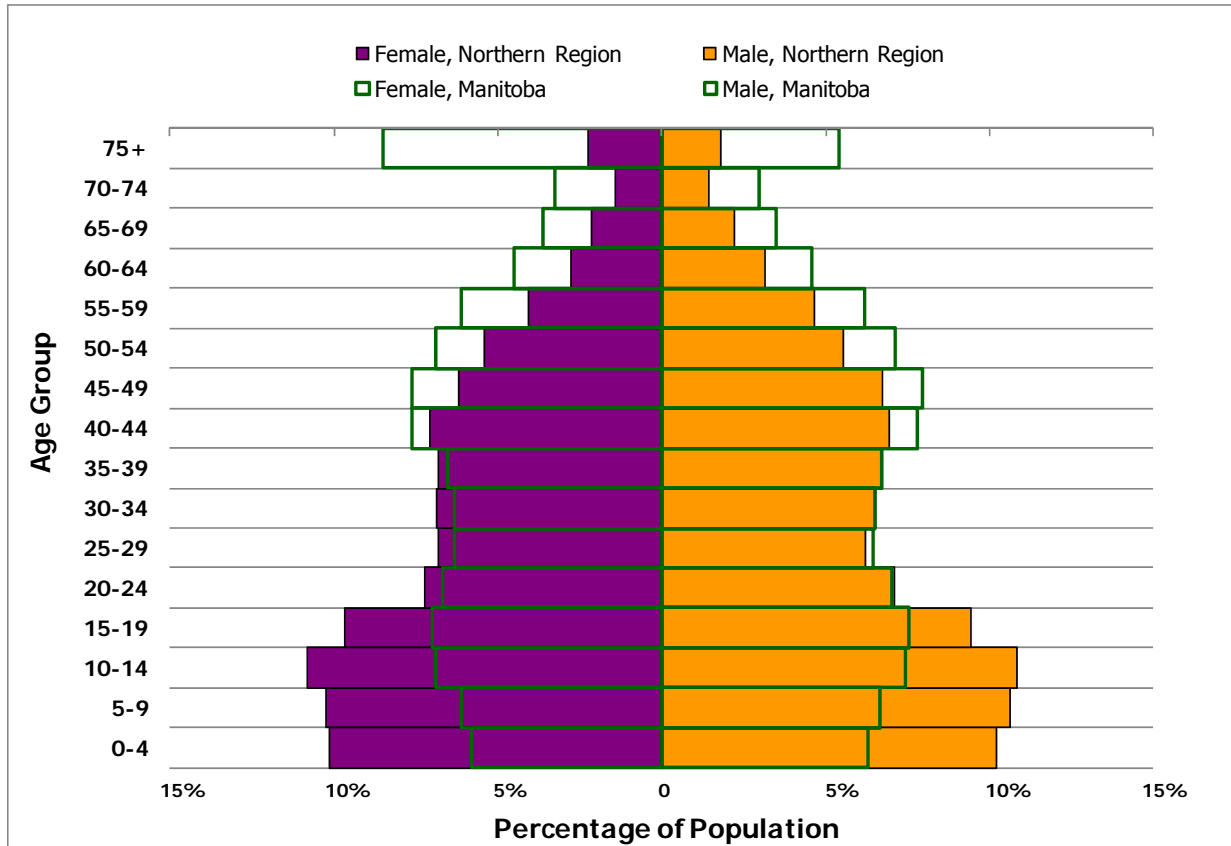
Source: Statistics Canada 2002, 2007a, 2011a, 2011b.

Notes:

1. 2001 and 2006 population data consists of 100% of the census population.
2. Northern Manitoba is defined as Statistics Canada Census Divisions 19, 21, 22 and 23.
3. Total Population calculated by InterGroup Consultants. Data are subject to Statistics Canada random rounding procedure; population totals are rounded.
4. Statistics Canada refers to the composition of 'Aboriginal Identity Population' as "those persons who reported identifying with at least one Aboriginal group, that is, North American Indian, Metis, or Inuit, and/or those who reported being a Treaty Indian or a Registered Indian, as defined by the Indian Act of Canada, and/or those who reported they were Members of an Indian Band or First Nation". Total Aboriginal Identity Population calculated by InterGroup Consultants as the total population of Statistics Canada Census Divisions 19, 21, 22 and 23 claiming Aboriginal Identity.
5. Percentage of total population with Aboriginal Identity calculated by InterGroup Consultants.

Figure 4-18 demonstrates how the population of the Regional Study Area is relatively young. While Manitoba's age structure is fairly evenly distributed, with slight increases in the 40-49 year old age groups, over 40% of the Regional Study Area's population was in age groups under the age of 20. This pattern of population distribution indicates that the Aboriginal population will continue growing at well above the

rate of the provincial population into the foreseeable future. The Aboriginal population distribution is also indicative of future growth in the labour force as young Aboriginal people being looking for jobs.



Source: Manitoba Health 2006; Statistics Canada 2007a.

Note:

- Statistics Canada refers to Northern Manitoba as Census Divisions 19, 21, 22 and 23.

Figure 4-18: Age Distribution for the Regional Study Area versus Manitoba (2006)

4.3.7 Regional Study Area – Transportation Infrastructure

Northern Manitoba is sparsely populated, and the distances between communities are often quite large. Some communities are isolated and able to access southern parts of the province only by air travel or via the winter road system. Thompson is connected to southern parts of the province via PTH 6. The total distance between Thompson and Winnipeg is 756 km. Provincial Trunk Highway 6 is a paved, two-lane highway, classified as a year-round route with a maximum gross vehicle weight of 62.5 tonnes. Provincial Trunk Highway 6 becomes PR 391 at the south end of the City of Thompson and exits the northwest part of the city.

According to Manitoba’s Highway Renewal Plan, the Government of Manitoba has a five-year plan to invest in and renew the existing transportation infrastructure to protect and sustain vital economic lines of commerce (Government of Manitoba 2010a).

4.4 ENVIRONMENTAL EFFECTS ASSESSMENT

The construction and operation phases of the Project would each have different effects on population, infrastructure and services (including land). The pathways to effects on population, infrastructure and services include:

- Additional demand for infrastructure and services by new population (construction and operation);
- Expansion of the Town of Gillam in response to operation phase employment and requirements for other future in-vicinity Manitoba Hydro projects;
- Construction of the south access road and operation of PR 280 along the north access road, across the generating station and along the south access road to Gillam (construction and operation); and
- Transportation of equipment, materials and workers to and from the construction site (construction).

The various factors that would encourage or deter migration are described in detail in Sections 4.4.1 and 4.4.2 for the construction and operation effects, respectively, and implications of increased demand on infrastructure and services by an increase in population are also addressed. With respect to the movement of goods and services, anticipated changes to traffic patterns and travel safety are discussed in Sections 5.4.1.5 and 5.4.2.5 while the implications for infrastructure and services are described in Sections 4.4.1.5 and 4.4.2.5.

Uncertainties associated with the analysis of changes in population pertain primarily to the difficulty in estimating migration behaviour. The decision by an individual and/or family to move to a location involves an array of factors that are difficult to predict with accuracy. Furthermore, it is difficult to ascertain whether in- or out-migration would occur solely as a result of the Project or due to other factors (either acting alone or in combination with the Project).

Additional demand for services may arise from non-resident, camp-based workers visiting Gillam or Thompson during their leisure time. To the extent that these visits result in social issues (see Section 5.3.4) there could be greater demand for social services.

Project effects during the construction phase on transportation infrastructure and services in the Local Study Area are described in Section 4.4.1.5 and in the Regional Study Area in Section 4.4.1.7; and Project effects during the operation phase are discussed in Section 4.4.2.5. Most of these effects are linked to the movement of goods, equipment and people to the Project site during the construction phase, and potential incorporation of the north and south access roads into the provincially managed PR 280.

4.4.1 Construction Effects and Mitigation

4.4.1.1 Population – Local Study Area

This section describes the anticipated effects of the Project due to people moving to communities as a result of employment in the construction workforce and the short-term influx of non-resident, camp-based workers visiting communities during their time off.

4.4.1.1.1 Keyask Cree Nations

In-migration of workers and their families to the KCNs communities has the potential to affect housing, infrastructure and services in communities, particularly where existing amenities and services are at capacity. However, the Project is not expected to result in notable changes to population in the KCNs communities. Net in-migration associated with Project construction is expected to be quite small, although the KCNs have expressed the concern that any in-migration would stress services that are already at capacity. There are several reasons why net in-migration is expected to be quite low; they are as follows:

- There is a lengthy waiting list for on-reserve housing in all of the KCNs communities. This may deter KCNs families from moving to the communities specifically to work on the Project.
- Construction workers are provided with free accommodation and meals at the construction camp(s) while employed on the Project. This makes it less expensive to live at the construction camp than in a nearby community.
- The work rotation schedule (*e.g.*, 10-12 hour days) and distance from the Project site to the communities would deter workers from travelling to and from work on a daily basis. This is particularly true for WLFN and YFFN communities, which do not have all-weather road access to and from their communities (thereby making a daily commute infeasible).
- The work rotation schedule is expected to include approximately one week off between rotations, providing sufficient time for workers to travel to more distant home locations during their time off. This would reduce the incentive to relocate closer to the Project.
- KCNs Members would qualify for Project hiring preferences regardless of their home address (*e.g.*, there would be no need to live in the reserve community in the Local Study Area to receive the best access to construction jobs)¹. It should be noted that some concern has been expressed by some KCNs community Members that this opportunity for hiring regardless of home address should be better publicized to off-reserve Members (CNP *pers. comm.* 2012).
- Some out-migration may occur by community residents in the Local Study Area who secure construction employment and improve their financial status. With increased financial capacity, some workers and their families may chose to move from their home communities to larger centres that offer better and more diverse housing and services (*e.g.*, education, specialized medical care); or they may move for other reasons. If this occurs, the number of out-migrants would likely be small; however, those involved could be important contributors to community capacity. Out-migration would offset some of the potential in-migration.

¹ The July 2009 Letter of Agreement No. 23 to the BNA, Article 12 notes that “all candidates who are members of a KCN, are residents of Manitoba, and are registered with the Province of Manitoba (as the job placement and referral agency for the Project) shall be deemed to be Northern Aboriginals residing within the Churchill/Burntwood/Nelson River Area as described in Article 12.1.1.3(a) [of the BNA] and thus eligible for first preference hiring” (Manitoba Hydro and Allied Hydro Council 2009).

During pre-project planning for construction of the Wuskwatim Generation Project, Nisichawayasihk Cree Nation Members expressed some concern that large numbers of Members would return to the community to access construction jobs. While the employment preference permitted hiring of Nisichawayasihk Cree Nation Members from off-reserve locations in southern Manitoba, it was felt that those living on-reserve would have an advantage in being close to Nisichawayasihk Cree Nation businesses awarded DNCs based on-reserve when hiring was undertaken. Despite these concerns, the community saw very limited in-migration directly attributable to the Wuskwatim Generation Project, while some out-migration occurred when Members secured employment and relocated to larger centres (Thompson KPI Program 2009-2010).

The above factors suggest low levels of Project-induced net in-migration to KCNs communities and any resulting effects on housing, infrastructure and services in these communities may occur. The following is the estimated net in-migration to each of the KCNs communities during Project construction, taking into account the size of the community, its proximity or access to the Project and other factors identified above:

- TCN at Split Lake: 0-15 people;
- WLFN at Ilford: 0-3 people;
- YFFN at York Landing (*Kavechinasik*): 0-3 people; and
- FLCN in Gillam and/or Fox Lake (Bird)¹: 0-10 people.

It should be noted that YFFN Members have speculated that some Members may relocate closer to the Project for work. For example, Members living in Winnipeg may consider a move to Thompson or Gillam; and some people from York Landing (*Kavechinasik*) may consider a move to Gillam to enable family members to work at Keeyask and continue to have their families nearby (YFFN Future Development 2010).

SHORT-TERM INFLUX OF WORKERS

Some KCNs Members living off-reserve and working on the Project are likely to take the opportunity to visit family and friends in the Local Study Area during their leisure time. Such visits are likely to be for short periods of time (*e.g.*, possibly for the week between rotations). FLCN has expressed substantial concern about the influx of non-local construction workers into Gillam, which is discussed in more detail in Section 5.3.4. Similar concerns have also been raised by TCN about visits by non-local construction workers to Split Lake.

¹ Housing constraints in Fox Lake (Bird) would impede net in-migration, while housing in Gillam may offer some opportunities for FLCN members to return to the community, although housing in Gillam is also near capacity.

4.4.1.1.2 Gillam

Gillam is not expected to see any substantial population growth as a result of Project-related construction. This is due to several factors, including the following:

- Housing for workers would be provided at the construction camp(s);
- The work rotation schedule (*e.g.*, 10-12 hour days) and distance from the site to Gillam would deter members from commuting on a daily basis;
- The work rotation schedule is expected to include approximately one week off between rotations, allowing sufficient time for workers to return to their home communities or larger centres during their time off; and
- Housing in Gillam is currently at capacity, and new housing planned by Manitoba Hydro and other employers is designed to meet specific housing needs unrelated to Project construction.

Small increases in population may occur if FLCN Members decide to return to the community (see Section 4.4.1.1).

SHORT-TERM INFLUX OF WORKERS

Gillam is expected to experience some short-term influx of workers related to the Project. This could include non-local senior Manitoba Hydro employees and contractors who may require local accommodation if space is not available at the construction site. It also could include construction workers in transit to and from the construction site and or visiting the town during their leisure hours. It is difficult to accurately estimate how many workers would arrive at any one time in Gillam. Factors that may affect the total number of people likely to visit the town include:

- The work rotation schedule (*e.g.*, 10-12 hour days);
- Distance from the construction camps to Gillam (work sites and work camps would be located on both the north and south sides of the Nelson River):
 - The main construction camp on the north side of the Nelson River is approximately 140 km to Gillam. The north side camp has a capacity of 2,000 workers; and
 - The location of the south side construction camp will be finalized with the contractor. The locations under consideration are near the Butnau Dam or somewhere in closer proximity to the town. The south side camp has a capacity of 100 workers.
- Available transportation;
- Location of worker's permanent residence; and
- Desired services and amenities (*e.g.*, restaurant meals and visits to taverns).

Given the range of factors that could affect a worker's decision to travel to Gillam during leisure hours, it is difficult to predict with any accuracy how many people may visit Gillam in a given time period. What can be assumed is the following:

- The level of worker influx into Gillam is more likely to increase with the number of workers living in the construction camp(s). This suggests that the highest levels would occur during seasonal peaks (Q2 and Q3) and overall yearly peaks (*i.e.*, Years 3 and 4) during the construction period. Workers could visit during the day, in the evening, or during their week off. Workers at the north side camp are more likely to choose Thompson, and possibly Split Lake over other destinations in the Local Study Area.
- Workers from the construction camp on the south side of the Nelson River (between 75-100 people; the location of the camp has not yet been determined) are more likely to select Gillam over other destinations in the Local Study Area.
- Given the small size of the community, even a small number of construction workers coming into Gillam or Split Lake would be noticeable.

FLCN Members residing in Gillam are particularly sensitive to an influx of non-local workers due to their history with past hydroelectric developments (this is discussed in greater detail in Section 5.3.4). TCN has voiced similar concerns regarding non-local construction workers coming into Split Lake.

4.4.1.1.3 Thompson

Thompson is not expected to see any material population change as a result of Project construction. Due to a lack of affordable housing, including a lack of affordable rental accommodations, and the fact that there is substantial time off in between work rotations, workers would likely travel to their home community when they are not working as opposed to staying in Thompson. As such, no measurable Project-related change in the population of Thompson is expected.

SHORT-TERM INFLUX OF WORKERS

Thompson is expected to experience some short-term influx of workers visiting the city during their leisure hours. Similar to Gillam, there is a range of factors that may affect the total number of construction workers who may visit the city, including the following:

- The work rotation schedule (*e.g.*, 10-12 hour days);
- Distance from the construction camps to Thompson (approximately 208 km from the camp on the north side of the Nelson River to Thompson and approximately 100 km further from the south side of the Nelson River);
- Available transportation;
- Location of worker's permanent residence; and
- Desired services and amenities for leisure time (*e.g.*, restaurant meals and visits to taverns).

Given the range of factors that could affect a worker's decision to travel to Thompson during leisure hours, it is difficult to predict with accuracy how many people may visit in a given time period. What can be assumed is the following:

- Short-term visits to Thompson are more likely to occur when construction activity is at its peak. This includes both seasonal peaks (Q2 and Q3) and overall yearly peaks (*e.g.*, Years 3 and 4) during the construction period. Workers could visit during the day, in the evening, or during their week off.
- Construction workers during their week off may select Thompson over other communities in the Local Study Area due to the greater range of services and amenities available.

Given the size of the community, an influx of workers is less likely to be noticed than in smaller communities. However, YFFN has noted a concern about effects associated with any in-migration on KCNs Members living in Thompson. This is discussed more fully in Section 5.3.4.

4.4.1.1.4 Mitigation

No mitigation is proposed to address potential population change in the Local Study Area. Given the difficulty of accurately estimating the precise levels of in- and out-migration, it is recommended that monitoring of population change in KCNs communities be included as part of an overall socio-economic monitoring program (see Section 4.4.2.8).

The only population change in Gillam is anticipated to be limited to the short-term influx of non-local workers seeking temporary accommodation or services mainly during their leisure hours. Mitigation measures described in Section 5.4.1.4 would help to minimize the overall volume of people travelling to Gillam. Since Thompson is a larger urban centre (compared to Gillam), it is assumed an influx of workers will be handled by the community. Section 4.4.3 describes the summary of residual Project effects on population in both the construction and operation phases.

4.4.1.2 Housing – Local Study Area

4.4.1.2.1 Keyask Cree Nations

As discussed in Section 4.4.1.1, it is expected that few KCNs community Members would move back to their respective communities as a result of Project construction. This is due in part to the overall lack of available housing in communities. In addition, KCNs Members are not required to live in their home communities to be eligible for preferential hiring on the Project. The estimated in-migration to each KCNs community during Project construction as noted in Section 4.4.1.1, is expected to be low (0-15 people; an upper range of three is expected in the smaller communities)¹. With limited new Project-related population, it is expected that there would be little new demand for housing in each of the KCNs communities as a result of the Project. It is also expected that existing capacity issues would remain largely unchanged.

¹ Housing constraints in Fox Lake (Bird) would impede net in-migration, while housing in Gillam may offer opportunities for FLCN Members to return to the community, although housing in Gillam is also near capacity.

