



Public Services and
Procurement Canada

Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec)

Environmental Impact Statement PART D – Baseline Conditions and Impact Assessment Chapter 14 Non-Indigenous Peoples and Communities





PUBLIC SERVICES AND PROCUREMENT CANADA

Environmental Impact Statement Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec)

Our Reference: 32760TT (60ET)

Tetra Tech QI inc.
7275, Sherbrooke Street East
Office 600
Montréal (Québec) H1N 1E9
☎ 514-257-0707

Verified by:

<Original signed by>

Jacqueline Roy, M.Sc., biologist, PMP
Project manager

February 2023
Revision 03

REVISIONS

Revision n°	Description	Date	By
00	Preliminary Report - Version for comments	March 2022	JR
01	Final Draft – Version for comments	June 2022	JR
02	EIS – Version for the Impact Assessment Agency Review	September 2022	JR
03	EIS – Second Version for the Impact Assessment Agency Review	February 2023	JR

TABLE OF CONTENTS

PART D – BASELINE CONDITIONS AND IMPACT ASSESSMENT	14-1
14 NON-INDIGENOUS PEOPLE AND COMMUNITIES	14-1
14.1 INTRODUCTION	14-1
14.1.1 METHODOLOGY	14-1
14.2 BASELINE CONDITIONS	14-1
14.2.1 OVERVIEW OF PRIMARY STUDY COMMUNITIES	14-1
14.2.1.1 Temiscaming.....	14-1
14.2.1.2 Kipawa	14-1
14.2.1.3 Thorne.....	14-2
14.2.1.4 The Nipissing Unorganized (North)	14-2
14.2.1.5 Mattawa	14-2
14.2.1.6 North Bay	14-2
14.2.2 POPULATION CHARACTERISTICS	14-2
14.2.2.1 Language	14-3
14.2.2.2 Age Distribution.....	14-4
14.2.2.3 Ethnicity	14-5
14.2.3 BUSINESS AND EMPLOYMENT.....	14-6
14.2.3.1 Commercial/Economic Activities.....	14-6
14.2.3.2 Employment	14-6
14.2.3.3 Occupation Types	14-8
14.2.3.4 Income	14-10
14.2.3.5 Gender Distribution in the Workplace.....	14-10
14.2.4 TRANSPORTATION INFRASTRUCTURE AND COMMUTER TRAFFIC LEVELS.....	14-12
14.2.5 EDUCATION	14-13
14.2.5.1 Education Completion Rates	14-15
14.2.6 HEALTH AND WELL-BEING.....	14-16
14.2.6.1 Health Care Centres	14-19
14.2.6.1.1 Community Well-Being Index.....	14-21
14.2.6.2 Drinking Water	14-22
14.2.6.3 Police and Emergency Services	14-22
14.2.6.4 Childcare.....	14-23
14.2.7 RECREATION AND TOURISM	14-23
14.2.8 LAND AND WATER USE	14-24
14.2.8.1 Fishing and Boating	14-24
14.2.8.2 Forestry.....	14-25
14.2.8.3 Power Generation.....	14-25

14.2.8.4	Mining and Mineral Exploration	14-25
14.2.8.5	Nuclear Energy Research.....	14-26
14.2.8.6	Agriculture.....	14-26
14.2.9	HOUSING AND TEMPORARY ACCOMMODATIONS	14-26
14.3	IMPACT ASSESSMENT FOR NON-INDIGENOUS PRIMARY STUDY COMMUNITIES.....	14-28
14.3.1	POTENTIAL PROJECT INTERACTIONS	14-28
14.3.2	ASSESSMENT: EMPLOYMENT AND BUSINESS OPPORTUNITIES FROM PROJECT CONSTRUCTION ACTIVITIES	14-29
14.3.3	ASSESSMENT: INCREASED USE OF LOCAL BUSINESSES BY THE CONSTRUCTION WORKFORCE	14-30
14.3.4	ASSESSMENT: DISRUPTION OF COMMUNITY LIFE DUE TO CONSTRUCTION ACTIVITY AND TEMPORARY WORKERS.....	14-31
14.3.5	ASSESSMENT: CHANGE IN POPULATION AND DEMOGRAPHICS DURING CONSTRUCTION	14-32
14.3.6	ASSESSMENT: INCREASED DEMAND ON HEALTH CARE FACILITIES DURING CONSTRUCTION	14-33
14.3.7	ASSESSMENT: INCREASED RECREATIONAL LAND AND RESOURCE USE DURING CONSTRUCTION	14-34
14.3.8	ASSESSMENT: DESTRUCTION OF ARCHAEOLOGICAL RESOURCES	14-35
14.3.9	ASSESSMENT: LAND AND WATER ACCESS AND USE AND TRAVEL ROUTES .	14-38

LIST OF TABLES

Table 14.1	Population of Primary Study Communities	14-3
Table 14.2	Median Population Ages	14-5
Table 14.3	Average Number of Weeks Worked per Year	14-8
Table 14.4	Occupations by Community	14-9
Table 14.5	Median Household Income	14-10
Table 14.6	Occupation Gender Distribution.....	14-11
Table 14.7	Community Commuting Types.....	14-12
Table 14.8	Schools in the PSCs	14-14
Table 14.9	Highest Education Level Reached for members aged 25 - 64 years	14-15
Table 14.10	Health Services offered by the Temiskaming HSSC	14-20
Table 14.11	2016 Community Well-Being Index.....	14-21
Table 14.12	Fishing Periods in Ontario and Quebec.....	14-24
Table 14.13	Housing Conditions	14-26
Table 14.14	Home Ownership Rate.....	14-27

LIST OF FIGURES

Figure 14.1	Population Change between 2011 and 2016.....	14-3
Figure 14.2	Official Languages Spoken by Region.....	14-4
Figure 14.3	Gender Distribution	14-4
Figure 14.4	Distribution of Age Groups by Region	14-5
Figure 14.5	Ethnicity of Quebec Communities.....	14-6
Figure 14.6	Community Employment Trends.....	14-7
Figure 14.7	Commuter Travel Time	14-13
Figure 14.8	Types of Post-secondary Education Completed by Community	14-15
Figure 14.9	State of Mental and Physical Health 2017-2018.....	14-16
Figure 14.10	Quality of Life	14-17
Figure 14.11	Health conditions 2017-2018	14-18
Figure 14.12	Activities Affecting Health	14-19

PART D – BASELINE CONDITIONS AND IMPACT ASSESSMENT

14 NON-INDIGENOUS PEOPLE AND COMMUNITIES

14.1 INTRODUCTION

Several non-Indigenous Primary Study Communities (PSCs) have been identified to be potentially affected by the Project and include Kipawa and Temiscaming in Quebec, and Thorne, Wyse, rural residents of Nipissing Unorganized (North), Mattawa, and North Bay in Ontario. Apart from Mattawa and North Bay, these communities are located within a 20 km radius of the Project.

The following section describes the baseline health and socio-economic conditions found in each of the non-Indigenous PSCs and assesses the potential impacts of the Project on these communities.

14.1.1 Methodology

Information gathered for this section was mainly derived from Statistics Canada, as well as the KPMG Social-Economic Impact Study report for the Ontario dam replacement project (KPMG, 2010).

Additional information on employment, education, transportation, recreation, and health were also found through municipal and educational websites, the Ministry of Transportation Ontario, and local business websites. Gaps in information were addressed by contacting municipal authorities via telephone or e-mail.

14.2 BASELINE CONDITIONS

The following section describes the health and socio-economic conditions of the non-Indigenous PSCs identified to be potentially affected by the Project. This section includes a baseline on population characteristics, health and well-being, land use, and economic/recreational activities in the Project area.

14.2.1 Overview of Primary Study Communities

14.2.1.1 *Temiscaming*

The town of Temiscaming is the largest community directly adjacent to the Project site and accessed from Highway 101 in the Temiscaming Regional County Municipality of Quebec. It is located adjacent to the north-west of the Project, and has a population of 2,431 residents (Statistics Canada, 2017a; 2017d). Temiscaming Regional County Municipality also includes smaller communities, such as Grimmer, Letang, Ketchen, and Beauchêne. Residents of neighbouring communities access a variety of services in Temiscaming including schools, retail shopping, and community and recreational facilities. The Temiscaming Hospital is the only local hospital and accepts both Quebec and Ontario patients. Temiscaming is also an employment hub as it is home to the Rayonier Advanced Materials (called Rayonier hereafter), which employs 700 workers.

14.2.1.2 *Kipawa*

Kipawa is located in the Temiscaming Regional County Municipality of Quebec, approximately 15 km north-east of the Project site along Highway 101. Kipawa is home to 416 residents (Statistics Canada, 2017d) and is also located next to the Kebaowek reserve on Algonquin Territory. Kipawa relies heavily on Temiscaming for access to schools, work, groceries, emergency (fire protection) and medical services. Kipawa has several public services, including a public beach, municipal park and playground, municipal hall, community hall, post office and church. Known for its beautiful lake and rapids, Kipawa is a popular recreation and tourism destination and has a public beach, boat launch and snowmobile trails. Local outfitters offer canoeing and camping expeditions (Municipality of Kipawa, 2021).

14.2.1.3 *Thorne*

Thorne is the nearest community to the Project in Ontario. It is located in the Nipissing Unorganized District, along Highway 63, and has approximately 205 residents (Statistics Canada, 2017d). Thorne's service stations include a French separate school, a nursing station, a restaurant, and a post office. With an aging population, previously plentiful services have diminished, and Thorne increasingly relies on services offered in either Temiscaming or North Bay.

Thorne is part of a Local Service Board (LSB), which provides services such as water supply, fire protection, garbage collection, sewage, and street lighting.

14.2.1.4 *The Nipissing Unorganized (North)*

The Nipissing Unorganized (North) District has 1,784 residents (Statistics Canada, 2017d), and its south-western corner makes up most of the Ontario-side of the local Project area. In addition to Thorne, other small communities exist in this district, such as Wyse and Eldee. These communities are too small to have their census data recorded separately.

Like Thorne, local community members in this district travel to Temiscaming or North Bay for most services, as well as for employment.

14.2.1.5 *Mattawa*

Mattawa is located 76 km south-east of the Project site and is situated adjacent to the Ottawa River (south side) in the Nipissing District. The term, "Mattawa" means "Meeting of the waters" in Algonquin (Mattawa, 2021). The town has 1,786 residents (Statistics Canada, 2017d) and its economy is reliant on logging and tourism (Mattawa, 2021). Mattawa has its own emergency services and runs the Mattawa Women's Resource Center and the John Dixon Public Library.