It is also possible that construction employment income from the Project may allow community Members to move to larger centres. This could alleviate, to a small degree, some of the existing demand for housing and reduce the number of Members on waiting lists. As a result of construction of the Wuskwatim Generation Project, the rate of population change in Nelson House due to in-migration has been indistinguishable from normal population trends (Wuskwatim Power Limited Partnership 2009). This is in contrast to the net in-migration that was anticipated to occur based on Members' estimates of migration behaviour (Manitoba Hydro and NCN 2003). This underscores the uncertainty surrounding migration behaviour.

There is also potential for KCNs Members working on the Project, whose permanent residence is outside the Local Study Area, to return to their home communities in the Local Study Area between work rotations to visit family and friends. Although some communities offer accommodations for visitors, this may have a short-term, but minor effect on crowding in a few of the homes in the KCNs communities, in particular for TCN in Split Lake and for FLCN in both Gillam and Fox Lake (Bird), since these locations are accessible via all-weather road (unlike WLFN and YFFN with limited, winter-road access).

4.4.1.2.2 Gillam

During construction of the Project, it is expected that Gillam would experience limited in- or out-migration. A small number of returning FLCN Members to Gillam or Fox Lake (Bird) (estimated at 0-10 people as per Section 4.4.1.1) could add to the housing demand, which is currently at capacity for FLCN Members in Gillam and Fox Lake (Bird).

There could be increased demand for temporary accommodation in Gillam; sources of this demand could include Manitoba Hydro senior employees and contractors unable to access short-term accommodation at the construction site, as was the experience at the Wuskwatim construction site (Thompson KPI Program, 2009-2010). There could also be demand for temporary accommodation by construction workers who travel to Gillam during leisure hours and/or days off to access services and amenities or by workers travelling to and from the construction camps at rotation turnover. The demand would be greatest during construction activities on the south side of the Nelson River due to the close proximity of Gillam to the south construction camp¹. Hotels in Gillam already experience low vacancy rates, and an increase in demand for temporary accommodation by those associated with the Project could place added pressure on hotels and other hospitality services. Manitoba Hydro is installing accommodations for up to 60 individuals at a construction camp for the Kettle Generating Station upgrade in order to relieve additional pressure on hotels and hospitality services in Gillam during the construction phase of the upgrade (between 2010 and 2017). These temporary accommodations, completed in December 2010, would be available for future Manitoba Hydro projects as well as future capacity in Gillam.

¹ At the time of writing, the location of the south side construction camp was not yet determined; however, one option was in the immediate vicinity of the town. If the camp is located within or immediately next to Gillam, it is anticipated there would be reduced demand on short-term accommodation.

4.4.1.2.3 Thompson

Thompson is not expected to see any new material Project-related demand for rental or purchased housing during the construction phase because net population change in Thompson is not anticipated to occur during the construction phase (see Section 4.3.1.4). Thompson is too expensive to be an attractive place for workers to secure a permanent residence to stay at between contracts. While some workers may choose to move their families to Thompson while they are working at the job site, the total number is expected to be quite small as is their impact on the Thompson housing market. If Vale's plans to shut down their Thompson smelter and refinery proceeds as proposed, some housing is likely to become available as workers affected by the closure leave the community to work elsewhere.

However, it is expected that Thompson would experience an increase in demand for temporary accommodations, generated by non-local construction workers accessing amenities and services or staying in the community when arriving or departing the region. At present, hotels and other temporary accommodations in the city experience low vacancy rates throughout the year. Recent extended stay facilities have helped to reduce the overall strain on accommodations as people coming for stays of one week to one month have other options. It is expected the market will respond to increased demand if plans for the Super 8/Best Western are completed in the near future; otherwise, shortages in temporary accommodations could occur.

4.4.1.2.4 Mitigation

Given the difficulty in estimating migration behaviour accurately and, therefore, the precise level of in and out-migration, by extension there is also uncertainty in predicting new demand for housing. No mitigation is proposed. As part of a socio-economic monitoring program (SEMP) the increased demand for housing in the KCNs communities would be investigated through a one-time set of KPIs with representatives of the KCNs Housing Authorities. Population changes would also be monitored (see Section 4.4.1.8).

In addition to potential FLCN Members returning to Gillam, potential effects on housing in Gillam are anticipated to be related to people seeking short-term accommodation. Manitoba Hydro, the Town of Gillam and FLCN are involved in a long-term Gillam Land Use Planning process that is anticipated to address future community growth, including housing and commercial development. Population changes in Gillam will be monitored during Project construction.

In both Gillam and Thompson, it is anticipated that the market would respond to an increased demand for temporary accommodation; therefore, no mitigation or monitoring is required.

4.4.1.3 Infrastructure and Services – Local Study Area

Effects on infrastructure and services stem from the following main sources:

- Changes in population resulting from the Project;
- Employment on the Project;
- Proximity to the Project; and

- An increased need for social services resulting from changes in lifestyle (see Section 5.4.1.2) (described in greater detail below).

The extent to which these sources of change affect any given community would vary; in many instances, the anticipated change would be negligible or would be accommodated within the capacity of existing facilities and services. Where more substantive effects are anticipated, effects and mitigation measures are discussed in greater detail.

4.4.1.3.1 Keyeyask Cree Nations

As noted previously, the estimates for increases in population for the KCNs as a result of the Project range between 0-3 people in the smaller communities and 0-15 people in the larger communities. While these are relatively small changes in each community's population, they could put a strain on services whose capacity limits are being approached or have already been exceeded as discussed in further detail below and in Section 5.3.4.

Increased disposable income and the potential for increased spending and availability of alcohol and drugs is a key concern (FLCN KPI Program 2009-2011; CNP 2010b). Lack of alternative expenditure opportunities in Gillam and the KCNs communities may contribute to these spending choices, particularly in combination with an influx of non-local workers. A “work hard/play hard” mentality has been documented elsewhere in development projects (Vanclay 2002) and the root causes of such behaviour are further explored in Section 5.3.4. This may increase demand on social services that are already at capacity in the KCNs communities including addictions-related services (*e.g.*, NNADAP), policing and other social services (*e.g.*, Awasis, Brighter Futures). The causes for needing additional services, as well as potential mitigation measures, are discussed further in Section 5.4.1 and 5.4.2. The potential for associated violence or public safety issues is discussed in detail in Section 5.4.1.4.

Parents who could be involved in Project employment and find themselves spending extended periods of time away from home may require additional family support in terms of counselling, family support services and accessible, affordable childcare. If a family member is away for long periods of time, the remaining parent or extended family is often faced with greater responsibilities in managing the household. Factors that may affect the level of stress experienced by Members remaining in the community and their overall ability to cope are dependent on the stage of a family's lifecycle, the number and ages of dependent children, the quality of communication and cohesion within the family, the proximity of any extended family (*e.g.*, aunts, uncles, grandparents), the duration of the worker's absence and the partner's work status (Taylor and Simmonds 2009;).

Day care options are particularly important to enable women to access Project jobs and can be an obstacle to a worker's ability or willingness to apply for and/or stay on the job. Day care and childcare options are limited in the KCNs communities, with the exception of FLCN in Fox Lake (Bird) where there is no day care. TCN's, WLFN's and YFFN's facilities are already operating at capacity. The communities may experience an increased demand for childcare options during the construction phase as individuals with families assess whether or not to pursue Project employment. This is an entrepreneurial opportunity available to the KCNs communities. Communities have also expressed concern that the Project could draw skilled individuals away from local jobs in the community (*e.g.*, social services,

construction, government) to work at the Project's construction camp. If this occurs, it could limit the ability of community-based service providers to attract qualified employees; however, it may also offer an opportunity for additional people to get engaged in the local workforce.

KCNs ADVERSE EFFECTS AGREEMENTS – INFRASTRUCTURE AND SERVICES

Each of the KCNs signed an AEA with Manitoba Hydro to address known or foreseeable adverse effects on the First Nation, as described in Section 1.2.1. These agreements have the potential to create new infrastructure and services; they are summarized in Table 4-18.

Table 4-18: New Infrastructure and Services Described in Adverse Effects Agreements of the Keeyask Cree Nations

Offset Program	New Infrastructure	New Services
Tataskweyak Cree Nation		
Keeyask Centre	√	√
Access, Land Stewardship, Healthy Food Fish and Traditional Foods Programs	√	√
Traditional Lifestyle, Traditional Knowledge Learning, Cree Language and Museum and Oral Histories Programs		√
War Lake First Nation		
Fish Distribution Centre	√	
Improved Access and Community Fish Program	√	√
Traditional Learning/Lifestyle, Cree Language and Museum and Oral Histories Program		√
Fox Lake Cree Nation		
Gathering Centre	√	√
Youth Wilderness Traditions, Cree Language, Gravesite Restoration and Alternative Resource Use Programs		√
Crisis Centre and Wellness Counselling Programs; Alternative Justice Lateral Violence and "Where do we go from here" Program	√ (in Gathering Centre)	√
York Factory First Nation		
Cultural Sustainability Program	√	√
Resource Access and Use and Environmental Stewardship Programs		√

4.4.1.3.2 Gillam

Gillam is the urban centre in closest proximity to construction activities and is especially close to activities associated with the south access road, south dykes and the associated construction camp on the south side of the Nelson River. As such, Gillam and FLCN Members who reside in Gillam (and Fox Lake (Bird)) are likely to experience effects on infrastructure and services associated with short-term influxes of workers.

It is difficult to predict the exact effect the short-term influx of people may have on a community, since the total number of visitors at any one time is unknown. Among the potential effects of short-term influxes of workers are the following:

- Increased pressure on emergency services; and
- Increased pressure on community facilities and services.

Many of the social services are funded on a per capita basis by various provincial and federal funding programs. While these funding formulae may be appropriate for addressing typical community needs, it is possible that additional, short-term funding arrangements may be required to address incremental requirements for infrastructure and services arising from Project construction.

EMERGENCY SERVICES

Increased pressure on emergency services could result from a short-term influx of workers, as well as the potential need to provide support to the south access road construction camp. Workers based at the main construction camp on the north side of the Nelson River over the entire construction period would range from a low quarterly peak of just over 100 people to upwards of 1,600 people at the peak of construction in years three and four. During 22 consecutive quarters between years two and seven, more than 300 workers would be living in the main construction camp. At the south side construction camp, there will be approximately 100 people in camp including contractors, service personnel (*e.g.*, catering, security), and Manitoba Hydro staff.

One example of potential pressure on services would be that workers (particularly at the south side camp) may choose to access health services in Gillam when on-site health services cannot address medical needs. It is expected that such visits would be infrequent and could be accommodated by existing services. Both construction camps would be equipped with ambulances and associated medical staff, so emergency care would be available at both sites. At the main camp (on the north side) there will be 24 hour/7 days per week emergency medical and ambulance services as required under the *Emergency Medical Response and Stretcher Transport Act* and the Land Emergency Medical Response System Regulation. It is anticipated that two accredited Primary Care Paramedics will be on duty at all times and one Advanced Care Paramedic shift supervisor during the day shift. Services include addressing emergency situations at any location throughout the site, management of health monitoring clinics and provision of immediate medical treatment and preparing patients for extraction (if required). Major medical emergencies may require that patients be transported to Gillam, Thompson or Winnipeg by Medi-Vac. Again, the likelihood and frequency of such events is expected to be minimal and to be accommodated by existing services.

Additional demands could arise for RCMP services. This may include the need to respond to calls at the construction camp (although it is expected that on-site security services would deal with the majority of incidents) and to respond to calls related to the influx of non-local workers into the Gillam area and to a lesser degree, possibly in Split Lake. While the Thompson and Gillam RCMP detachments have adequate personnel to meet the needs of the existing population, the increase in visitors and the potential for inappropriate behaviour may place strain on the detachments' current capacities (see Section 5.3.4 for greater detail on RCMP, Band constables and public safety). There will be a need for continued communication by the Partnership with the RCMP regarding the Project, including construction schedule and anticipated timing of the peak workforce.

COMMUNITY FACILITIES AND SERVICES

During construction of the south access road and dykes starting in Year Two and continuing through Year Six (primarily during the summer months), there may be potential for construction workers to access community facilities and services in Gillam. The location of the south construction camp is yet to be determined (likely by the Project contractor), with possible locations near the Butnau Dam or somewhere in closer proximity to Gillam. In addition, the south side construction camp would be considerably smaller (approximately 100 people) as compared to the main construction camp (with a peak of 1,600 workers) and would lack amenities such as a recreation facility and a lounge.

Although it is anticipated that most community facilities and services could accommodate the sporadic needs of a short-term influx of construction workers, there may be increased demands on social services to support residents of the community. Based on experiences with past projects, there is the potential that additional social services could be necessary to support local residents who partake in a "work hard/play hard" lifestyle that can accompany major construction projects (FLCN KPI Program 2009-2011) (see Section 5.3.4 for further detail). The services that may need to increase their capacity include Awasis and NNADAP, which are discussed in further detail in Section 5.4.1.4.

Support to families may also be necessary if family members are successful in gaining construction employment. If a family member is away for long periods of time, the remaining parent or extended family member may be faced with greater responsibilities in managing the household. Several stakeholders noted the lack of accessible and affordable childcare and day care options in the community, as well as accessible and affordable programming for youth (Gillam KPI Program 2009-2010; FLCN KPI Program 2009-2011). The Gillam childcare facility has responded to increased demand and is building a new facility with expanded capacity (Manitoba Hydro, *pers. comm.* 2012). Parents who are involved in Project employment may need additional counselling and family support services both of which will be available at the Project site through the employee retention and support services contract.

A short-term influx of workers may also place pressure on accommodation (see Section 4.4.1.2) and hospitality services, which are already limited in terms of options and hours, and experience challenges in hiring and retaining qualified staff. Although this may create stress for existing hotel, restaurant and bar owners, there is also potential for business owners and other entrepreneurs to benefit from the influx of new clients.

4.4.1.3.3 Thompson

Effects on infrastructure and services in Thompson are likely to occur primarily during the Project construction phase. Thompson is the regional centre and transportation hub of central northern Manitoba and is the closest large centre to the Project. It is anticipated that Thompson would experience short-term influxes of workers seeking amenities and services during their leisure time. Given the relative size of the community, it is anticipated that such effects would be less pronounced than in Gillam. However, YFFN has noted a concern about effects associated with any in-migration on KCNs Members living in Thompson (this is discussed more fully in Section 5.3.4). YFFN, as well as other KCNs communities have a heavy reliance on the health and social services and commercial infrastructure of Thompson. Construction workers using these services will affect others' ability to access the services, causing a burden to Members living in Thompson (YFFN *pers. comm.* 2011).

EMERGENCY SERVICES

A short-term influx of construction workers has the potential to affect emergency services, including the RCMP, whose services may be required should incidents involving construction workers occur. Based on previous experiences, there is potential for issues associated with drinking and fighting in local establishments and bars involving construction workers (Thompson KPI Program 2008-2010). There will be a need for continued communication by the Partnership with the RCMP regarding the Project, including construction schedule and anticipated timing of the peak workforce, to enable the RCMP to assess their capacity needs accordingly.

COMMUNITY FACILITIES AND SERVICES

Short-term influx of workers into the community may also place pressure on accommodation and hospitality services, some of which already experience challenges in hiring and retaining qualified staff. Although this may create stress for existing hotel, restaurant and bar owners, there is also potential for business owners and other entrepreneurs to benefit from the influx of new clients.

4.4.1.3.4 Mitigation

KEEYASK CREE NATIONS

Although difficult to accurately estimate the precise changes affecting infrastructure and services in the KCNs communities, suggested mitigation measures include the following:

- Ongoing communication between Manitoba Hydro and local service providers (*e.g.*, NNADAP) to allow for effective and timely planning of service delivery;
- Through the FLCN AEA, increase youth recreation programming (*e.g.*, FLCN's Youth Wilderness Traditions Program);
- Increasing accessible and affordable daycare options (this is an entrepreneurial opportunity available to the KCNs communities); and
- Available counseling services at the site for KCNs workers and their families, if needed.

In addition to the above, there will be no hiring at the Project site; this may deter workers from returning to the Local Study Area in hopes of acquiring employment on the Project.

GILLAM AND THOMPSON

Sharing of information with the emergency services in Gillam and Thompson regarding the timing and nature of construction activities and extent of any potential need for their services would be conducted. As noted in Section 4.3.3, the RCMP have recognized there may be the need to increase local capacity, particularly during peak construction years and overlap with other in-vicinity projects.

Mitigation measures in Gillam and Thompson include:

- The Partnership will continue to keep the RCMP informed about the Project, including construction schedule and anticipated timing of the peak workforce (Gillam and Thompson); and
- Through the FLCN AEA, increase youth recreation programming (*e.g.*, FLCN's Youth Wilderness Traditions Program) (Gillam).

The Proponent is committed to keeping relevant government and community organizations informed about Project plans on a timely basis to enable these groups to undertake effective planning. In Gillam, the Gillam Land Use Planning process currently underway is a forum for addressing demands on infrastructure and services.

Monitoring of Project effects will be part of a socio-economic monitoring program (see Section 4.4.1.8).

4.4.1.4 Land – Local Study Area

As detailed in Chapter 4 of the Response to EIS Guidelines, the Project site is located on provincial Crown land, which would be purchased by the Partnership prior to the start of construction. The Project will require approximately 12,229 ha of land during the construction phase, and 12,769 ha of land during the operation phase for both permanent and temporary facilities, including the construction worksite, work camps, principal structures, dykes, roads, borrow areas and for the land required for creation of the new reservoir (see Table 4-2 in Chapter 4 of the Response to EIS Guidelines).

4.4.1.4.1 Keeyask Cree Nations

The Project would not affect any reserve land within the KCNs communities or any TLE selections identified by the KCNs. However, it is expected to have effects on lands within areas used and accessed by the KCNs communities as the Project lands are within their traditional territories and specifically within the SLRMA. The Resource Use Section of this SV discusses the effects that the Project would have on people's perceptions of land and water in the area.

4.4.1.4.2 Gillam

Manitoba Hydro, the Town of Gillam and FLCN are engaged in the ongoing Gillam Land Use Planning process to examine the future needs of the community including the need for new serviceable land. As an initial step the Gillam Land Use Requirements and Availability Study (HTFC 2008) provided an identification of land use program requirements and values of all stakeholders, the existing conditions,

estimates of future land requirements and land tenure options for consideration by the stakeholders. This study was followed by the drafting of a new community development plan (Dillon Consulting 2012). The long-range planning of Gillam will consider requirements associated with operation workforces for the Project and other future Manitoba Hydro projects served by Manitoba Hydro's Gillam operations base.