Other cultural centers include the Mattawa Voyageur Country tourist region located in Samuel de Champlain Provincial Park. The Mattawa Voyageur Country tourist region also offers various access points to Algonquin Provincial Park. Other cultural centers also include the Canadian Ecology Center, which is an eco-friendly retreat center facilitating business retreats. It is also an access point to Algonquin Provincial Park (Mattawa, 2021).

14.2.1.6 *North Bay*

North Bay is the nearest city to the Project site in Ontario, located approximately 60 km south-west of the Project via Highway 63. As of 2016, North Bay has a population of 51,553 (Statistics Canada, 2017d), and is considered a primary service and employment hub in the region. North Bay has several primary and secondary schools, as well as Nipissing University and Canadore College, and several shopping centers, comprehensive health care services, a regional airport and a Canadian air force military base.

14.2.2 Population Characteristics

The PSCs in Quebec have had a steadily growing population. Kipawa showed an 8.9% population increase between 2011 and 2016, making it the fastest growing community from the non-Indigenous PSCs. Kipawa's growth rate is also 5.6% higher than Quebec's 3.3% average population growth rate (Statistics Canada, 2017d).

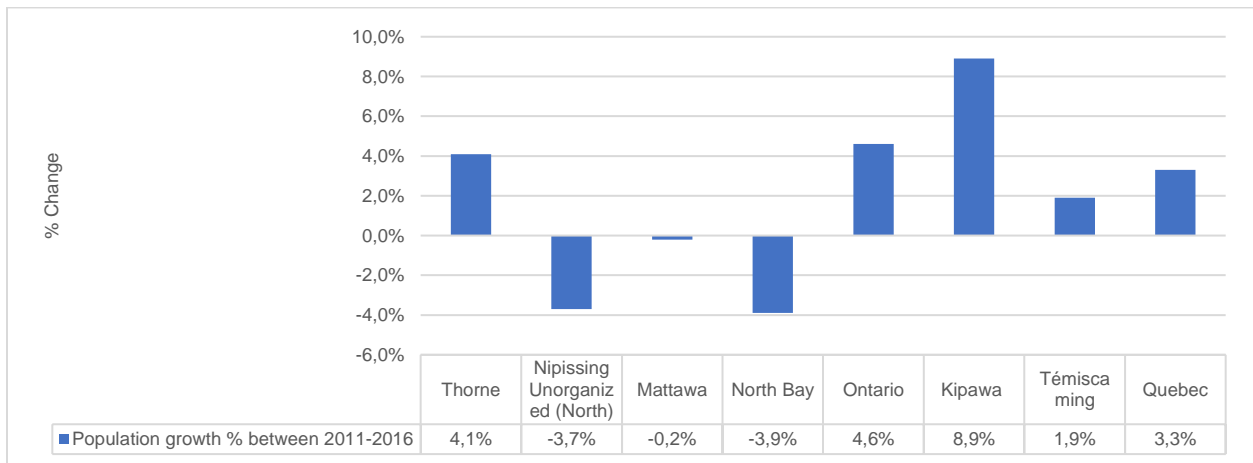
The PSCs in Ontario have a mainly declining population. Thorne is the only exception to this, with a 4.1% rate of increase in residents between 2011 and 2016 (Statistics Canada, 2017d). Nevertheless, Thorne's population growth rate remains slightly under the Ontario 4.6% rate of increase (Table 14.1 and Figure 14.1).

Table 14.1 Population of Primary Study Communities

	Thorne (LSB)	Nipissing Unorganized (North)	Mattawa	North Bay	Ontario	Kipawa	Temiscaming	Quebec
Total Population # (2016)	204	1,784	1,993	51,553	13,448,494	516	2,431	8,164,361
Total Population # (2011)	196	1,853	2,023	53,651	12,851,821	474	2,385	7,903,001