During the construction phase, changes to land in the Town of Gillam would relate primarily to the potential reconfiguration of transportation routes to improve efficiency and safety, which is discussed in Section 4.4.1.5.

4.4.1.4.3 Thompson

Project effects on land or land use in the City of Thompson relate to the transportation of equipment and materials through the city and storage of materials at an off-loading site. If materials and equipment are shipped by rail, they would be off-loaded in Thompson at the rail yards and transferred to trucks for shipment to site, requiring a parcel of land for storage. As noted in Section 4.3.5.3, there is sufficient capacity at the existing rail yard for off-loading and short-term storage of freight prior to hauling to site. The use of existing rail yard for off-loading does not require either the purchase of land by Manitoba Hydro or any zoning amendments.

4.4.1.4.4 Mitigation

As demonstrated in the discussion above, the Project is expected to have no effects on land owned by the KCNs communities in the Local Study Area; therefore no mitigation or monitoring is required. Use of the Project area by KCNs Members has been addressed through each of their respective AEAs; therefore no additional mitigation or monitoring is required.

In the case of Gillam, potential effects on land relate to any need for transportation-related changes on travel routes in Gillam. The land use planning process in Gillam will need to consider potential changes to transportation infrastructure and associated land requirements during the construction of the south access road. It is anticipated that this planning process will incorporate transportation needs; therefore, no mitigation or monitoring is required.

4.4.1.5 Transportation Infrastructure – Local Study Area

Project effects on transportation infrastructure and services in the Local Study Area would include increased use of rail, air and road networks related to the transport of people, equipment and materials to the Project site. Each of these is addressed below.

PR 391 and PR 280 will have the capacity for increased traffic flow before the construction phase begins. Upgrades to PR 280 between Thompson and Gillam have been initiated by MIT as part of its 2012 infrastructure projects. In conjunction with Manitoba Hydro, MIT identified 45 locations between PR 391 and the Keeyask north access road (at km 177) that required improvements. The upgrades have been divided into two major components: 1) crushing and stockpiling road aggregates and rock cuts, and 2) re-grading, re-aligning and re-surfacing. The upgrades include widening and curve shaving. The first phase of upgrades to PR 280 between Thompson and Gillam has been completed by MIT and the contract for re-grading, re-aligning, and re-surfacing was awarded in 2012. By the time Project construction begins, the upgrades are intended to meet a standard that will improve safety and

accommodate increased traffic (Government of Manitoba 2010a). However, community Members have noted concerns that there will be increased damage to vehicles (*e.g.*, windshield damage) and increased collisions due to an increase in traffic associated with the Project (see Section 5.4.1.5 and 5.4.2.5 for further detail). Manitoba Hydro is managing the upgrading project in partnership with MIT. Costs and workload will be shared between Manitoba Hydro and MIT, and MIT will continue to own and maintain the roadway as their asset following completion of the upgrades.

As a component of the Keeyask Infrastructure Project, and prior to the start of the Project, the two-lane all-weather gravel Keeyask north access road will be constructed starting at kilometre 174 on PR 280, approximately 185 km east-northeast of Thompson, and extending approximately 25 km east to the north shore of Gull Rapids (Keeyask Hydropower Limited Partnership 2009). Issues related to travel safety to and from the Project site and Thompson are considered in Sections 5.4.1.5 and 5.4.2.5.

Construction of the south access road will create new transportation infrastructure that will be used during construction activities on the south side of the Nelson River. The south access road starts at the Butnau Dam and continues to the south side of the generating station. The route was selected through a process that involved representatives from the KCNs, Manitoba Hydro, and MIT. During the construction phase, the north and south access roads will be private roads owned and operated by the Partnership. In addition to the construction of the south access road, the existing Butnau road will require upgrading (this is being undertaken by Manitoba Hydro separately).

A Construction Access Management Plan is being developed by Manitoba Hydro and the KCNs to manage access to the Project site via the north and south access roads during the construction phase of the Project. This will include plans related to security gates, security patrols, and conditions for the use of the roads during the construction phase.

4.4.1.5.1 Keeyask Cree Nations

There are no anticipated effects on transportation infrastructure in the KCNs communities as a result of Project construction. The north and south access roads fall within the SLRMA, within an area currently accessed by KCNs Members for resource harvesting.

The Construction Access Management Plan being developed by Manitoba Hydro and the KCNs is intended to retain, to the extent feasible, existing access for KCNs resource users to areas that they previously used for resource harvesting.

4.4.1.5.2 Gillam

Project effects on transportation infrastructure and services in Gillam would include:

- Increased vehicular traffic from construction workers and contractors visiting Gillam to access services;
- Increased truck travel and wear on the road networks related to construction of the south access road and dykes;
- Potential for increased air travel to Gillam by construction workers and contractors who fly to Gillam (rather than Thompson) en route to the Project site; and

- Increased use of the railway and siding for a small portion of equipment shipped up to site. An increase in rail traffic will also result in increased truck traffic between Gillam and the Project site at certain times.

The effects of increased traffic related to wear on the road networks from construction workers in the community are expected to be accommodated by the existing infrastructure and services managed by Manitoba Hydro and the Town of Gillam (Gillam KPI Program 2009-2010).

The railway running through Gillam has not experienced capacity issues in the past. Special trains have been put into service, as required, for freight such as turbines and other large items in the past; and it is anticipated this will continue in the future. It has been forecasted that the Project would have a positive effect on rail business (Gillam KPI Program 2009-2010).

4.4.1.5.3 Thompson

Project effects on transportation services in Thompson include the following:

- Increased use of rail for shipment of equipment and materials to Thompson;
- Increased use of the provincial highway network for shipment of equipment and materials into and out of Thompson;
- Increased use of the city road network in Thompson;
- Use of the Thompson rail siding as an off-loading facility for equipment and materials; and
- Increased use of air and bus travel services for construction workers traveling to the Project site.

The rail siding in Thompson has enough capacity to accommodate the addition of Project-related material off-loads (Thompson KPI Program 2008-2010). As indicated in Section 4.3.5.3, the airport has capacity for expanded air service, and it is anticipated that local air carriers would increase services in response to any potential increase in demand (Thompson KPI Program 2009-2010).

Thompson's road network will be used by truck traffic hauling equipment and materials to the Project site. The City of Thompson only completes street repair work on a priority basis due to the aging infrastructure below the streets. As noted in Section 4.3.5.3, resurfacing of city roads is already required in many areas (*e.g.*, Mystery Lake Road, the main artery through the city has been resurfaced by the Government of Manitoba). Roads connecting the rail yard and other supply routes to Mystery Lake Road may require some additional maintenance due to the potential for increased traffic flow; although no known arrangements have been made with the city (Thompson KPI Program 2008-2010).

4.4.1.5.4 Mitigation

Existing transportation networks (including rail and air) and plans for upgrading infrastructure and services would be able to accommodate the changes associated with Project construction. Provincial Trunk Highways and Provincial Roads are monitored and maintained by MIT and the City of Thompson does the same for roads that fall under its jurisdiction. No further mitigation or monitoring is required.

4.4.1.6 Population – Regional Study Area

Construction of the Project is not expected to result in material effects on the Regional Study Area's population for the following reasons:

- Population increases in the Local Study Area communities, where in-migration would be most likely, is expected to be small; and
- In communities outside the Local Study Area there is expected to be little, if any, increase in job-related in-migration since the northern Aboriginal hiring preferences outlined in the BNA cover large areas. The first hiring preference would include Aboriginal people in communities in the Churchill-Burntwood-Nelson area and the second and third hiring preferences would include people in the Regional Study Area as a whole. Therefore, it would not be necessary for a candidate to move close to the Project to be considered for construction employment. Any migration to the Regional Study Area as a whole is expected to be limited.

No mitigation or monitoring is required.

4.4.1.7 Transportation Infrastructure – Regional Study Area

Project effects on transportation infrastructure and services in the Regional Study Area include the following:

- Increased use of PTH 6 for trucking of equipment, materials and people from southern Manitoba to Thompson;
- Increased use of road networks for northern Manitoba construction workers to drive personal vehicles to the Project site; and
- Sources of effect noted previously in Section 4.4.1.5 (*e.g.*, increased use of rail, air and road networks related to the transport of people, equipment and materials).

MIT is responsible for the maintenance and any necessary upgrades to the provincial highway system. It is anticipated that regular maintenance and the planned improvements to PR 280, noted in Section 4.4.1.5, would be sufficient to handle the increased travel by road associated with the Project during the construction phase. No mitigation or monitoring is required.

As noted in Sections 4.3.5.3 and 4.4.1.5, the airport has the capacity to expand its air service; it is anticipated that local carriers would increase services according to any potential increase in demand (Thompson KPI Program 2008-2010).

No mitigation or monitoring is required.

4.4.1.8 Construction Monitoring

As noted in Chapter 8 of the Response to EIS Guidelines Document, monitoring of socio-economic effects will be organized into a coordinated Socio-Economic Monitoring Program (SEMP) whose details will be developed after the Project has been filed. It will be part of the overarching monitoring program

for the Project, which is being designed to measure whether Project outcomes are as predicted. In cases where Project effects differ from what is expected, adaptive management measures will be considered where appropriate. In relation to infrastructure and services, monitoring of construction effects is proposed for selected VECs and supporting topics.

Population

Given the difficulty of accurately estimating the precise levels of in and out-migration, monitoring will confirm the extent of Project-induced changes in population in the KCNs communities and Gillam. If notable Project related in-migration is identified and is greater than predicted, the Partnership would evaluate how to address the situation. This would include KPIs to understand the influence of the Project on population.

Housing

Given the difficulty in estimating migration behaviour accurately and, therefore, the precise level of in- and out-migration, by extension there is also uncertainty in predicting new demand for housing. For the KCNs communities, monitoring will consist of the aforementioned activities associated with tracking population change, in addition to a one-time set of KPIs with the communities' housing authorities to determine any Project effects on housing. In Gillam, the demand for housing is considered a part of the Gillam Land Use Planning process in place and will consider the outcomes of population monitoring.

Infrastructure and Services

The SEMP will include monitoring to confirm the EA prediction for minimal effect on KCNs infrastructure and services due to the Project. Monitoring will include conducting a one-time set of KPIs with contractors and service providers in KCNs communities to determine whether there are any effects of the Project on infrastructure and provision of services.

Further to this, monitoring would try to understand whether the influx of non-local construction workers place demand on local infrastructure and services in Gillam. This will be coordinated with Manitoba Hydro, the Town of Gillam and FLCN.

4.4.2 Operation Effects and Mitigation

Operation effects on population of the Local Study Area are expected to result from Project-related operation phase employment opportunities (direct and indirect). New operation positions will be located in the Town of Gillam, the only location where a measurable change in population is anticipated. Increased demand for infrastructure and services would result from this growth in population.

4.4.2.1 Population/Migration – Local Study Area

The Project is expected to create 46 operation phase jobs that will be based in Gillam. Of these positions, 37 will be required on-site at the generating station facility, with workers based in Gillam and expected to travel back and forth to the site, and nine positions in technical services will also be based in Gillam. The following sections identify potential effects of the operation phase on population and migration in each of the KCNs communities, in Gillam and in Thompson.

4.4.2.1.1 Keeyask Cree Nations

The operation phase of the Project is expected to have no substantial effects on in- or out-migration or the overall size of the populations at Split Lake, York Landing (*Kawechinwasik*) and Ilford for the following reasons:

- Operation job targets for the KCNs identified in the JKDA are system-wide and do not necessarily apply directly to the Project (see Section 3.4.2);
- Keeyask operation phase jobs will be based in Gillam. KCNs Members would not need to be located in their home communities to be eligible for Project-related operation phase employment; and
- Should TCN, YFFN or WLFN Members qualify and be hired for operation phase jobs associated with the Project, Manitoba Hydro would offer subsidized housing in Gillam, making it more financially attractive to live in Gillam rather than in their home community. This may cause some community Members to move to Gillam from their home communities (*e.g.*, Split Lake, York Landing (*Kawechinwasik*) and Ilford), although the expectation is these numbers would be small, for the reasons noted above.

The exception to this could be the FLCN community residing in Gillam and in Fox Lake (Bird) who are more likely to experience some population changes resulting from the operation phase of the Project. Factors that may affect FLCN population growth in Gillam as a result of the Project include the following:

- Schedule 12-8 of the JKDA presents a framework to enhance participation in operation jobs. Although the location of these jobs is not specified, given that Gillam is the centre of Manitoba Hydro's northern operations and that FLCN has a reserve in Gillam, there is potential that some FLCN Members currently living in other locations may wish to relocate to Gillam to access these long-term operation jobs should housing be available.
- For FLCN Members wishing to return to the Local Study Area for employment reasons, Gillam offers more services and amenities than the community in Fox Lake (Bird), making it a more attractive location for some Members. For Project employees, this would include availability of Manitoba Hydro housing. For those in some types of new indirect service or public sector jobs, this would not be the case.
- The new urban reserve in Gillam may allow for improvements to existing housing and limited additional housing to be created for FLCN Members in the community. FLCN's long-term plans to pursue additional reserve land in and around Gillam may also serve this purpose.
- While the reserve community of Fox Lake (Bird) is within commuting distance of operation jobs in Gillam, the limited housing capacity is likely to deter return migration.

4.4.2.1.2 Gillam

Project effects on population and migration in Gillam will depend on whether the operation staff are hired from within the community or are relocated to the community from elsewhere.

Estimating population increases in Gillam as a result of Project operation considers several factors. First, there is potential for some jobs to be filled locally, meaning that these workers would not add to the population in Gillam. Second, some of the positions would be filled by people from outside of the community, resulting in population growth. Third, a small number of additional professional jobs may be created as a result of the new population. Based on these considerations and using an average family size of three people (Statistics Canada 2007a), it is estimated that 120 to 150 people would be added to the population of Gillam as a result of Project operation. It is anticipated that the age structure of the Gillam population would remain consistent with current trends, *e.g.*, being a relatively young population with a higher proportion of people under the age of 20 as compared to the remainder of the province (Statistics Canada 2007a). This new population would be a part of the overall projected population growth of 2,300-2,800 people, assuming other Manitoba Hydro projects move forward (Dillon Consulting 2012). The cumulative effects of population growth are described in Chapter 7 of the Response to EIS Guidelines document.

The added population associated with operation phase workers and their families is likely to create additional demand for facilities and services in Gillam. This could result in the creation of additional commercial and public sector jobs. Positions created in the retail and personal services sectors could be filled in part locally and would not result in new population. Professional positions in the school and hospital would likely need to be filled by outsiders, which would lead to further increases in population. These were factored into the above estimate.

4.4.2.1.3 Thompson

No change in the population of the City of Thompson is expected as a result of operation of the Project since operation phase jobs are located in the Town of Gillam. Therefore, no mitigation is required.

4.4.2.1.4 Mitigation

Population increases are anticipated in Gillam as a result of Project operation. Mitigation measures related to how this increase in population can be accommodated by infrastructure and services is discussed in the following sections. As part of the SEMP, population change will be monitored in Gillam to enable service providers and the Gillam Land Use Planning process to plan and respond to the anticipated changes. Many of these services are funded on a per capita basis by various provincial and federal funding programs; the per capita funding arrangements will need to reflect any increase in population growth associated with the operation phase of the Project. Further input into the management of community infrastructure and services and adjustment of future plans will be considered in the Gillam Land Use Planning activities already underway.

4.4.2.2 Housing – Local Study Area

Project operation effects on housing stem from increases in population as described in Section 4.4.2.1 above. It is anticipated that population effects would be felt within the Town of Gillam, and as such, this is where housing would be most affected.

4.4.2.2.1 Keyask Cree Nations

There would be little effect on housing due to Project operation in Split Lake, York Landing (*Kamechinasik*) and Ilford, since there are no substantial population changes anticipated in these communities as a result of the operation of the Project (see Section 4.4.2.1). Some FLCN Members may return to Gillam or, to a lesser extent, to Fox Lake (Bird) in order to access operation phase jobs, although the number of such Members cannot be predicted with accuracy. While the community at Fox Lake (Bird) has limited capacity to accommodate any additional housing needs (thus deterring immigration), FLCN Members hired as operation staff will be provided housing in Gillam by Manitoba Hydro. For other FLCN Members who wish to return to Gillam to access indirect jobs, there may be an opportunity for them to access housing in Gillam, particularly with FLCN's recent establishment of an urban reserve in Gillam and ongoing efforts to establish more reserve land in the community.

4.4.2.2.2 Gillam

The estimated increase in population in Gillam from Project operation phase staff, their families and additional professional workers and their families could range between 120 and 150 people. Housing for operation phase workers would be provided by Manitoba Hydro. Upgrades to existing housing and planning new development in order to meet the needs of Manitoba Hydro's current workforce is already underway. Future housing development is likely to continue in a similar pattern to current development, which includes refurbishment of existing housing, development of single family dwellings and development of multi-family dwellings, such as duplexes and fourplexes.

Ongoing planning for additional housing to meet the needs of the future workforce is currently underway and involves Manitoba Hydro in coordination with the Town of Gillam and FLCN, who also have interests in developing additional housing in Gillam, particularly if additional reserve lands are acquired (FLCN KPI Program 2009-2011). As a result of the Gillam Land Use Planning process, as well as the HGD process¹, it is anticipated that Manitoba Hydro will be able to pursue the development of additional residential units on a timely basis and in a way that does not conflict with FLCN's interests. FLCN's interests are also recognized by the Town of Gillam and have been acknowledged in planning processes (Gillam KPI Program 2009-2010; Dillon Consulting 2012). FLCN's long-term housing interests include the addition of trailers and the potential development of a small apartment complex in Gillam (FLCN KPI Program 2009-2011).

4.4.2.2.3 Thompson

Operation job targets for the KCNs identified in the JKDA are system-wide and do not apply directly to the Project. The operation phase of the Project will not result in any population change in Thompson since jobs will be based in Gillam. As such, there are no anticipated effects on housing in Thompson as a result of the operation of the Project.

¹ The HGD process is an existing forum for the Town, FLCN and Manitoba Hydro to discuss issues of concern as the community moves forward in its community planning and long-term development.

4.4.2.2.4 Mitigation

The Town of Gillam has drafted an updated community development plan in relation to the need for new housing and associated infrastructure (Dillon Consulting 2012). As population growth drives changes to housing requirements, it will be necessary for continued dialogue among Manitoba Hydro, FLCN and the Town of Gillam. As part of the SEMP, a monitoring program would be established with Gillam and FLCN to track population changes to help those responsible plan for any increased demand for housing. Monitoring is described in Section 4.4.2.8 below.