Sources: Statistics Canada, 2017d

Figure 14.1 Population Change between 2011 and 2016

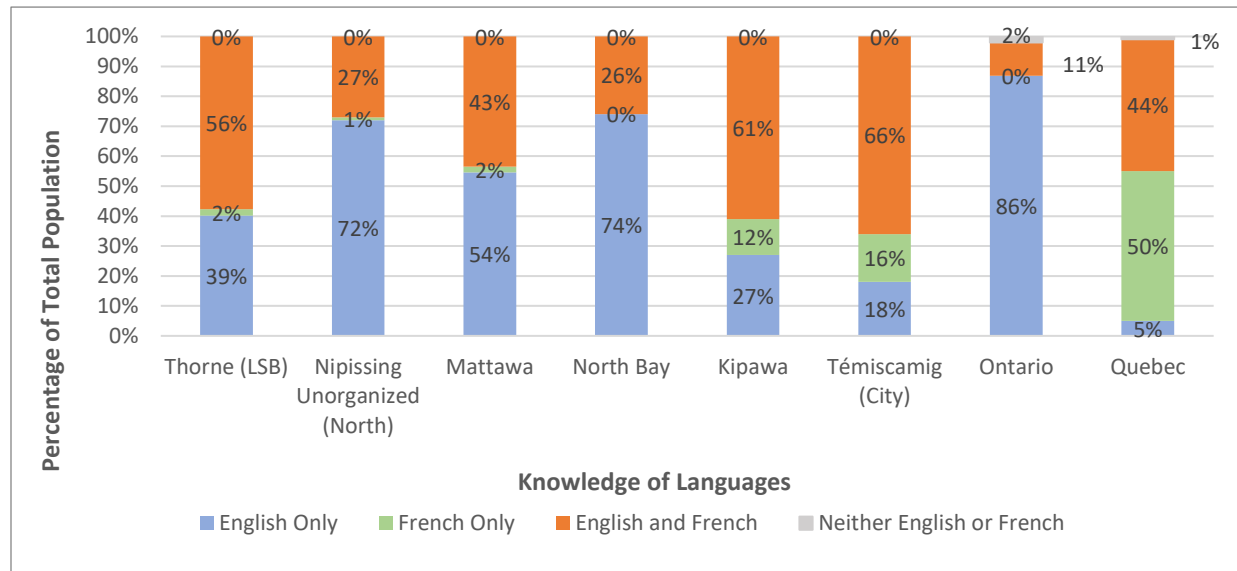


14.2.2.1 Language

Fluency levels of Canada’s official languages vary across the provincial borders. Statistics of the non-Indigenous PSCs in Quebec show that over 60% of members speak both English and French. Bilingualism in the local PSCs is approximately 20% higher than the Quebec provincial average.

In Ontario PSCs, the level of bilingualism varies; 56% of Thorne’s population speaks both French and English, and in Mattawa, 43% of residents speak both languages. Nipissing Unorganized (North) and North Bay on the other hand, have a significantly lower percentage of 26-27% bilingualism. Compared to the 11% Ontario provincial average, all Ontario PSCs score at least 15% higher for bilingualism (Statistics Canada, 2017d). Figure 14.2 shows a breakdown of official languages spoken, by community.

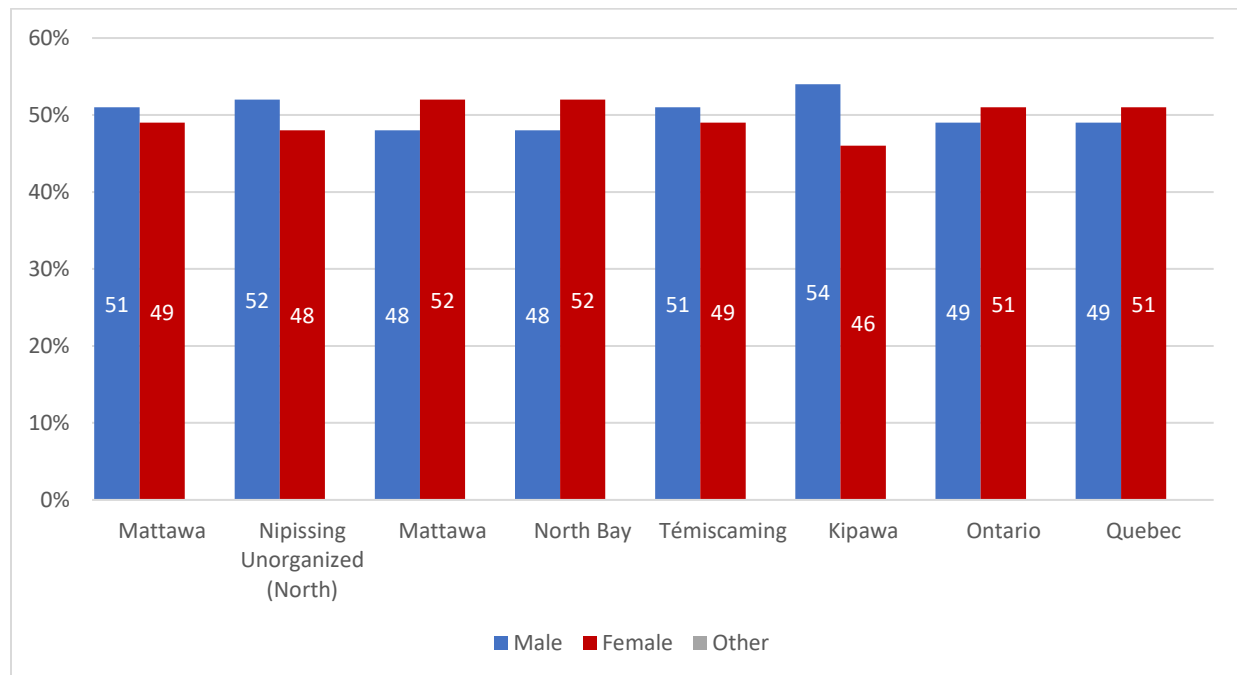
Figure 14.2 Official Languages Spoken by Region



Sources: Statistics Canada, 2017dGender Distribution

The gender distribution of the PSCs is relatively even, with most communities being within a 2% range of equal distribution between males and females (Figure 14.3). Kipawa shows slightly more variation, with 54% males and 46% females (Figure 14.3).

Figure 14.3 Gender Distribution



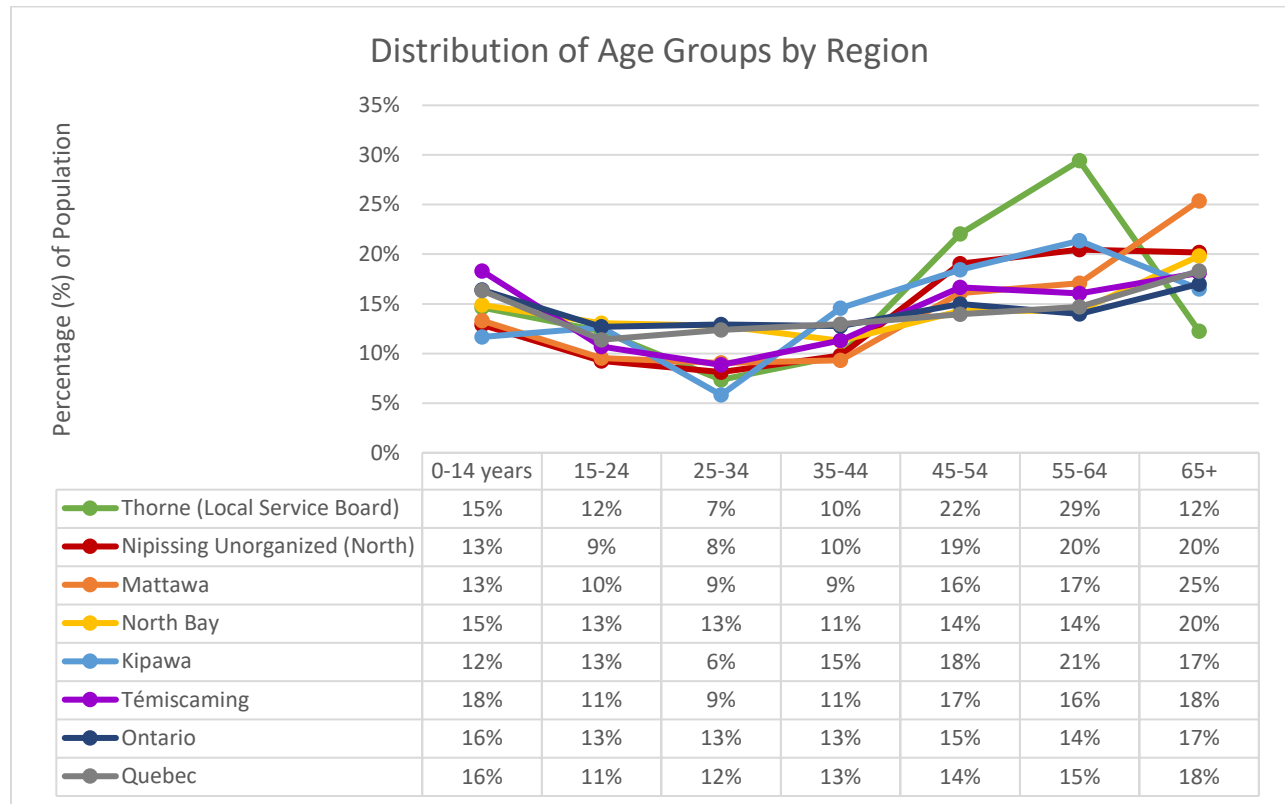
Source: Statistics Canada 2016

14.2.2.2 Age Distribution

Figure 14.4 shows that the PSCs have fewer young working-aged population and a larger older population, in comparison to the Ontario and Quebec average trends. Owing to its role as a regional employment centre, North Bay is the only PSC with a similar percentage to the provincial averages for young working age population (aged 25-34).

All other PSCs show higher population rates of residents aged 45 and over, with a peak of residents aged between 55-64. Thorne shows especially high population levels of residents aged 55-64.

Figure 14.4 Distribution of Age Groups by Region



Sources: Statistics Canada, 2017d

All PSCs have between 1.2% - 9.2% higher median population ages than the Quebec provincial median (42.5) and Ontario (41.3) median ages (Table 14.2). The youngest median age group from the PSCs is in North Bay, with a median age of 43.7, while the oldest is found in Mattawa, with a median age of 51.7 (Statistics Canada, 2017d)

Table 14.2 Median Population Ages

	Thorne (LSB)	Nipissing Unorganized (North)	Mattawa	North Bay	Ontario	Kipawa (Municipality)	Temiscaming (Town)	Quebec
Median Age of population	47.2	50.9	51.7	43.7	41.3	49.5	45.6	42.5