4.4.2.3 Infrastructure and Services – Local Study Area

Project operation effects on infrastructure and services in the Local Study Area would stem from two main sources: the physical presence and operation of the Project and the anticipated population changes resulting from operation phase employment.

4.4.2.3.1 Keeyask Cree Nations

Operation of the Project is not anticipated to result in substantial changes to the populations of the KCNs communities and, as such, there are little to no anticipated effects on infrastructure and services. The exception to this is for FLCN Members residing in Gillam or who access services in Gillam, which is discussed further below.

The operation of the Project is not predicted to affect the water level on Clark Lake or Split Lake during open water conditions; and may affect peak winter water levels of Split Lake by 0.2 m under low-flow conditions (see PE SV); however, KCNs community Members have expressed scepticism regarding this prediction, particularly Members of TCN and YFFN who reside along the shores of Split Lake. TCN and YFFN community Members have expressed concern that operation of the Project may result in winter water fluctuations on Split Lake, which could further exacerbate challenges associated with ferry infrastructure and the reliability of the winter road.

Anchor ice formation, ice that forms on the river bottom and restricts flow at the outlet, at both the Clark Lake and the Split Lake outlets causes increased water levels on the lakes during winter under current conditions. Analysis of the surface water and ice regimes (see PE SV) concluded that, with the Project, ice processes in the reach between the outlets of Clark Lake and Split Lake that result in winter water-level increases are expected to remain largely unchanged from existing conditions. There is a possibility for the Project to cause increased water levels upstream of Clarke Lake relative to the existing environment, but only during low-flow conditions that occur once every 20 years on average (*e.g.*, 5th percentile flow). The amount of water level increase that might be caused by the Project during winter low-flow conditions would depend upon how much anchor ice is present at the outlet of Clark Lake. As more anchor ice forms at the outlet, the effect of the Project decreases. The potential effect of the Project on Split Lake water levels would be well within the range of winter water levels that have been experienced since LWR and CRD began operation, resulting in water level conditions that have been and could be experienced in the existing environment.

FOX LAKE CREE NATION

Numerous services are shared by FLCN with the Town of Gillam, which is anticipated to experience growth in the range of 120-150 people as a result of new operation phase employment. Infrastructure and services already dealing with capacity challenges may be placed under additional stress as a result of the growth of the community. Among the facilities and services shared by FLCN and residents of Gillam are the Gillam Hospital and associated services (emergency room, medical clinic, diagnostics services, retail pharmacy, home care, various health and mental health related services and programs), social services (Awasis), day care (available only in Gillam), the Gillam School (K-12 education, with grade 9-12 only available in Gillam and not in the community of Fox Lake (Bird), Gillam Recreation Centre and Nelson River Aquatic Centre, and emergency services (police, fire, ambulance). Since these are shared services, effects are discussed in the Gillam section below.

4.4.2.3.2 Gillam

The Town of Gillam has evolved from a community established to serve the Bay Line railway, to a community shaped by Manitoba Hydro development, and is currently working to become a community that recognizes the interests of all stakeholders, including FLCN, Manitoba Hydro and the Town (see Section 2 for greater detail on the historical development of the town). The HGD process has promoted community dialogue and cooperation amongst stakeholders. The Joint Statement signed by all parties acknowledged development “must focus on building a community where all residents live, work, play and prosper together, where there is mutual use and enjoyment of community facilities and services and where residents support the interests and ambitions of their neighbours” (Joint Statement 2007). The Town of Gillam has also updated its Development Plan to guide development of the community over the next 20 years. The new plan’s vision for the future sees Gillam as being “a safe, family orientated, close-knit community where residents and visitors enjoy a vibrant historic full service town, unique natural beauty, and outdoor adventure” (Dillon Consulting 2012).

Community renewal in Gillam would occur within the broader context of changes resulting from development activities in the surrounding region, although the following section identifies the specific anticipated changes resulting from the Project. Infrastructure and services already experiencing capacity challenges may be placed under additional stress as a result of growth associated with operation of the Project. In some instances, infrastructure and services would be able to accommodate growth; however, in other instances, some infrastructure and services may need to be bolstered; these are discussed below.

WATER AND WASTE MANAGEMENT

Water-related facilities and services (water and waste water) for the Town of Gillam have the capacity to handle the Project-related increase in population since both were designed to meet the needs of a population of 3,000-3,500 (HTFC 2008). The town’s landfill can likely accommodate current levels of waste disposal for another 20 years, although programs are being implemented to divert more waste through recycling. This may extend its capacity (Gillam KPI Program 2009-2010). It is likely that a new landfill or expansions to the existing landfill would be required to accommodate the community’s long-term anticipated growth.

EMERGENCY SERVICES

Emergency services such as fire and ambulance are unlikely to face capacity challenges resulting from the increased population, since Manitoba Hydro often provides support to these services through staffing and equipment at existing generating stations (Gillam KPI Program 2009-2010).

Similarly, the RCMP is adequately staffed to provide services to the existing population. If Gillam experiences any material growth resulting in an increased demand for services from the RCMP a bigger detachment station and additional officers may be required; the RCMP plans on having discussions with Manitoba Hydro once firm employment estimates and Project plans are in place (Gillam KPI Program 2009-2010).

COMMUNITY FACILITIES AND SERVICES

At present the Gillam Hospital and services adequately meet the needs of the population, although recruiting and retaining qualified professionals is challenging. Manitoba Hydro subsidizes services that a remote community might otherwise not have on a regular basis, such as massage therapy, physiotherapy, and eye and dental care. It is expected that additional staff may be required to accommodate changes associated with an increased population (*e.g.*, an additional physician may be required). However, between current plans to hire additional staff, existing hiring practices that attempt to cross-train individuals to enhance local capacity and financial support from Manitoba Hydro to bring in specialists (*e.g.*, massage therapists), the level of service currently provided can likely be maintained with new Project-related population. It is anticipated that the main issue associated with population growth would be timely response with physician coverage (*e.g.*, successfully recruiting an additional physician to avoid potential future shortages as the population of the community grows). The present hospital facility can accommodate a modest increase in population, however office space is limited and the hospital is looking at some redevelopment in order to provide more functional space, potentially including a walk-in clinic (Gillam KPI Program 2009-2010).

The Gillam School is currently operating close to capacity and, based on trends over the last five to ten years, it is expected that enrolment would increase even without the Project. Of the 120-150 people projected to move into the community, 40-50 would be school-aged children. Depending on distribution of the school-aged children, these additional students will likely result in the school being at over-capacity levels. As noted in Section 4.3.3.2, Manitoba Hydro along with the Frontier School Division is examining the feasibility of expanding the current infrastructure or building a new facility (Gillam KPI Program 2009-2010).

Although there is already a shortage of childcare options in the community, the Gillam childcare facility has responded to increased demand and is building a new facility with expanded capacity that should be completed in 2012 (Manitoba Hydro, *pers. comm.* May 2012).

Awasis is the provider of social services in the community. Although the agency has sufficient human resources to address community needs, as well as the potential to expand the number of staff required to meet increased demand, there is a lack of programming space available. NNADAP and Mental Health workers share office space in Gillam, which results in some lack of privacy for clients accessing services.

If adequate space can be found or created to meet the needs of the Project-related population, Awasis is likely to be able to accommodate the community's increase in population.

While many of the aforementioned facilities and services are funded on a per capita basis, it is important to note that Manitoba Hydro supports and subsidizes service delivery in the community and would continue to do so. Subsidized services include massage therapy, chiropractic services, optometry, physiotherapy and dental services (Gillam KPI Program 2009-2010).

4.4.2.3.3 Thompson

Project-related effects on infrastructure, facilities and services in Thompson during the operation phase would be negligible due to no substantial population change.

4.4.2.4 Land – Local Study Area

As noted in Section 4.4.1.4 the Partnership would purchase the Crown land required for all aspects of the Project from the Province of Manitoba.

4.4.2.4.1 Keyeyask Cree Nations

The Project is expected to have no effect on the KCNs land since it is not located on any reserve land, fee-simple land or TLE selections. However, it is expected to have effects on lands within areas used and accessed by the KCNs communities since the Project lands are within their traditional territories and specifically within the SLRMA. Further discussion on the implications of the Project on land that is used and accessed by the KCNs can be found in the Resource Use Section of this Supporting Volume.

4.4.2.4.2 Gillam

While no land is required to directly accommodate Project infrastructure in Gillam during the operation phase, there would be a need for additional land to support housing and commercial developments in relation to population growth associated with operation staff required for the Project. There are approximately 350 acres of land suitable for development near the community and an additional 130 acres near Stephens Lake. This is more than adequate to meet the estimated 154 acres necessary to accommodate a 100% growth in population (HTFC 2009), which would be far more than required for the Project-related population change of 120 to 150 people. The ongoing Gillam Land Use Planning process will address the need for these increased demands.

The Town of Gillam is reviewing its existing Development Plan By-Law No. 258 (adopted in 1985) in order to create a new by-law that conforms with *The Planning Act* (Manitoba) and considers new provincial land use policies. The new Development Plan by-law would provide a framework to guide the development of the community over the next 20 years and help the municipality to effectively plan for increases in population and associated infrastructure requirements.

4.4.2.4.3 Thompson

There would be no substantial population change in the City of Thompson as a result of the operation of the Project. No changes to infrastructure would result from the Project. As such, the Project would have no effect on land in the City.

4.4.2.4.4 Mitigation

The existing land use planning process in Gillam would address the needs for additional land in the Town of Gillam and as such, no further mitigation or monitoring is required. The KCNs' AEAs address use of Project required lands that are in the traditional territories of the KCNs; therefore, no mitigation or monitoring is required.

4.4.2.5 Transportation Infrastructure – Local Study Area

Once the Project is commissioned MIT will re-route PR 280 to include the north access road, the generating station facility over the Nelson River and the south access road to Gillam. This will create a shorter route between the Project site and Gillam. The road will be transferred from a private road, owned and operated by the Partnership to the provincial road system. At the same time, MIT plans to abandon the northeastern section of PR 280. FLCN has expressed concern that community Members living in Fox Lake (Bird) will face increased travel distances to reach Thompson if the northern portion of PR 280 (around Stephens Lake) is decommissioned.

The operation of the Project is not expected to affect the water level on Clark Lake or Split Lake during open water conditions; and may affect peak winter water levels of Split Lake by 0.2 m (9 in) under low-flow conditions (see PE SV). However, YFFN have expressed scepticism with these calculations and are concerned that future water fluctuations on Split Lake may affect ferry service and landing sites, as well as the winter road on Split Lake.

4.4.2.6 Population – Regional Study Area

Population changes resulting from the Project are only predicted in the Town of Gillam. As such, no population changes are expected in the Regional Study Area as a result of Project operation.

4.4.2.7 Transportation Infrastructure – Regional Study Area

There are no anticipated changes to PTH 6 as a result of the operation of the Project.

4.4.2.8 Operation Monitoring

As noted in Chapter 8 of the Response to EIS Guidelines, monitoring of socio-economic effects will be organized into a coordinated SEMP whose details will be developed after the Project has been filed. It will be part of the overarching monitoring program for the Project, which is being designed to measure Project outcomes and to determine whether they match EIS predictions. In cases where Project effects differ from what is expected, adaptive management measures will be considered where appropriate. In relation to infrastructure and services, monitoring of operation effects is proposed for selected VECs and supporting topics.

POPULATION

Population growth is anticipated in Gillam in response to operation employment, which would increase the demand for housing, infrastructure and services. Monitoring, using readily available statistical sources

such as Statistics Canada, would track the increase in population in Gillam, although it would be difficult to pinpoint whether this is directly attributable to Project operation employment. Monitoring of population data will enable service providers and community planning processes to plan and respond to anticipated change.

HOUSING

An increase in population would result in increased demands for housing in Gillam. The demand for housing is already being considered as a part of the Gillam Land Use Planning process. Tracking changes in population will provide an indication of the implications for housing.

INFRASTRUCTURE AND SERVICES

An increase in population would result in increased demands on infrastructure and services in Gillam. Manitoba Hydro will assess the demand on infrastructure and services to feed into the ongoing Gillam Land Use Planning process.

TRANSPORTATION INFRASTRUCTURE

TCN and YFFN have expressed the concern that future water fluctuations from operation of the generating station may affect ferry service (*e.g.*, landing sites) and the winter road on Split Lake. As part of Project operation, Manitoba Hydro will monitor water levels at Split Lake and inform TCN and YFFN of the results. In conjunction with MIT, TCN, WLFN and YFFN will continue to monitor the reliability and safety of ferry landing sites and the winter road across Split Lake.

4.4.3 Summary of Residual Project Effects

This section summarizes residual effects of the Project (after mitigation) on socio-economic VECs related to infrastructure and services for both the construction and operation phases. Population is not a VEC, rather a supporting topic that is the driver of change related to potential increased demand for infrastructure and services; as such, residual effects assessment is not undertaken.

4.4.3.1 Summary of Construction Effects

Table 4-19 provides a summary of expected Project construction effects, high-level mitigation and monitoring identified to address those effects, assessment characteristics used (magnitude, geographic extent and duration) and the residual effects (after mitigation) pertaining to the socio-economic Local and Regional Study Areas (where applicable).

Table 4-19: Construction Effects on Infrastructure and Services

Potential Socio-Economic Effect	Mitigation Measures, Monitoring and Follow-up	Residual Socio-Economic Effect	Assessment Characteristics
HOUSING			
Little effect on housing in KCNs communities in the Local Study Area	Conduct a one-time set of KPIs with representatives of the housing authorities to confirm prediction of minimal demand for housing in KCNs communities Monitor population changes in Gillam	Very limited net in-migration and new demand for housing	Direction: Adverse Magnitude: Small Geographic Extent: Medium Duration: Short-term
KCNs workers may choose to visit friends or family on days off while working at the construction site, which may cause short-term crowding for these families	None required	Short-term crowding	Direction: Adverse Magnitude: Small Geographic Extent: Medium Duration: Short-term
Increased demand for temporary accommodation for construction workers visiting Gillam and Thompson	None required	Ongoing demand for temporary accommodation	Direction: Adverse Magnitude: Small Geographic Extent: Medium Duration: Short-term

Table 4-19: Construction Effects on Infrastructure and Services

Potential Socio-Economic Effect	Mitigation Measures, Monitoring and Follow-up	Residual Socio-Economic Effect	Assessment Characteristics
INFRASTRUCTURE AND SERVICES			
Keyask Cree Nations			
Pressure on infrastructure and services in KCNs communities	Conduct a one-time set of KPIs with contractors and service providers in the KCNs communities Ongoing communication with local service providers to allow for effective and timely planning of service delivery Improved daycare options (entrepreneurial opportunity)	Very limited effect	Direction: Adverse Magnitude: Small - Moderate Geographic Extent: Medium Duration: Short-term
Gillam (including FLCN)			
Potential increased pressure on emergency services in Gillam Potential increased pressure on RCMP and social services due to influx of non-local construction workers to Gillam	Gillam Land Use Planning process underway Keep RCMP informed of Project workforce and schedule Ongoing communication with the Town, service	Very limited effect	Direction: Adverse Magnitude: Small Geographic Extent: Small Duration: Short-term

Table 4-19: Construction Effects on Infrastructure and Services

Potential Socio-Economic Effect	Mitigation Measures, Monitoring and Follow-up	Residual Socio-Economic Effect	Assessment Characteristics
	providers and FLCN on Project activities and schedules Through FLCN AEA, increased youth programming Socio-economic monitoring program		
Pressure on accommodation and hospitality services which could also benefit from increased business opportunities	None required	Same as effect	Direction: Adverse Magnitude: Small Geographic Extent: Small Duration: Short-term
Thompson			
Potential increased pressure on RCMP and social services due to influx of non-local construction workers to Thompson	Keep RCMP informed of Project workforce and schedule	Same as effect	Direction: Adverse Magnitude: Small Geographic Extent: Small Duration: Short-term
LAND			
Effects on Crown land at the Project construction site	None required; Crown land will be transferred to Manitoba Hydro after construction	No effect	Direction: Neutral
Limited effects on land in Gillam	None required	Limited effect	Direction: Neutral

Table 4-19: Construction Effects on Infrastructure and Services

Potential Socio-Economic Effect	Mitigation Measures, Monitoring and Follow-up	Residual Socio-Economic Effect	Assessment Characteristics
TRANSPORTATION INFRASTRUCTURE (Local Study Area)			
Increased use of air, bus and rail services as project-related personnel, equipment and materials travel to and from the construction site	None required	Same as effect	Direction: Adverse Magnitude: Small Geographic Extent: Medium Duration: Short-term
Increased traffic on PR 391 and PR 280	None required; upgrades occurring prior to start of construction Track statistics collected by MIT on traffic-related incidents and complaints on PR 280	Same as effect	Direction: -Adverse Magnitude: Small Geographic Extent: Medium Duration: Short-term
Increased pressure on existing road networks in Gillam in relation to the south access road and dyke construction	None required	Same as effect	Direction: Adverse Magnitude: Small Geographic Extent: Small Duration: Short-term
Use of Thompson rail siding for off-loading facility	None required; facility able to handle the use	Same as effect	Direction: Adverse Magnitude: Small Geographic Extent: Small Duration: Short-term

Table 4-19: Construction Effects on Infrastructure and Services

Potential Socio-Economic Effect	Mitigation Measures, Monitoring and Follow-up	Residual Socio-Economic Effect	Assessment Characteristics
TRANSPORTATION INFRASTRUCTURE (Regional Study Area)			
Increased use of PTH 6 and other road networks across the region	None required; roads able to handle increased usage	Same as effect	Direction: Adverse Magnitude: Small Geographic Extent: Large Duration: Short-term
Notes: Direction: Positive, Neutral, Adverse Magnitude: Small, Moderate, Large Geographic Extent: Small, Medium, Large Duration: Short-term, Medium-term, Long-term			

In summary, residual effects of the Project after mitigation on KCNs housing are expected to be adverse (due to very limited net in-migration potentially causing new demand for housing, and short-term effects on crowding), and of small magnitude for the duration of the construction phase. As part of the SEMP, monitoring of population change and associated demand for housing in KCNs communities will be undertaken to confirm the predicted limited effect.

Residual effects on housing in Gillam and Thompson are focused on temporary accommodations related to visiting construction workers during times outside of work. Effects on housing are expected to be adverse, of small magnitude and for the duration of the construction phase.

Effects after mitigation on KCNs/Gillam/Thompson infrastructure and services are expected to be adverse, small to moderate in magnitude and short-term (throughout the construction phase). The Partnership will continue to keep the RCMP informed of Project workforce estimates and construction schedule (*e.g.*, peak seasonal periods) in order for the RCMP to respond to a potential increased demand appropriately. Similarly, ongoing communication will take place between Manitoba Hydro and local service providers to allow for effective and timely planning of service delivery. Through the FLCN AEA, increased youth programming (*e.g.*, the FLCN Youth Wilderness Traditional Program) will be beneficial in helping keep youth occupied at times when non-local construction workers are likely to be in Gillam. Increased accessible and affordable day care options is an entrepreneurial opportunity available to the KCNs communities; this should provide individuals with families additional childcare options when considering whether or not to apply for work on the Project. There are no effects on KCNs reserve or TLE land due to the Project, although the Project is located within the traditional territories of the KCNs and mainly in the SLRMA, who use these areas for traditional pursuits. There will be neutral effects on land in the Gillam/Thompson area for transportation-related needs during the construction phase. Crown land needed for the Project will be transferred to Manitoba Hydro upon completion of construction. There are no further residual effects or need for monitoring.

Transportation infrastructure within the Local and Regional study areas will have adverse, short-term Project effects of small magnitude during construction. This residual effect is due to the movement of equipment, materials and personnel to the Project site. It is anticipated that existing infrastructure will be able to handle the increased pressure. In the case of PR 280, upgrades to the road will have been completed prior to construction to address the additional traffic volume associated with the Project.

4.4.3.2 Summary of Operation Effects

Table 4-20 provides a summary of expected Project operation effects, high-level mitigation and monitoring identified to address those effects, assessment characteristics used (magnitude, geographic extent and duration) and the residual effects (after mitigation) pertaining to the Socio-Economic Local and Regional study areas (where applicable).

Table 4-20: Operation Effects on Infrastructure and Services

Potential Socio-Economic Effect	Mitigation Measures, Monitoring and Follow-up	Residual Socio-Economic Effect	Assessment Characteristics
HOUSING (Gillam and FLCN)			
Increased demand for housing for operation staff Increased demand to meet overall community growth	The Gillam Land Use Planning process already in place is undertaking planning for the community Monitor population changes in Gillam	Continued planning of new housing through the Gillam Land Use Planning process	Direction: Neutral
INFRASTRUCTURE AND SERVICES (Gillam and FLCN)			
Increased demand for infrastructure and services in Gillam	Assess demand for infrastructure and services to feed into the Gillam Land Use Planning process already in place	Same as effect	Direction: Adverse Magnitude: Small Geographic Extent: Small Duration: Long-term
LAND (Gillam)			
Community growth would require land to develop additional housing and infrastructure in Gillam	The Gillam Land Use Planning process already in place is undertaking planning for the community	No effect	Direction: Neutral

Table 4-20: Operation Effects on Infrastructure and Services

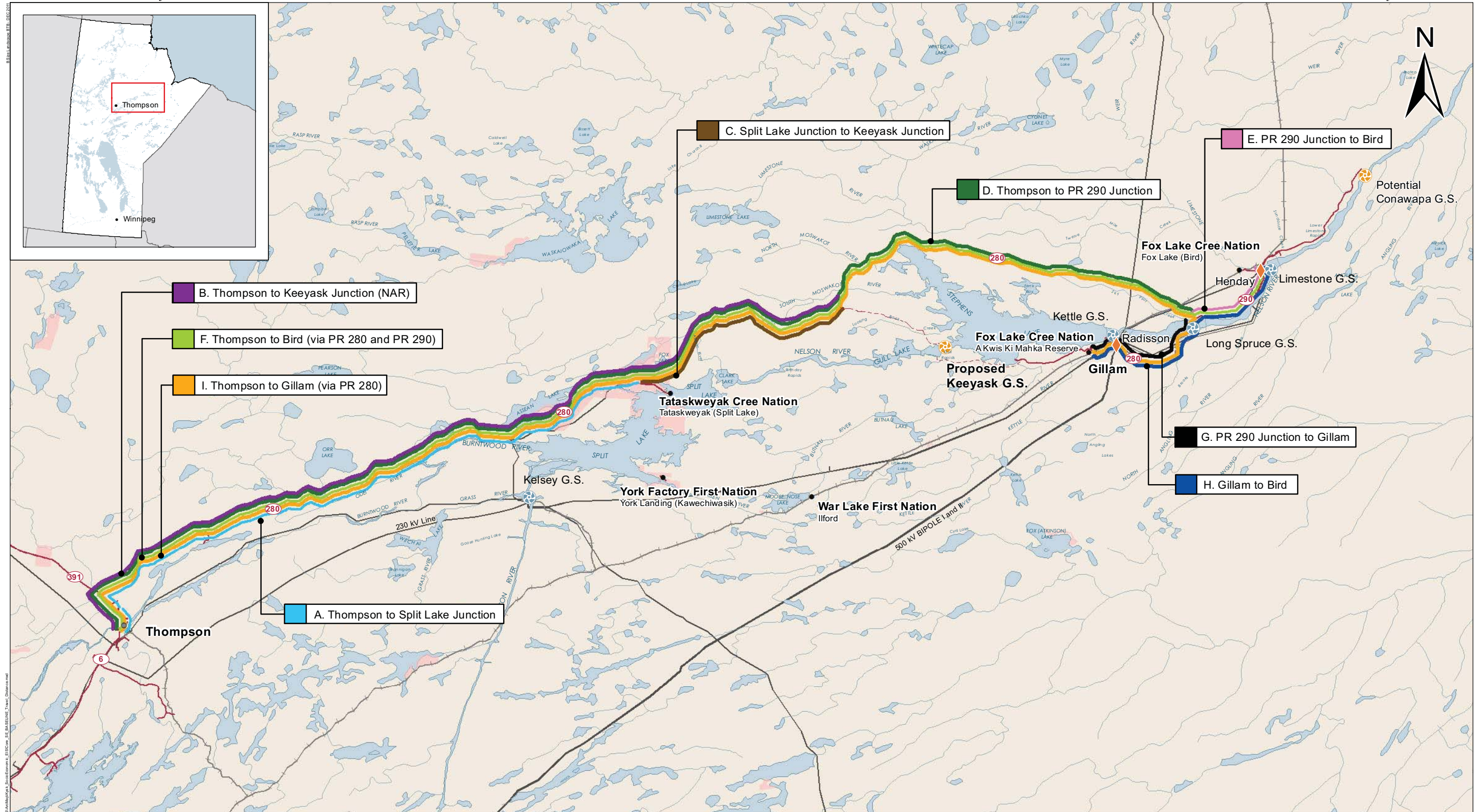
Potential Socio-Economic Effect	Mitigation Measures, Monitoring and Follow-up	Residual Socio-Economic Effect	Assessment Characteristics
TRANSPORTATION INFRASTRUCTURE (Local Study Area)			
No anticipated effect	Monitor water levels, at Split Lake and inform TCN and YFFN	No anticipated effect	No effect
TCN and YFFN perceive that water fluctuations from operation of the generating station may affect ferry service (<i>e.g.</i> , landing sites) and the winter road on Split Lake	Monitoring of ferry landing sites and winter road will continue to be done by MIT		
Notes: Direction: Positive, Neutral , Adverse Magnitude: Small, Moderate, Large Geographic Extent: Small, Medium, Large Duration: Short-term, Medium-term, Long-term			

During the operation phase, there will be little effect on housing in Split Lake, York Landing (*Kamechinasik*) and Ilford. Residual Project effects on housing in Gillam (including FLCN) are expected to be neutral since Manitoba Hydro provides housing for staff employed in operation jobs. Beyond operation staff, it is predicted that Gillam will experience an increase in population, thereby needing housing. The Gillam Land Use Planning process already in place is undertaking planning for the community with the Town, FLCN and Manitoba Hydro.

Residual effects on infrastructure and services during the operation phase are limited to Gillam (including FLCN) to meet the growing population demand. The residual effects are expected to be adverse, small in magnitude and long-term. The Gillam Land Use Planning process already in place will help to identify and address the community's long-term infrastructure needs.

There are no residual effects on KCNs reserve, fee simple or TLE land during the operation phase. Residual effects on land in Gillam are expected to be neutral since Gillam is in the process of preparing for future changes by updating their development plan. The Gillam Land Use Planning process already in place will help to address any future changes to land in the town. There are no residual effects on land in Thompson during the operation phase.

During the operation phase, there are no expected residual effects on transportation infrastructure in the Local or Regional study areas. However, TCN and YFFN have expressed scepticism over long-term effects on open water and ice conditions on Split Lake which has the potential to adversely affect ferry service in the summer and the ice road in the winter. The Partnership will monitor water levels on Split Lake. Manitoba Hydro, as operator of the Project, has committed that open water levels on Split Lake will not be affected by operation of the Keeyask Generation Project - this is a fundamental feature of the Project agreed to in the JKDA. Water levels on Split Lake will continue to be monitored annually by Manitoba Hydro and monitoring information will be provided to the communities. Ferry landing sites and the winter road on Split Lake will continue to be monitored annually by MIT and the communities.



<p>DATA SOURCE: Manitoba Hydro, NTS, Stantec Consulting Ltd.</p>		
<p>CREATED BY: Stantec Consulting Ltd.</p>		
<p>COORDINATE SYSTEM: UTM NAD 1983 Z15N</p>	<p>DATE CREATED: 16-DEC-10</p>	<p>REVISION DATE: 18-MAY-12</p>
<p>0 8.5 17 Kilometres</p> <p>0 7 14 Miles</p>	<p>VERSION NO.: 1.0</p>	<p>QA/QC: GS/YY/MWZ</p>

Legend	
Road Segment	Distance (km)
A Thompson to Split Lake Junction	135.4
B Thompson to Keyask Junction (NAR)	182.7
C Split Lake Junction to Keyask Junction	47.3
D Thompson to PR 290 Junction	269.5
E PR 290 Junction to Bird	23.2
F Thompson to Bird (via PR 280 and PR 290)	292.7
G PR 290 Junction to Gillam	29.8
H Gillam to Bird	53.0
I Thompson to Gillam (via PR 280)	299.3

Travel Distances in Local Study Area

Map 4-1

APPENDIX 4A

POPULATION PROJECTIONS

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4A.0 POPULATION PROJECTIONS – KEEYASK CREE NATIONS

4A.1 METHODOLOGY

The population projection model used for the Project is a cohort-component based approach. Each component of population change is factored into the projection as expressed in the demographic equation below.

$$\text{Population}_{t+1} = \text{Population}_t + (\text{Birth} - \text{Death}) + \text{Net Migration}$$

Where:

- *Population_{t+1}* is population at time “t+1”;
- *Population_t* is population at time “t”;
- *Birth* is number of births between time “t” and “t+1”;
- *Death* is number of deaths between time “t” and “t+1”; and
- *Net Migration* is number of people moving into the community between time “t” and “t+1” less number of people moving out of the community in the same period of time.

Key points:

- The model projects population growth for the KCNs communities for a 15-year time-frame.
- The base year for the population projection is 2008 through to and including 2023.
- Three population projection scenarios (High, Medium and Low) were produced for each KCNs community.
- The model rounds calculations resulting from the component equation to the nearest integer.

The following provides information on the assumptions and key points of the components of population change that influence the projections.

Fertility

Fertility rates were informed by INAC’s The Registered Indian Demography - Population, Household and Family Projections, 2004-2029 (2009).

- An Age-Specific Fertility Rate (ASFR) for each age was used instead of the Total Fertility Rate (TFR) to produce more accurate fertility projections in each age cohort for women during their reproductive years.
- The model assumes women between the ages of 15-49 will be giving birth.

- The model assumes a 105:100 sex ratio (boys to girls born) which is a standard assumption if data are unavailable for births by sex.
- All variables in the model will be held constant (*e.g.*, rates of change) except for fertility rates that will be the driving factor for the different population growth scenarios.
- Three population projection scenarios will be produced using low, medium and high fertility coefficients annually:
 - Slow decline: 0.32%;
 - Moderate decline: 0.84%;
 - Rapid decline: 1.47%; and
 - Overall fertility assumption: A moderate long-term decline in fertility (applicable to the medium growth scenario) that will continue to converge to the rate for the general Canadian population which currently fluctuates around 1.5 births per female.

Mortality

- Age-Specific Survival was informed by INAC's The Registered Indian Demography - Population, Household and Family Projections, 2004-2029 (2009).
- All people in the specific age group are subject to mortality (*e.g.*, 0 to 85+ year of age X Age-Specific Survival Ratio).
- The model assumes the same mortality rate for people 85 years of age and older.

Net Migration

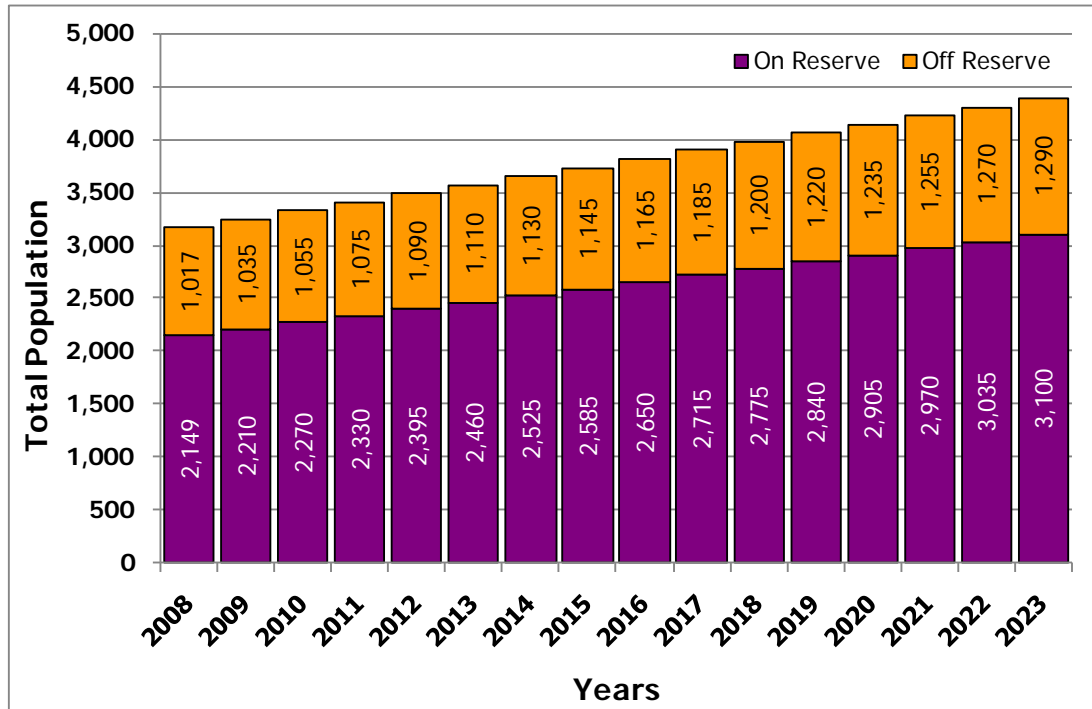
- Assumption that 0.5% net migration is applied to the on-reserve population; the number of net migrants to on-reserve is then subtracted from the off-reserve population at each age level and by sex.
- The overall trend is that people are moving back to their respective reserves, especially the younger generations (*pers. comm.*, Stewart Clatworthy, Dec 19, 2009).
- Assumes migration effects do not apply to people age 60 and older or to newborn babies as their migration effects are the same as their mothers¹.

¹It is assumed that most people age 60 and older will not move for employment reasons; and that the small number of people who might relocate for medical or family reasons will not affect the results.

4A.1.1 POPULATION PROJECTION RESULTS

The medium-growth scenarios from the population projection model are described in Section 4 of the document. The high and low growth scenarios for each of TCN, WLFN, and YFFN are presented below.

4A.1.1.1 TATASKWEYAK CREE NATION

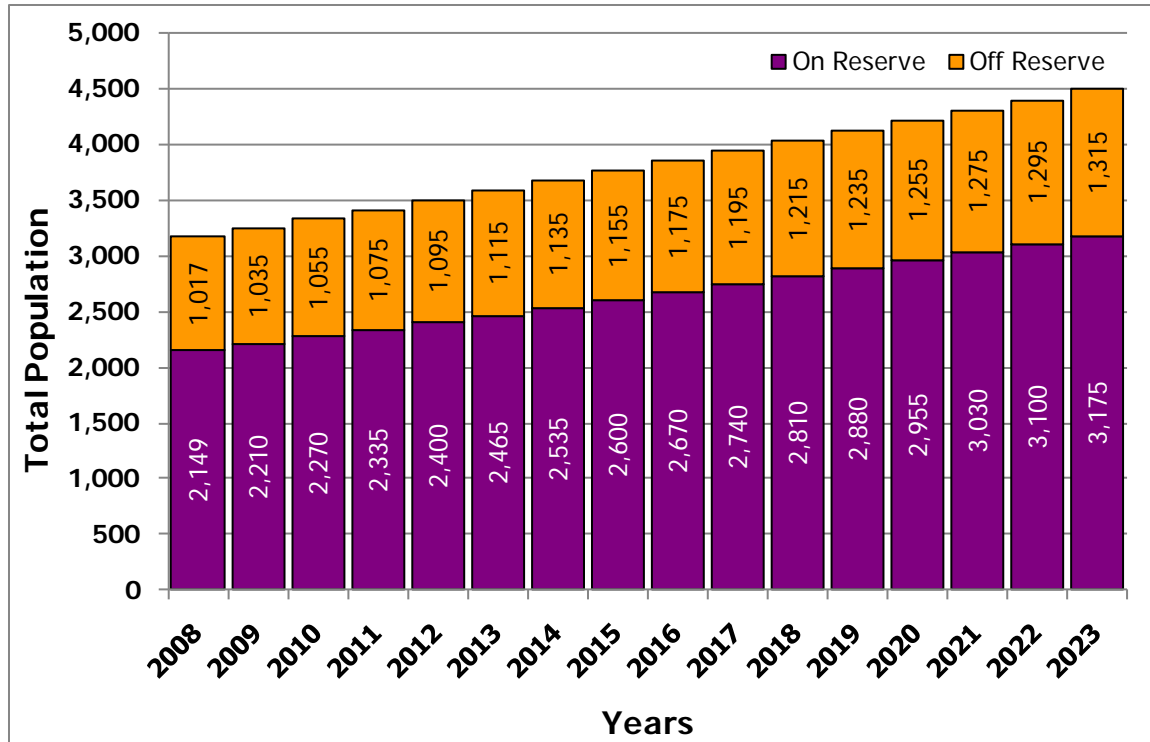


Source: Analysis prepared by InterGroup Consultants based on Indian and Northern Affairs Canada (INAC) First Nations Population Profiles 2008.