Sources: Statistics Canada, 2017d

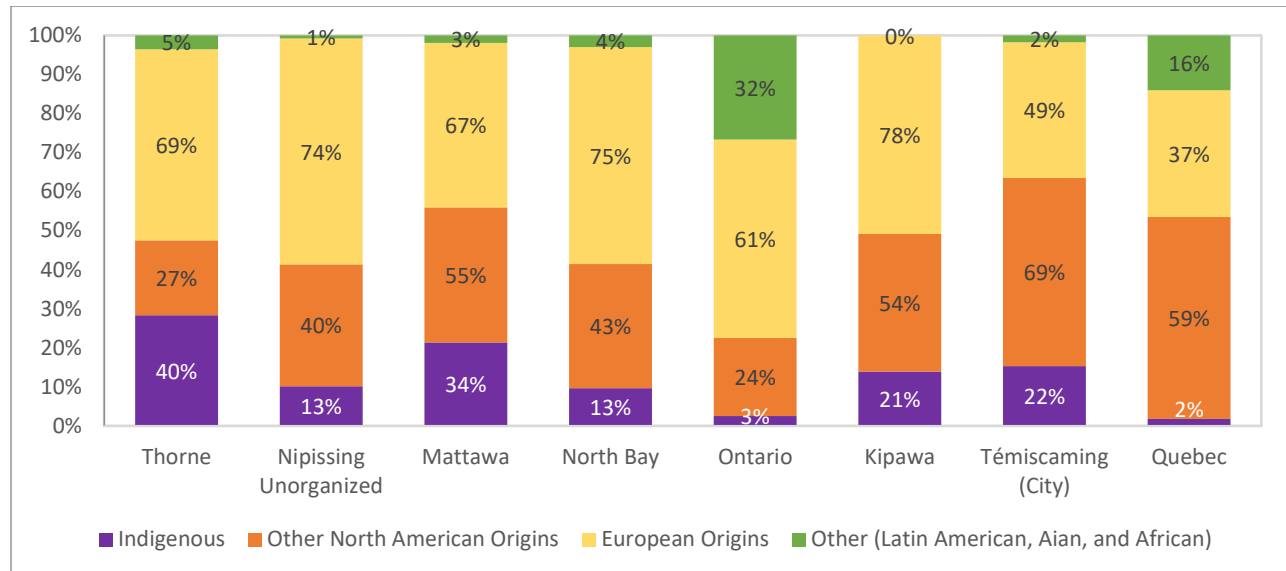
14.2.2.3 Ethnicity

Ethnicity of the PSCs is predominantly Caucasian, and most community members are of North American or European descent.

In Quebec PSCs, just above 20% of Community members in Kipawa and in Temiscaming are of Indigenous origin, which is significantly higher than the provincial Quebec average of 2%. Other ethnicities in the Quebec PSCs were substantially lower than the Quebec average of 16%, with 0% other ethnicities documented in Kipawa and 2% documented in Temiscaming.

In Ontario PSCs, the community with the highest percentage of Indigenous origin population is Thorne (40%), followed by Mattawa, (34%), which is higher than the Ontario average of 3%. Other ethnic groups were 5% or under in all Ontario PSCs, which is much lower than the Ontario average of 32% (Figure 14.5).

Figure 14.5 Ethnicity of Quebec Communities



Sources: Statistics Canada, 2017d

14.2.3 Business and Employment

14.2.3.1 Commercial/Economic Activities

Economic activity in Témiscaming and Kipawa is mainly based on extraction and processing of natural resources (mining and forestry). The main employer in the region is the Rayonier, located in Témiscaming, Quebec (Témiscamingue, 2021). Other services, including recreational service providers (e.g., outfitters and other tourism services), rank second in terms of number of jobs.

In Thorne, most of the labour force is employed in manufacturing (Statistics Canada, 2017d). Across Nipissing Unorganized North, the labour force is mainly divided among across four industries, which are construction, retail trade, manufacturing, and health care and social services (Statistics Canada, 2017d).

Sales and service, health care and social services, and trades, transport, and equipment operators are the basis of economic activity in Mattawa (Statistics Canada, 2017d). The sales and service industry in Mattawa is centred around local art and craftsmanship that helps attract tourists to stay at local resorts and motels and take part in activities such as golfing, canoeing, hiking, skiing, and snowmobiling (Mattawa, 2021).

North Bay's local economy is very diversified across several industries including advanced manufacturing, construction, mining supply and services, aviation and aerospace, information communication technology, forestry, public administration, trade and commerce, transportation, education, health sciences, and tourism (CCNB, 2020; North Bay Nipissing, 2021).

14.2.3.2 Employment

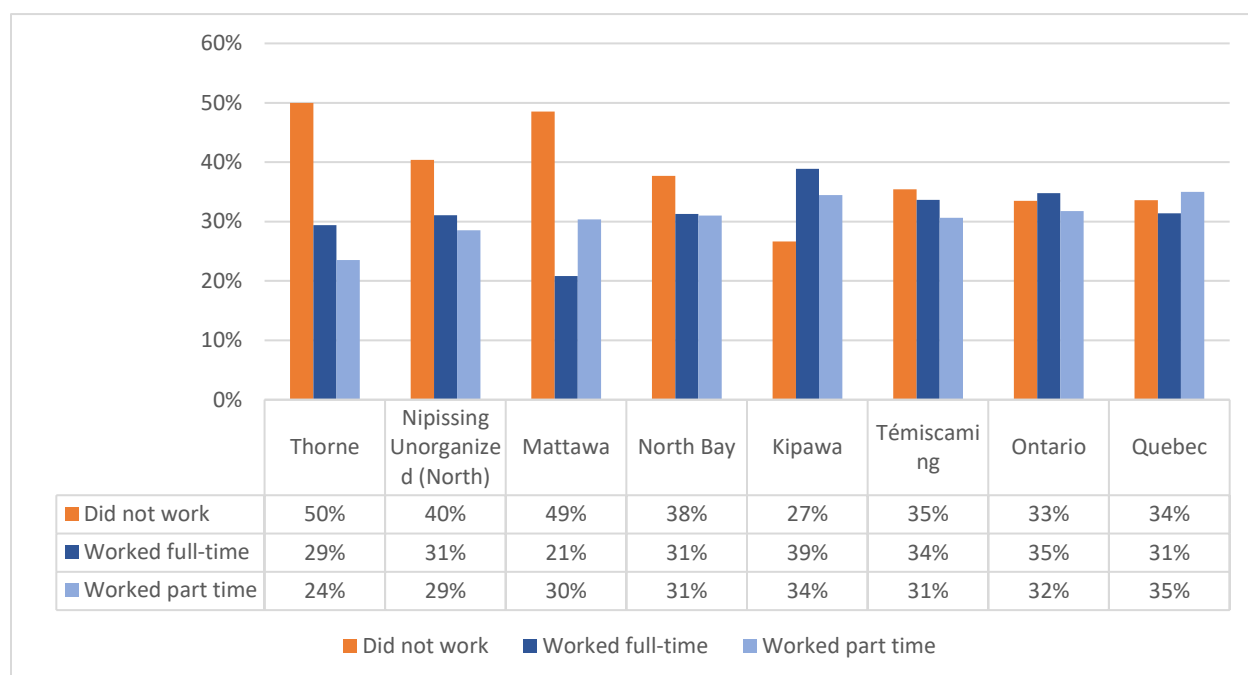
Employment opportunities are a particularly important consideration for the Project benefits that may be directed towards affected communities, in the form of job opportunities, or contracts for local businesses, especially during construction. Furthermore, the dam provides access to employment opportunities in the region. Higher rates of employment are linked to better reported health and well-being and as such are important indicators of health and well-being.