Notes:

- TCN data are based on INAC data with a base year of 2008.
- INAC total population as of December 31, 2008.
- INAC data provided by the First Nations and Inuit Health Branch (FNIHB) of Health Canada.
- “On-Reserve” includes individuals living on Crown Land, on other Reserves, and on other lands affiliated with First Nations operating under Self-Government Agreements.
- For the Projections, InterGroup used fertility and mortality ratios derived from INAC “The Registered Indian Demography - Population, Household and Family Projections, 2004-2029.”
- The population projection calculated totals for each year are rounded to the nearest five.

Figure 4A-1: Tataskweyak Cree Nation Population Projections On- and Off-Reserve (2008-2013 Low-growth Scenario)



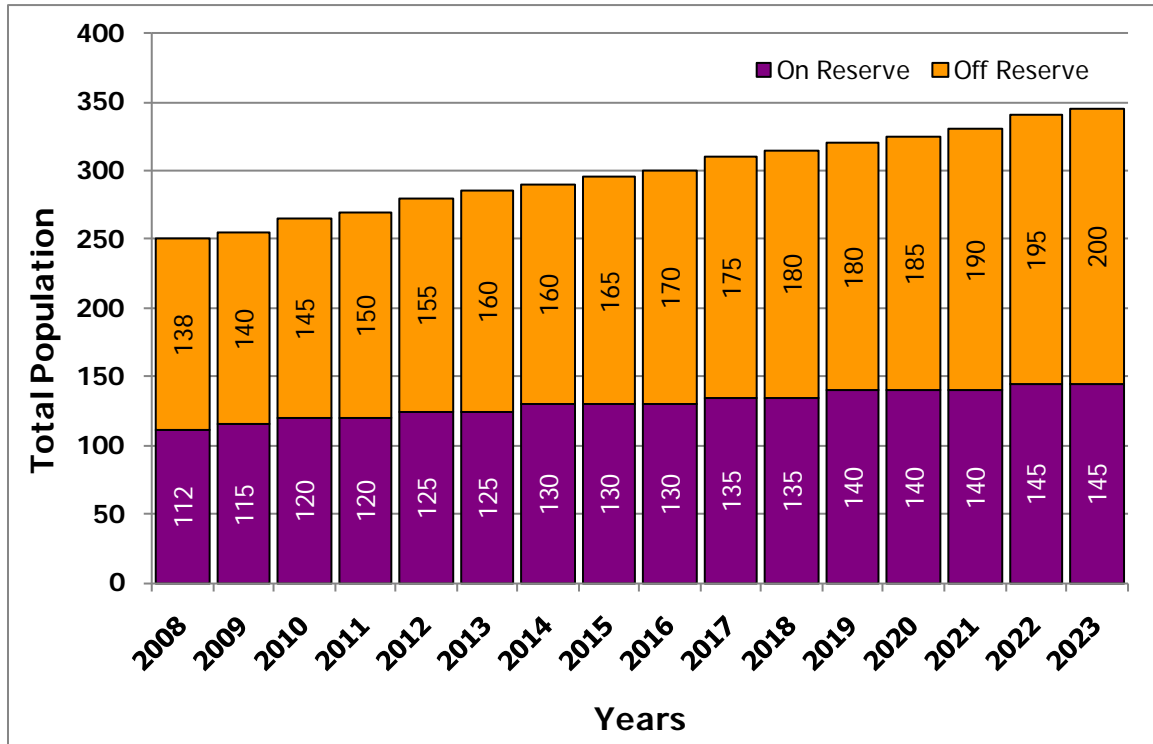
Source: Analysis prepared by InterGroup Consultants based on Indian and Northern Affairs Canada (INAC) First Nations Population Profiles 2008.

Notes:

- TCN data are based on INAC data with a base year of 2008.
- INAC total population as of December 31, 2008.
- INAC data provided by the First Nations and Inuit Health Branch (FNIHB) of Health Canada.
- “On-Reserve” includes individuals living on Crown Land, on other Reserves, and on other lands affiliated with First Nations operating under Self-Government Agreements.
- For the Projections, InterGroup used fertility and mortality ratios derived from INAC “The Registered Indian Demography - Population, Household and Family Projections, 2004-2029.”
- The population projection calculated totals for each year are rounded to the nearest five.

Figure 4A-2: Tataskweyak Cree Nation Population Projections On- and Off-Reserve (2008-2013 High-growth Scenario)

4A.1.1.2 WAR LAKE FIRST NATION

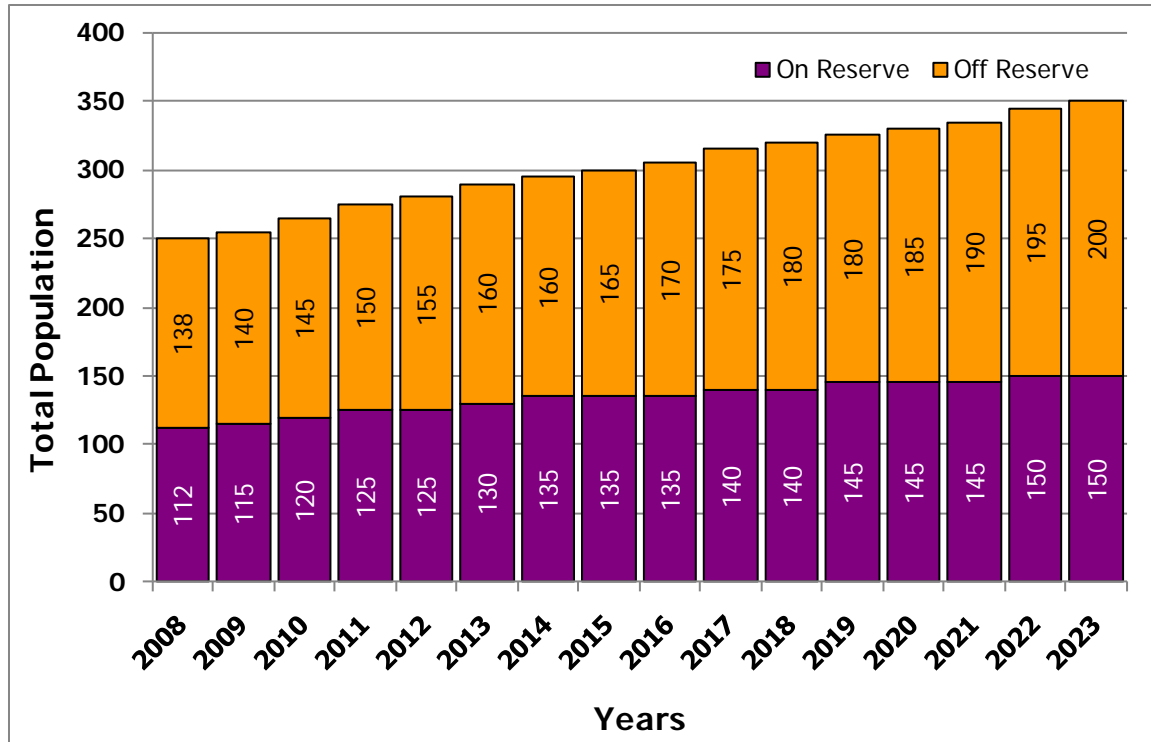


Source: Analysis prepared by InterGroup Consultants based on Indian and Northern Affairs Canada (INAC) First Nations Population Profiles 2008.

Notes:

- WLFN data are based on INAC data with a base year of 2008.
- INAC total population as of December 31, 2008.
- INAC data provided by the First Nations and Inuit Health Branch (FNIHB) of Health Canada.
- "On-Reserve" includes individuals living on Crown Land, on other Reserves, and on other lands affiliated with First Nations operating under Self-Government Agreements.
- For the Projections, InterGroup used fertility and mortality ratios derived from INAC "The Registered Indian Demography - Population, Household and Family Projections, 2004-2029."
- The population projection calculated totals for each year are rounded to the nearest five.

Figure 4A-3: War Lake First Nation Population Projections On- and Off-Reserve (2008-2023 Low-growth Scenario)



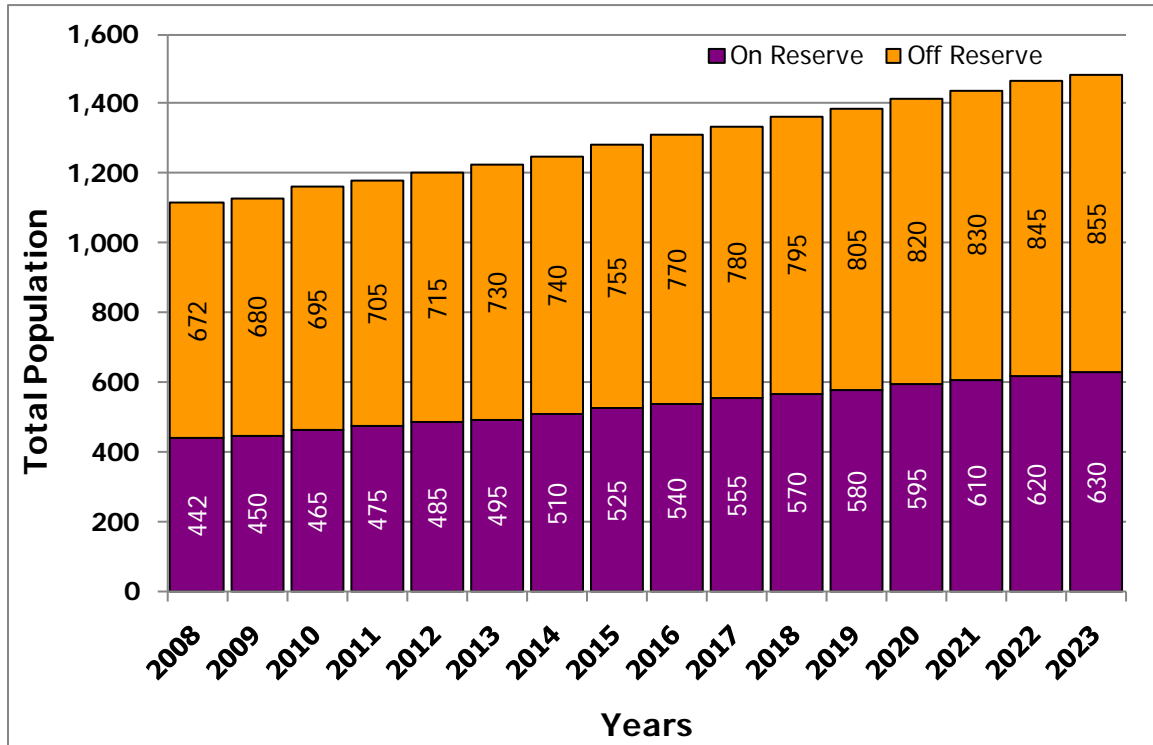
Source: Analysis prepared by InterGroup Consultants based on Indian and Northern Affairs Canada (INAC) First Nations Population Profiles 2008.

Notes:

- WLFN data are based on INAC data with a base year of 2008.
- INAC total population as of December 31, 2008.
- INAC data provided by the First Nations and Inuit Health Branch (FNIHB) of Health Canada.
- “On-Reserve” includes individuals living on Crown Land, on other Reserves, and on other lands affiliated with First Nations operating under Self-Government Agreements.
- For the Projections, InterGroup used fertility and mortality ratios derived from INAC “The Registered Indian Demography - Population, Household and Family Projections, 2004-2029.”
- The population projection calculated totals for each year are rounded to the nearest five.

Figure 4A-4: War Lake First Nation Population Projections On- and Off-Reserve (2008-2023 High-growth Scenario)

4A.1.1.3 YORK FACTORY FIRST NATION

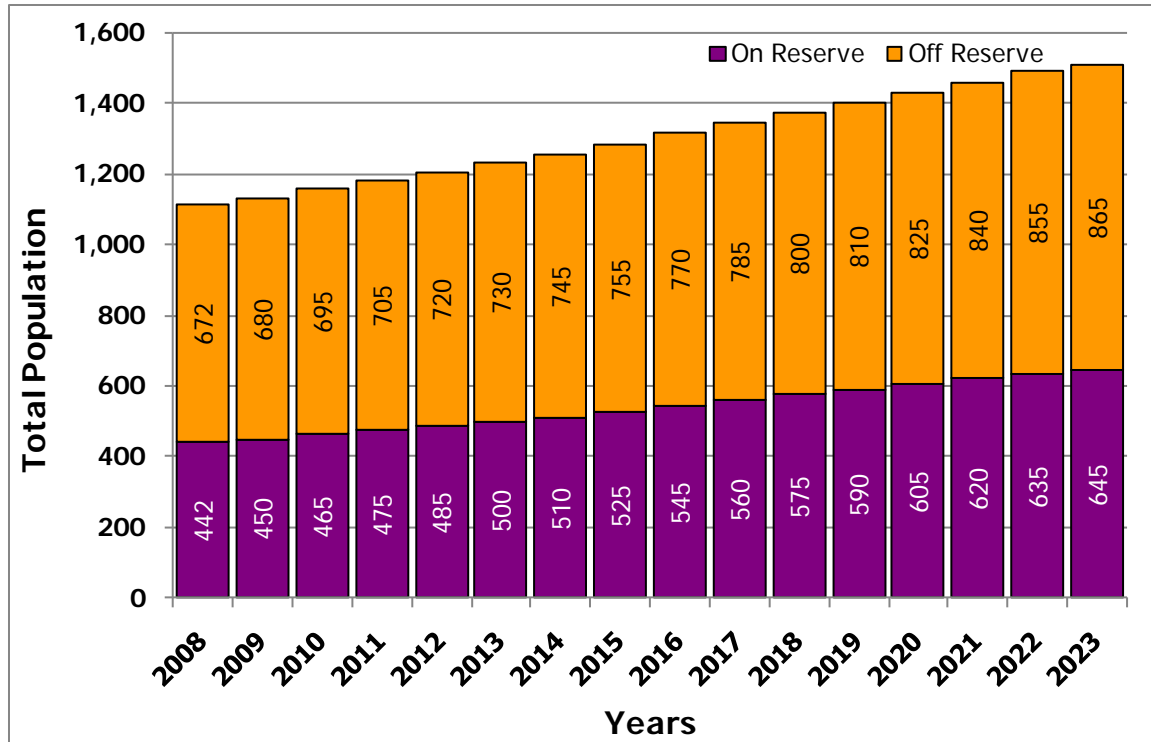


Source: Analysis prepared by InterGroup Consultants based on Indian and Northern Affairs Canada (INAC) First Nations Population Profiles 2008.

Notes:

- YFFN data are based on INAC data with a base year of 2008.
- INAC total population as of December 31, 2008.
- INAC data provided by the First Nations and Inuit Health Branch (FNIHB) of Health Canada.
- "On-Reserve" includes individuals living on Crown Land, on other Reserves, and on other lands affiliated with First Nations operating under Self-Government Agreements.
- For the Projections, InterGroup used fertility and mortality ratios derived from INAC "The Registered Indian Demography - Population, Household and Family Projections, 2004-2029."
- The population projection calculated totals for each year are rounded to the nearest five.

Figure 4A-5: York Factory First Nation Population Projections On- and Off-Reserve (2008-2023 Low-growth Scenario)



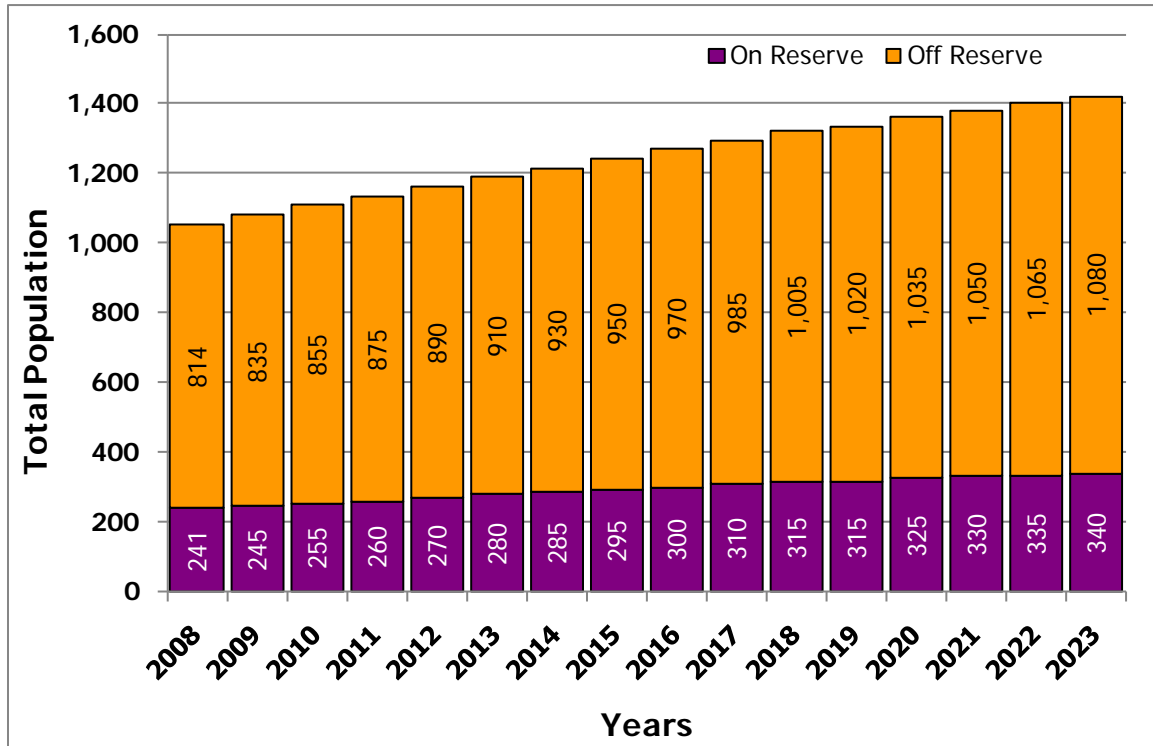
Source: Analysis prepared by InterGroup Consultants based on Indian and Northern Affairs Canada (INAC) First Nations Population Profiles 2008.

Notes:

- YFFN data are based on INAC data with a base year of 2008.
- INAC total population as of December 31, 2008.
- INAC data provided by the First Nations and Inuit Health Branch (FNIHB) of Health Canada.
- "On-Reserve" includes individuals living on Crown Land, on other Reserves, and on other lands affiliated with First Nations operating under Self-Government Agreements.
- For the Projections, InterGroup used fertility and mortality ratios derived from INAC "The Registered Indian Demography - Population, Household and Family Projections, 2004-2029."
- The population projection calculated totals for each year are rounded to the nearest five.

Figure 4A-6: York Factory First Nation Population Projections On- and Off-Reserve (2008-2023 High-growth Scenario)

4A.1.1.4 FOX LAKE CREE NATION

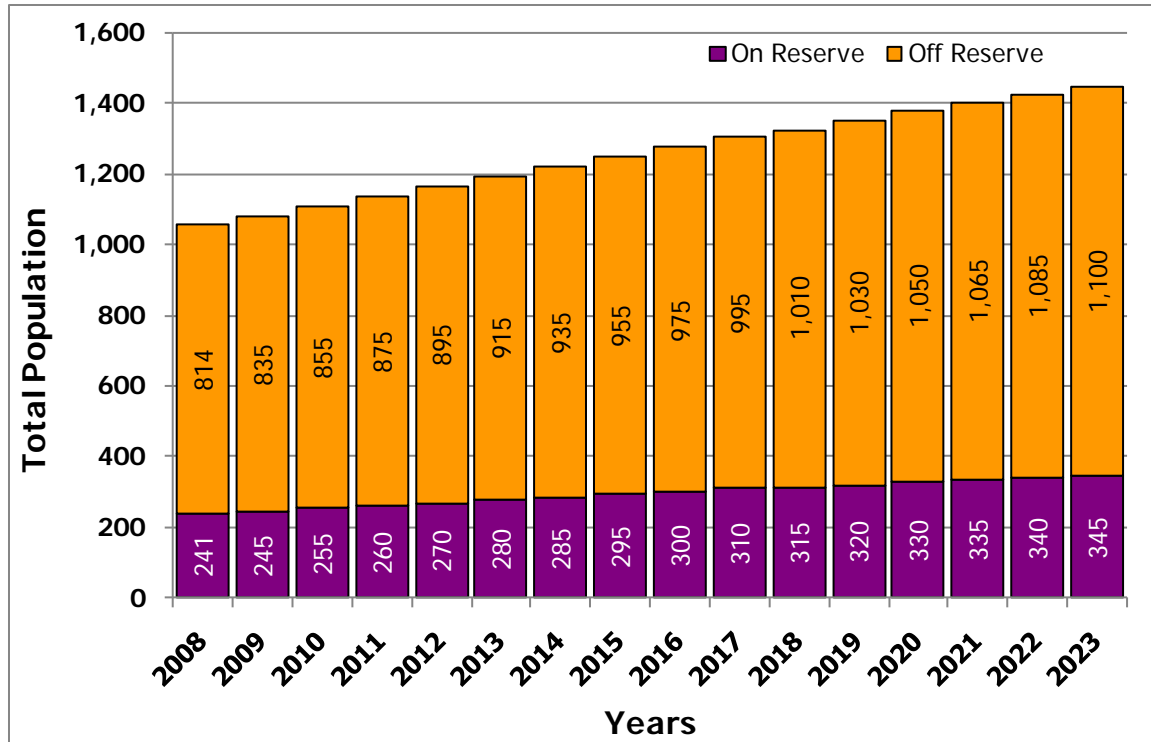


Source: Analysis prepared by InterGroup Consultants based on Indian and Northern Affairs (INAC) Indian Register Data for Fox Lake, 2008 and Manitoba Health Fox Lake Cree Nations Population data, 2008.

Notes:

- FLCN data are based on INAC data with a base year of 2008.
- INAC total population as of December 31, 2008.
- INAC data provided by INAC from Indian Registry System.
- “On-Reserve” includes individuals living on Crown Land, on other Reserves, and on other lands affiliated with First Nations operating under Self-Government Agreements.
- INAC data “On-Reserve” population breakout by gender for all age groups, except 10-14 and 15-19, was prorated based on total “On-Reserve” population (excluding age groups 10-14 and 15-19) gender breakout.
- INAC data “On-Reserve” population for age groups above 60 assume Manitoba Health FLCN Population data for the same age groups. Population data for age groups above 75 corrected to make reconcile to total population.
- Total population gender breakout for age groups above 65 was prorated based on total population gender breakout.
- Off-Reserve population numbers are derived as follows: Total population minus “On-Reserve” (note 4 above) population.
- For the Projections, InterGroup used fertility and mortality ratios derived from INAC “The Registered Indian Demography - Population, Household and Family Projections, 2004-2029.”
- The population projection model rounds the calculated totals from the component equation to the nearest five.

Figure 4A-7: Fox Lake Cree Nation Population Projections On- and Off-Reserve (2008-2023 Low-growth Scenario)



Source: Analysis prepared by InterGroup Consultants based on Indian and Northern Affairs (INAC) Indian Register Data for Fox Lake, 2008 and Manitoba Health Fox Lake Cree Nations Population data, 2008.

Notes:

- FLCN data are based on INAC data with a base year of 2008.
- INAC total population as of December 31, 2008.
- INAC data provided by INAC from Indian Registry System.
- "On-Reserve" includes individuals living on Crown Land, on other Reserves, and on other lands affiliated with First Nations operating under Self-Government Agreements.
- INAC data "On-Reserve" population breakout by gender for all age groups, except 10-14 and 15-19, was prorated based on total "On-Reserve" population (excluding age groups 10-14 and 15-19) gender breakout.
- INAC data "On-Reserve" population for age groups above 60 assume Manitoba Health FLCN Population data for the same age groups. Population data for age groups above 75 corrected to make reconcile to total population.
- Total population gender breakout for age groups above 65 was prorated based on total population gender breakout.
- Off-Reserve population numbers are derived as follows: Total population minus "On-Reserve" (note 4 above) population.
- For the Projections, InterGroup used fertility and mortality ratios derived from INAC "The Registered Indian Demography - Population, Household and Family Projections, 2004-2029."
- The population projection model rounds the calculated totals from the component equation to the nearest five.

Figure 4A-8: Fox Lake Cree Nation Population Projections On- and Off-Reserve (2008-2023 High-growth Scenario)

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4B.0 POPULATION DATA TABLES

4B.1 CURRENT POPULATION – KEEYASK CREE NATIONS

4B.1.1 Tataskweyak Cree Nation Current Population

Table 4B-1: Tataskweyak Cree Nation¹ On- and Off-Reserve Population (1991, 2001, 2006)

	1991	2001	2006
On-Reserve and Crown Land Population	1,409	1,857	2,169
% of Total ²	69%	70%	72%
Off-Reserve Population	629	793	851
% of Total ³	31%	30%	28%
Total First Nation Population	2,038	2,650	3,020

Source: INAC 1991a, 2001a, 2006a.

Notes:

1. NAC refers to TCN as Tataskweyak Cree Nation.
2. Percentage of population On-Reserve and Crown Land calculated by InterGroup Consultants.
3. Percentage of population Off-Reserve calculated by InterGroup Consultants.

Table 4B-2: Tataskweyak Cree Nation¹ Proportion of Population by Specific Age Ranges (1991, 2001, 2006)

Population	1991	2001	2006
On-Reserve and Crown Land			
Total	1,409	1,857	2,169
0-4 Years	209	226	294
% of Total ²	15%	12%	14%
5-19 Years ³	490	658	759
% of Total ²	35%	35%	35%
20-64 Years ⁴	660	904	1,031
% of Total ²	47%	49%	48%
65 years and over ⁵	50	69	85
% of Total ²	4%	4%	4%
Off-Reserve Population			
Total	629	793	851
0-4 Years	43	52	60
% of Total ⁶	7%	7%	7%
5-19 Years ³	206	226	220
% of Total ⁶	33%	28%	26%
20-64 Years ⁴	347	467	525
% of Total ⁶	55%	59%	62%
65 years and over ⁵	33	48	46
% of Total ⁶	5%	6%	5%

Source: INAC 1991a, 2001a, 2006a.

Notes:

1. INAC refers to TCN as Tataskweyak Cree Nation.
2. Percentage of age categories On-Reserve and Crown Land calculated by InterGroup Consultants.
3. Age category 5-19 years calculated by InterGroup Consultants as the total of INAC age categories 5-9, 10-14, and 15-19 years.
4. Age category 20-64 years calculated by InterGroup Consultants as the total of INAC age categories 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, and 60-64.
5. Age category 65 years and over calculated by InterGroup Consultants as the total of INAC age categories 65-69, 70-74, 75-79, 80-84, and 85 years or older.
6. Percentage of age categories Off-Reserve calculated by InterGroup Consultants.

4B.1.2 War Lake First Nation Current Population

Table 4B-3: War Lake First Nation¹ On- and Off-Reserve Population (1991, 2001, 2006)

	1991	2001	2006
On-Reserve and Crown Land Population	135	133	125
% of Total ²	82%	59%	53%
Off-Reserve Population	30	91	110
% of Total ³	18%	41%	47%
Total First Nation Population	165	224	235

Source: INAC 1991b, 2001b, 2006b.

Notes:

1. INAC refers to WLFN as War Lake First Nation.
2. Percentage of population On-Reserve and Crown Land calculated by InterGroup Consultants.
3. Percentage of population Off-Reserve calculated by InterGroup Consultants.

Table 4B-4: War Lake First Nation¹ Proportion of Population by Age Specific Ranges (1991, 2001, 2006)

	1991	2001	2006
On-Reserve and Crown Land Population			
Total	135	133	125
0-4 Years	9	11	14
% of Total ²	7%	8%	11%
5-19 Years ³	43	36	32
% of Total ²	32%	27%	26%
20-64 Years ⁴	67	81	75
% of Total ²	50%	61%	60%
65 years and over ⁵	16	5	4
% of Total ²	12%	4%	3%
Off-Reserve Population			
Total	30	91	110
0-4 Years	4	7	8
% of Total ⁶	13%	8%	7%
5-19 Years ³	10	31	37
% of Total ⁶	33%	34%	34%
20-64 Years ⁴	16	48	65
% of Total ⁶	53%	53%	59%
65 years and over ⁵	0	5	0
% of Total ⁶	0%	5%	0%

Source: INAC 1991b, 2001b, 2006b.

Notes:

1. INAC refers to WLFN as War Lake First Nation.
2. Percentage of age categories On-Reserve and Crown Land calculated by InterGroup Consultants.
3. Age category 5-19 years calculated by InterGroup Consultants as the total of INAC age categories 5-9, 10-14, and 15-19 years.
4. Age category 20-64 years calculated by InterGroup Consultants as the total of INAC age categories 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, and 60-64.
5. Age category 65 years and over calculated by InterGroup Consultants as the total of INAC age categories 65-69, 70-74, 75-79, 80-84, and 85 years or older.
6. Percentage of age categories Off-Reserve calculated by InterGroup Consultants.

4B.1.3 Fox Lake Cree Nation Current Population

Table 4B-5: Fox Lake Cree Nation¹ On- and Off-Reserve Population (1991, 2001, 2006)

	1991	2001	2006
On-Reserve and Crown Land Population	311	262	273
% of Total ²	47%	28%	27%
Off-Reserve Population	352	679	746
% of Total ³	53%	72%	73%
Total First Nation Population	663	941	1019

Source: INAC 1991c, 2001c, 2006c.

Notes:

1. INAC refers to FLCN as Fox Lake Cree Nation.
2. Percentage of population On-Reserve and Crown Land calculated by InterGroup Consultants.
3. Percentage of population Off-Reserve calculated by InterGroup Consultants.

Table 4B-6: Fox Lake Cree Nation¹ Proportion of Population by Specific Age Ranges (1991, 2001, 2006)

	1991	2001	2006
On-Reserve and Crown Land Population			
Total	311	262	273
0-4 Years	20	26	16
% of Total ²	6.4%	9.9%	5.9%
5-19 Years ³	100	89	95
% of Total ²	32.2%	34.0%	34.8%
20-64 Years ⁴	*	*	*
% of Total			
65 years and over ⁴	*	*	*
% of Total			
Off-Reserve Population			
Total	352	679	746
0-4 Years	26	47	56
% of Total ⁵	7.4%	6.9%	7.5%
5-19 Years ³	99	206	197
% of Total ⁵	28.1%	30.3%	26.4%
20-64 Years	*	*	*
% of Total			
65 years and over ⁴	*	*	*
% of Total			

Source: INAC 1991c, 2001c, 2006c.

Notes:

1. INAC refers to FLCN as Fox Lake Cree Nation.
2. Percentage of age categories On-Reserve and Crown Land calculated by InterGroup Consultants.
3. Age category 5-19 years calculated by InterGroup Consultants as the total of INAC age categories 5-9, 10-14 and 15-19 years.
4. Data for age categories 20-64 years and 65 years and over are not available.
5. Percentage of age categories Off-Reserve calculated by InterGroup Consultants.

4B.1.4 York Factory First Nation Current Population

Table 4B-7: York Factory First Nation¹ On- and Off-Reserve Population (1991, 2002, 2006)

	1991	2001	2006
On-Reserve and Crown Land Population	283	455	452
% of Total ²	44%	48%	42%
Off-Reserve Population	360	496	620
% of Total ³	56%	52%	58%
Total First Nation Population	643	951	1072

Source: INAC 1991d, 2001d, 2006d.

Notes:

1. INAC refers to YFFN as York Factory First Nation.
2. Percentage of population On-Reserve and Crown Land calculated by InterGroup Consultants.
3. Percentage of population Off-Reserve calculated by InterGroup Consultants.

Table 4B-8: York Factory First Nation¹ Proportion of Population by Specific Age Ranges (1991, 2001, 2006)

	1991	2001	2006
On-Reserve and Crown Land Population			
Total	283	455	452
0-4 Years	33	54	53
% of Total ²	12%	12%	12%
5-19 Years ³	94	151	145
% of Total ²	33%	33%	32%
20-64 Years ⁴	140	232	236
% of Total ²	49%	51%	52%
65 years and over ⁵	16	18	18
% of Total ²	6%	4%	4%
Off-Reserve Population			
Total	360	496	620
0-4 Years	27	48	58
% of Total ⁶	8%	10%	9%
5-19 Years ³	110	127	164
% of Total ⁶	31%	26%	26%
20-64 Years ⁴	201	296	363
% of Total ⁶	56%	60%	59%
65 years and over ⁵	22	25	35
% of Total ⁶	6%	5%	6%

Source: INAC 199d1, 2001d, 2006d.

Notes:

1. INAC refers to YFFN as York Factory First Nation.
2. Percentage of age categories On-Reserve and Crown Land calculated by InterGroup Consultants.
3. Age category 5-19 years calculated by InterGroup Consultants as the total of INAC age categories 5-9, 10-14, and 15-19 years.
4. Age category 20-64 years calculated by InterGroup Consultants as the total of INAC age categories 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, and 60-64.
5. Age category 65 years and over calculated by InterGroup Consultants as the total of INAC age categories 65-69, 70-74, 75-79, 80-84, and 85 years or older.
6. Percentage of age categories Off-Reserve calculated by InterGroup Consultants.

APPENDIX 4C

THOMPSON SCENARIOS

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4C.0 THOMPSON SCENARIOS

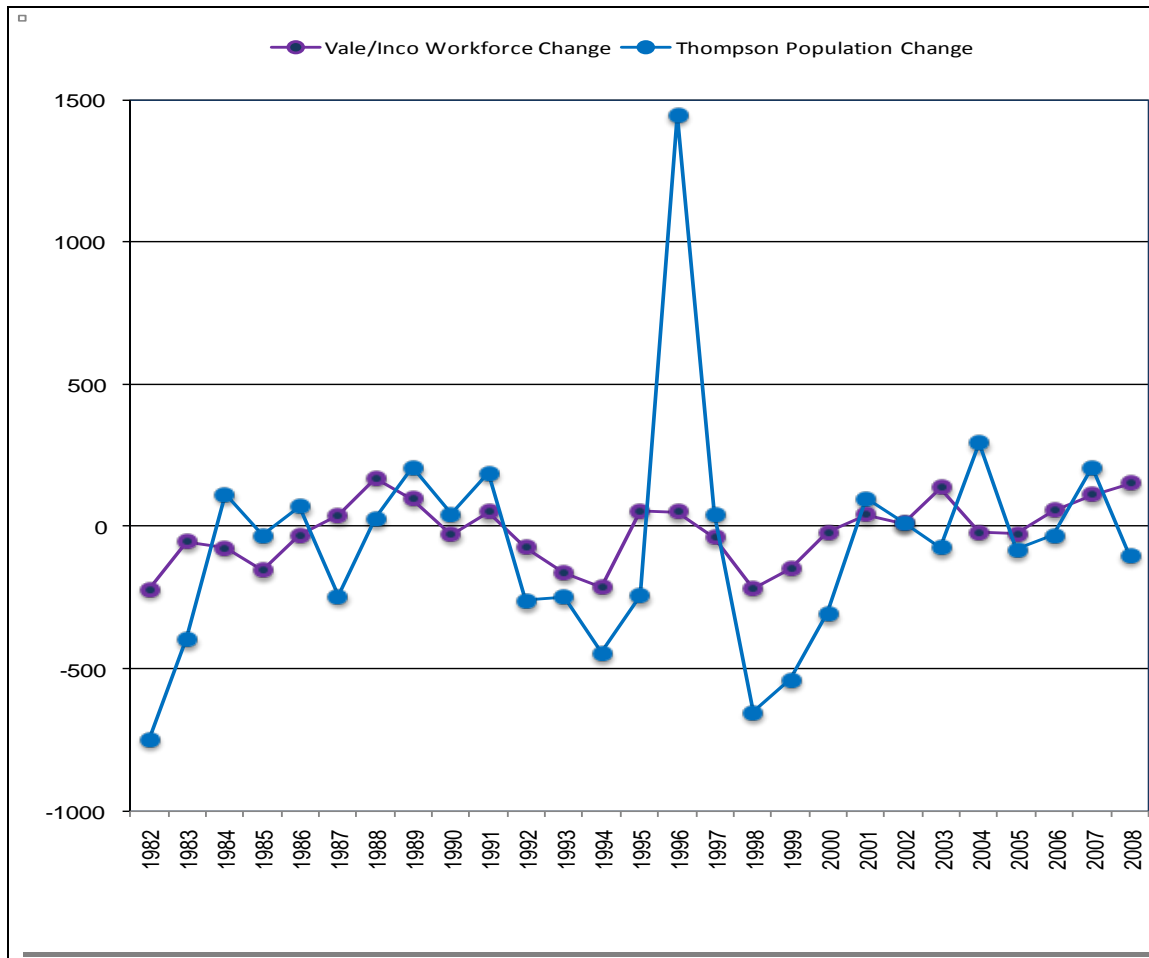
4C.1 BACKGROUND

Thompson has experienced a prolonged period of growth based on a diversity of drivers influencing the economy, population, infrastructure and services, and quality of life. However, with the recent downturn in the global economy and the associated impacts that were observed in Thompson and elsewhere in the world, it is clear that economic drivers can be severely altered in a very short period of time, making it difficult to anticipate what will happen to Thompson's economy over the next ten years.