In 2016, the proportion of people who did not work in the Ontario PSCs were recorded to be lower than the average provincial Ontario employment rate (33%), as well as the Quebec PSCs proportion (34%). Thorne was recorded to have the highest rate of individuals who did not work (50%)¹, followed by Mattawa (49%) and Nipissing Unorganized (40%).

On the Quebec side, PSCs showed a much lower proportion of individuals who did not work, with Temiscaming at 35% (similar to the Quebec provincial average of 34%), and Kipawa at 27% (Statistics Canada, 2017d).

Overall, PSCs in Quebec also show higher full-time employment rates than the Ontario PSCs. It is important to note that, as previously identified in Figure 14.6, the Quebec PSC also have a younger population median that could influence the higher rate of the Quebec PSC’s full-time employment rates. In addition, Rayonier, located in Temiscaming, could be another contributor to the high full-time employment rate of both Kipawa and Temiscaming.

Figure 14.6 Community Employment Trends



Sources: Statistics Canada, 2017d

In terms of weeks worked, Thorne scored highest (43.6 weeks worked), while Mattawa has the lowest number of weeks worked (39.5). The average amount of weeks worked in Ontario is 42.9 weeks, and in Quebec the average is 42.5 weeks per year. Table 14.3 compares the average number of weeks worked, by community.

A recent search of employment postings in the PSCs show that there is no shortage of employment opportunities available in the region. As of December 2021, there were over 600 job postings listed on Google and Indeed websites as well as through local employment service provider Yes/Oui. Rayonier had 31 job postings in Temiscaming. Employment opportunities include a wide range of employment types and many for highly skilled professions such as in management or health care, health care workers, arts and culture, customer services (Ross, 2020; Hamilton-Charles, 2021).

¹ Due to the small population of Thorne, census population data percentages may not add to 100 due to rounding.

Table 14.3 Average Number of Weeks Worked per Year

	Thorne (LSB)	Nipissing Unorganized (North)	Mattawa	North Bay	Ontario	Kipawa	Temiscaming	Quebec
Average Weeks Worked	43.6	42.8	39.5	42.4	42.9	42.5	42.7	42.5

Sources: Statistics Canada, 2017d

14.2.3.3 Occupation Types

Sales and services, as well as trades and transport are the most prominent employment types in PSCs. Sales and service occupations are the most frequent in Mattawa, North Bay, and Temiscaming, and is similar to both Ontario and Quebec provincial averages. Mattawa and Temiscaming have a greater number of sales and service occupations due to their high rates of service provision to nearby communities, as well as their large tourism sector. Trades, transport, and equipment operator occupations are prominent across all the PSCs. In the region, there are various businesses who offer a wide range of services including welding, electrical, trucking, contracting, excavating, industrial supplies and equipment, automotive repair, and engineering.

Temiscaming and Kipawa share a joint chamber of commerce, as most businesses in the area are located in Temiscaming, with a few located in Kipawa (Témiscaming, V. d., 2021). Rayonier is the largest employer in the area, employing 700 people at their Temiscaming site. This site has three main operations: high purity cellulose, high-yield pulp, and coated cardboard (Rayonier, 2021). In the region, there are also three automotive repair shops, three trucking services, two hardware stores that offer plumbing services, and an electrician.

Mattawa also has local trades, transport, manufacturing and equipment operators; these include a truck and trailer manufacturer, an excavating contractor, a plumber, an electrician, two construction companies, two automotive repair shops, a well-fracturing company, and a hardware store. No local business directory or any information published by the Mattawa-Bonfield Chamber of Commerce has been found. As North Bay is the largest PSC in the region, it has the greatest number of businesses in the trades. For example, there are 1,426 registered businesses in construction and contracting, 782 businesses in commercial services and supplies, and 853 businesses in the automotive industry (NorthBayNipissing.com, 2021).

While other communities do not have high numbers of applied science sector in their communities, it is the most predominant occupation sector in Thorne (Statistics Canada, 2017d). Other occupations are in the business and finance sector, as well as the social and government sector. Table 14.4 shows the occupation types by PSC.