The Thompson economy is very closely tied to Vale's¹ mining, milling, smelting and refinery operations in the City. Therefore, it is important to understand the situation with Vale in Thompson in order to gain an appreciation for the potential impacts that the Keeyask Generation Project (the Project) construction may or may not have on the community.

Figure 4C-1 relates the change in employment levels at Vale to the overall observed change in total population for Thompson. As can be seen, with the exception of a few years, the overall trends for the Vale workforce and the Thompson population are very similar. In most years that Vale has reduced its workforce, a concurrent decline in population numbers was observed.

¹ Vale is the current owner of the mines, mill, smelter and refinery operation in Thompson. The mine and related facilities were built, then owned and operated by the International Nickel Company (INCO) from 1961 to 2007 when the operations were sold to Vale Inco from Brazil. Vale is used to represent the company ownership in the data presented, even though INCO was the long-term owner and operator of the facilities until 2007.



Sources:

Vale (formerly Inco) employment statistics were received from Vale, Thompson Operations, February 24, 2009 and taken from Manitoba Hydro and NCN Wuskwatim EIS, 2003. Manitoba Health, Annual Statistics (2001-2008).

Notes:

- The chart above represents the change in total numbers observed between years for both Vale (formerly Inco, from 1982 to 2006) employment and the Thompson population. It does not represent the total number of employees at Vale or the total number of people living in Thompson at any given point. For example, between 1982 and 1983 the total Thompson population declined by 342. This decline is represented by the point on the chart for that period.
- Manitoba Health population data are collected and presented by postal code or location of residence.

Figure 4C-1: Comparison of Changes in Vale Employment Levels and Changes in the Thompson Population Over the Previous Year: 1982 to 2008

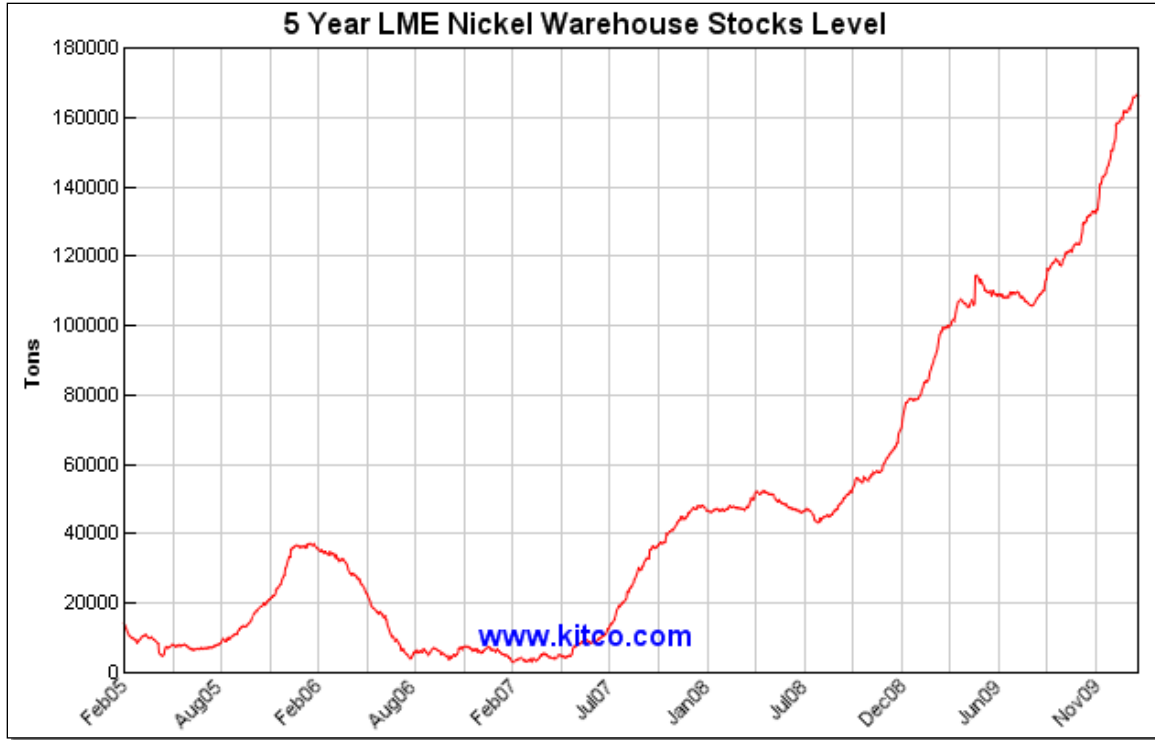
The recent economic downturn brought about a substantive reduction in the price of nickel on world markets. The decline began in the second quarter of 2007 (Figure 4C-2), preceding the major market decline by approximately 15 months.



Source: InfoMine 2010.

Figure 4C-2: Spot Nickel Prices from February 11, 1995 to February 10, 2010

Around that time, the London Metals Exchange inventory of nickel started to increase and has grown steadily since (Figure 4C-3). The result was a large inventory of available nickel on the world markets and a corresponding drop in demand as growth slowed in China, Russia and other countries that have a large or growing industrial base.

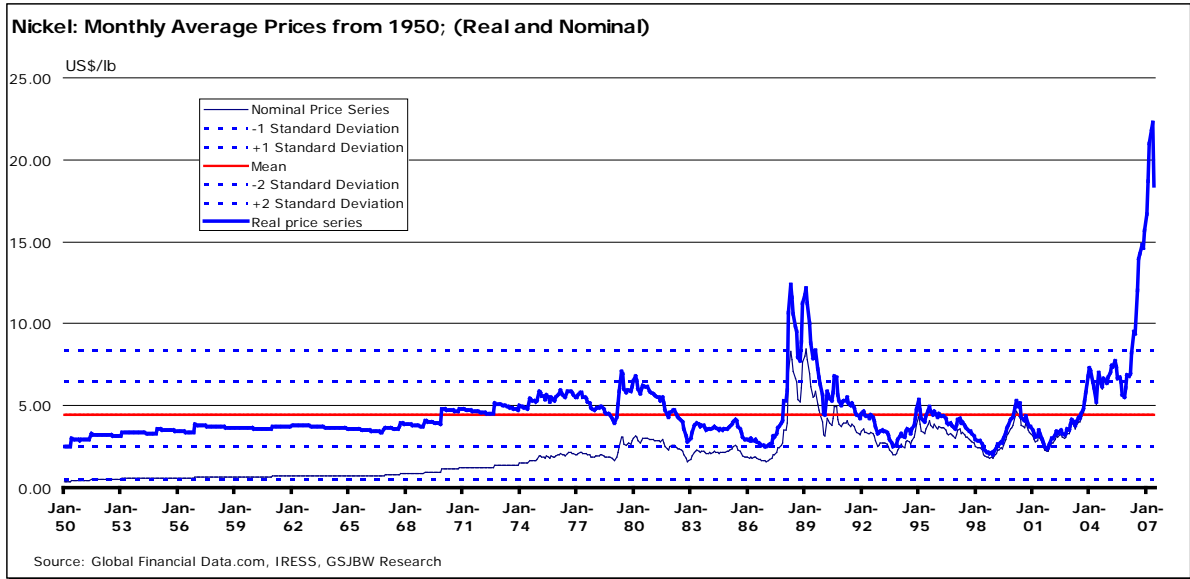


Source: Kitco Metal Exchange 2010.

Figure 4C-3: Metals Exchange Nickel Stocks 1995 to February 2010

Between 2008 and 2010, the London Metals Exchange (LME) inventory of nickel continued to increase. Historically, when inventories increase, the price of the commodity typically decreases. However, in the second quarter of 2009, the nickel price increased while LME inventories increased. Prices appear to have stabilized around the \$8.00/pound price since the third quarter of 2009. The high inventory and stable price is a fundamental disconnect from typical market trends (Wright 2010). This results in greater uncertainty for the future of nickel markets.

Figure 4C-4 illustrates the high degree of volatility in nickel prices beginning in the late 1970s. Given the volatility and recent global economic conditions, it is difficult to predict how this will affect Vale in Thompson. Figure 4C-4 shows that there is an overall long-term trend toward nominally higher prices. Over the last 30 years, this has included sharp price increases and decreases. The result is a mean value below \$5.00/pound. This appears to support the idea of a relatively low nickel price in the future, possibly in the \$6.00/pound range.



Source: Gray 2009.

Figure 4C-4: Nickel Prices (January 1950 to January 2007)

Along with the gradual trend of increasing prices, one must consider the role of exploration. With the recent economic downturn, exploration for new nickel reserves decreased. This could potentially affect the long-term viability of existing mines and the potential development of new mines. However, in the case of Vale, there is sufficient enough knowledge regarding existing reserves that the company may be able to rely upon it in the short to medium-term. The combination of known reserves, the historical trend toward nominal increases in nickel prices and very low nickel production costs in Thompson suggests that Vale’s operation in Thompson is well placed to recover if international industrial demand for nickel, particularly in China, increases (Gray 2009).

In a show of confidence in long-term nickel markets, Vale engaged in a wide range of expansion and construction activities for its smelter, refinery and mining operations that started in 2008. Among these activities, Vale completed deepening of the D-1 mine to access greater ore reserves (Vale Inco 2008). At the time, other proposed projects included new open pit mines, re-opening of the Pipe Lake mine, the potential construction of an acid plant, and replacement of furnaces to meet 2015 regulatory environmental guidelines.

When the 2015 regulatory guidelines were established, the nature and cost of these upgrades were acknowledged to likely require an increase in production to help keep costs lower (Minerals and Metals Division *et al.* 2002). In 2008, Vale targeted a 36% boost in production (Service Canada 2008).

Overall, Vale is the main driver of economic growth in the Thompson economy. In a November 17, 2010 press release Vale announced that they plan to phase out the smelting and refining facilities at the Thompson operation by 2015 (Government of Manitoba 2010g). At the same time, Vale announced its intent to pursue development at its Thompson 1-D and Pipe-Kipper deposits in Manitoba, with a

potential \$1 billion investment in the 1-D Project as the company recasts itself as a mining and milling operation (Vale 2010).

Considering the recent uncertainty in the global and local economies, two scenarios over two timeframes will be examined for the Thompson economy; a low growth, and suppressed economy scenario (see Table 4C-1 below). The first timeframe, 2010-2014, is the lead up time to the construction of the Project and the second timeframe, 2014-2021, is the projected timeframe for the construction of the Project. An earlier version of this appendix included a high growth scenario; however, with the Vale announcement to shut down the refinery and smelter in Thompson, this scenario is no longer considered to be relevant.

4C.2 THOMPSON ECONOMY AND POPULATION SCENARIOS

In this Appendix, Thompson's economy is examined in a series of tables. The first two tables examine the short-term (Table 4C-1: 2010-2014) and medium-term (Table 4C-2: 2014-2021) overlapping with the Project economic drivers of the local economy. The final table provides population estimate ranges for each scenario.

Vale's November 2010 announcement regarding the future closure of the smelter and refinery in 2015 will result in a reduction of full time jobs in Thompson and a dampening of pressures on its economy, workforce and services. The two scenarios have considered the closure of the smelter and refinery based on the limited information that was available about Vale's plans when this document was being finalized.

Short-Term (2010-2014)

The **low growth scenario** would maintain growth in the community but at a noticeably lower rate than the high rates experienced between 2005 and 2009. This would allow for a more controlled response by the municipal government and local businesses as the city adjusts. The population growth would likely be more gradual with more movement of people from within Canada and northern Manitoba.

A **suppressed economy scenario** could become reality due to a prolonged reduction in nickel markets should world demand for nickel decline again and require a long recovery period. The closure of the smelter and refinery in 2015 has the potential to contribute to the effects of a decline. This could manifest itself in high vacancy rates, a major reduction in housing prices and an exodus of some professionals and skilled workers. A portion of the population decline due to layoffs could be offset by increased in-migration from outlying northern communities as University College of the North (UCN) gears up and housing costs decline. This would change the population demographics of the city and the standard of living as there would be fewer high paying jobs associated with mining and related support services.

**Table 4C-1: Potential Economic Scenarios for Thompson's Future 2010 – 2014
(before commencement of Project construction)**

Low Growth Scenario	Suppressed Economy Scenario
Economic Activity - varies by scenario	
Vale – main economic driver	Vale – main economic driver
Minimal rise in nickel price	Prolonged low nickel price
Bonus pay	No bonus pay
Overtime pay	No overtime pay
Some hiring of own and contractor staff	Layoffs of own staff, no additional contractor staff
Complete tailings pond expansion and upgrade	Tailings pond expansion and upgrade scaled back
Increased mineral exploration as commodity price rises	Temporary closures of all operations Cutbacks in mineral exploration
Minimal retail and commercial expansion due to limited available land inventory	No retail and commercial expansion, potential contraction
Labour shortage causing increased stress for businesses	Surplus supply of entry level workers for retail and service sector
Housing	Housing
Increased development of Manitoba Housing units	Increased development of Manitoba Housing units
10-20 new residential units per year	0-10 new residential units per year
Infill	Infill
Expansion of City of Thompson boundaries and new subdivision planning	Expansion of City of Thompson boundaries, but no new subdivisions
Two new hotels with an additional 149 rooms for short-term and extended stay guests	
Thompson Regional Airport Authority – continue to plan for construction of a new airport terminal and water treatment plant	Thompson Regional Airport Authority – plan for renovation and expansion of the existing airport terminal
Slow but steady increase in Health Care Services, upgrades and expansion of services.	Slow increase in Health Care Services, upgrades and expansion of services
City of Thompson infrastructure renewal – initial work in 2010 with planned renewal projects for the next 10 years	City of Thompson infrastructure renewal – initial work in 2010 with planned renewal projects over a 10-15 year timeframe
Cold Weather Testing - Slow increase in automotive and recreation vehicle testing activity	Cold Weather Testing -Prolonged slow-down in automotive and recreational vehicle testing activity
In-migration of people seeking work	In-migration of people seeking work

**Table 4C-1: Potential Economic Scenarios for Thompson's Future 2010 – 2014
(before commencement of Project construction)**

Low Growth Scenario	Suppressed Economy Scenario
From within Canada	From northern MB communities
From International	Increased enrolment in UCN and fluctuating enrolment in the School Division
From northern MB communities	Out migration of skilled trades and professionals seeking work
Increased enrolment in UCN and School Division	
Moderate short-term temporary worker population growth for construction projects (2-5 years)	Moderate short-term temporary worker population growth for construction projects (1-3 years)
Low sustained population growth for new mine workers, commercial and retail growth, construction workers, UCN campus and housing	Minimal population growth for commercial and retail growth, construction workers, UCN campus and housing

Medium-Term (2014-2021)

As Project construction gets underway, each scenario would show varying levels of impact. The suppressed economy scenario would likely show the greatest effects from the Project. In the low growth scenario, the Project would inject a stimulus to the economy resulting in short-term growth. In the suppressed economy scenario, the Project could provide stability to a potentially depressed economy.

**Table 4C-2: Potential Economic Scenarios for Thompson's Future 2014 – 2021
(overlap with Project construction)**

Low Growth Scenario	Suppressed Economy Scenario
Economic Activity - varies by scenario	
<i>Vale – main economic driver</i>	<i>Vale – main economic driver</i>
Prolonged nickel price \$6.00 to \$8.00/pound	Prolonged nickel price below \$5.00/pound
Bonus pay	No bonus pay
Overtime pay	No overtime pay
Some hiring of own and contractor staff	Layoffs of own staff. No additional contractor staff
Small increase in mineral exploration	
Slow expansion of new mining operations (new open pit mines)	Temporary closures Smelting and refinery closes in 2015
<i>Thompson Regional Airport Authority</i>	<i>Thompson Regional Airport Authority</i>
Construction of new terminal building and commercial space begins within the next 5-10 years including new water treatment plant on the north side of the river	Renovations to existing facilities take place as the expansion plans are put on hold
Some Commercial Expansion as the airport infrastructure develops. This would result in more demand for skilled and unskilled workers	Minimal Commercial Expansion to service a less affluent population. Uncertainty in the retail sector. Unskilled labour force would increase in size
<i>Housing</i>	<i>Housing</i>
Increased development of Manitoba Housing units	Increased development of Manitoba Housing units
Infill	Infill
New North and East subdivision delayed slow development by local contractor/developer	No subdivision expansion
Slow but steady increase in Health Care Services, upgrades and expansion of services	Slow increase in Health Care Services, upgrades and expansion of services
City of Thompson infrastructure renewal – initial work in 2010 and planned renewal projects for the next 10 years	City of Thompson infrastructure renewal – initial work in 2010 and planned renewal projects over a longer timeframe
Completion of the construction of the new campus for UCN in 2013 or 2014	Completion of the construction of the new campus for UCN in 2013 or 2014
Cold Weather Testing – minimal increase	Cold Weather Testing – minimal slow-down due to long-term suppressed economy
In-migration of people seeking work	In-migration of people seeking work
From within Canada	From northern MB communities
From International	Increased enrolment in UCN
From northern MB communities	Initial drop in Public School enrolment with long-term recovery

**Table 4C-2: Potential Economic Scenarios for Thompson's Future 2014 – 2021
(overlap with Project construction)**

Low Growth Scenario	Suppressed Economy Scenario
Increased enrolment in UCN and School Division	Out migration of skilled trades and professionals seeking work
Maintain short-term temporary worker population growth for construction projects (3-4 years) Low, but sustained population growth for new mine workers, commercial and retail growth, construction workers, increased UCN enrolment and housing	Temporary worker population decreases as construction projects end Minimal population growth for commercial and retail growth, construction workers, increased UCN enrolment and housing

Table 4C-3 below attempts to project population change for Thompson based on the information in the previous two tables. An important unknown is the actual current population of Thompson. The Statistics Canada population estimate for Thompson in 2006 was 13,445 and the BRHA's figures were 14,074 for 2006 and 13,925 in 2008. However, the key person interview program indicated that the population of Thompson might have been as large as 18,000 people in 2009 (Thompson KPI Program 2008-2010). What is difficult to determine is the number of temporary workers who would report another location as their permanent address and the Aboriginal population, which may still refer to their home community as their permanent address.

Table 4C-3: Scenario based Population Projections for Thompson to 2020*

Low Growth Scenario	Suppressed Economy Scenario
14,000 to 17,000	11,000 to 14,000

*Projections based on an unofficial population of 17,000 to 18,000 as of the third quarter of 2008 (this is based information provided during the Thompson KPI Program 2008-2010).