Table 14.4 Occupations by Community

	Thorne (LSB)	Nipissing Unorganized (North)	Mattawa	North Bay	Ontario	Kipawa	Temiscaming	Quebec
Total # of the Labour Force Population Aged 15 years and over	70	845	690	25,490	6,970,625	305	1,195	4,154,010
Management	10	55	45	2,420	790,880	40	85	418,450
Business, finance, admin	10	85	85	3,495	1,124,770	20	135	677,390
Natural and applied sciences	30	60	40	1,370	516,110	25	100	286,270
Health	0	55	75	2,255	447,045	10	45	295,765
Education, law and social/community/gov. services	15	85	75	3,570	831,340	30	140	502,945
Art, Culture, Recreation and Sport	0	10	10	610	225,720	0	35	135,730
Sales and Service Occupations*	0	180	160	6,920	1,632,085	50	225	988,610
Trades, transport and equipment operators*	10	265	120	3,295	927,820	85	225	574,675
Natural Resources, Agriculture and Related Production	0	15	15	390	113,405	10	35	67,290
Manufacturing and Utilities	10	30	45	525	361,455	30	170	206,875

Sources: Statistics Canada, 2017d

*Highlighted rows are the most common occupations in the PSCs, on average.

Note: Small communities may show inaccurate data due to rounding from Statistics Canada

14.2.3.4 Income

In the Quebec PSCs, income levels range between \$65,963 (Temiscaming) and \$74,624 (Kipawa). Both average incomes are higher than the Quebec provincial average of \$59,822 (Statistics Canada, 2017).

In the Ontario PSCs there is slightly lower median household income levels on average, than in the Quebec PSCs. Furthermore, Mattawa and North Bay, which are situated farther away from the Project area, have the lowest income of all PSCs. Census data for Thorne, are included in the Nipissing Unorganized census data. Table 14.5 shows median household income levels for each community.

Table 14.5 Median Household Income

	Thorne (LSB)*	Nipissing Unorganized (North)	Mattawa	North Bay	Ontario	Kipawa	Temiscaming	Quebec
Median total income of households in 2015 (\$)	-	61,056	45,739	60,731	74,287	74,624	65,963	59,822
Median total income of one-person households in 2015	-	32,128	21,248	30,135	36,900	32,192	29,888	31,574
Median total income of two-or-more-person households in 2015	-	71,782	67,789	79,313	90,967	82,688	87,211	78,645

Sources: 2017d

*Census data for Thorne is included in Nipissing Unorganized (North) data

14.2.3.5 Gender Distribution in the Workplace

Gender distribution in the workplace also plays a large role in determining the effects of employment on communities affected by the Project. Table 14.6 reveals that a high majority of trades and manufacturing jobs are male dominated, whereas sales and service positions have shown to be more female dominated in the PSCs. Similar trends are seen in the provincial averages (Statistics Canada, 2017d).

Table 14.6 Occupation Gender Distribution

	Thorne (LSB) (%)		Nipissing Unorganized (North) (%)		Mattawa (%)		North Bay (%)		Ontario (%)		Kipawa (%)		Temiscaming (%)		Quebec (%)	
	Male	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Gender (M= Male and F = Female)																
Total # of the Labour Force Population Aged 15 years and over	64	36	54	46	51	49	50	50	52	48	59	41	56	44	52	48
Management	-	-	45	55	61	39	59	41	7	4	50	50	47	47	6	4
Business, finance, admin	-	-	12	88	26	74	29	71	5	11	50	75	33	70	5	11
Natural and applied sciences	25	10	92	8	82	18	82	18	6	2	40	40	75	25	5	2
Health	0	0	18	82	18	82	19	82	1	5	0	0	0	100	1	6
Education, law and social/community/gov. services	0	100	18	82	33	67	37	63	4	8	0	83	14	86	4	9
Art, Culture, Recreation and Sport	0	0	0	100	39	61	39	61	1	2	0	0	43	71	2	2
Sales and Service Occupations	0	0	25	75	40	60	42	58	10	13	20	90	38	62	11	13
Trades, transport and equipment operators	100	0	96	4	93	7	94	6	12	1	94	0	91	7	13	1
Natural Resources, Agriculture and Related Production	0	0	100	0	87	13	85	15	1	0	100	0	86	29	1	0
Manufacturing and Utilities	100	0	83	17	89	11	89	12	3	2	100	0	88	12	4	1

Sources: Statistics Canada, 2017d

14.2.4 Transportation Infrastructure and Commuter Traffic Levels

Ontario Highway 63 crosses the Ottawa River through the Timiskaming Dam Complex and becomes Highway 101 in Quebec. Per day, approximately 2,100 vehicles (MTO, 2016) travel on Highway 63 in Thorne and approximately 1,460 vehicles travel on highway 101 in Temiscaming (Transports Québec, 2020). Highway 533 merges onto highway 63, which is the quickest way to travel between Mattawa and Temiscaming. This highway has an average daily traffic rate of 720 vehicles (MTO, 2016). According to the Transports Québec, any highway that averages less than 5,000 vehicles per day is categorized a light green, indicating little to no congestion (Transports Québec, 2020). Therefore, it can be assumed that the closest highways to the PSCs have a highly graded Level of Service (LOS), meaning that transportation is operating smoothly from a commuter’s perspective. The nearest alternative interprovincial link crossing the Ottawa River is 100 km to the north at Notre-Dame-du-Nord.

Other forms of transportation in the region include bus (Autobus Maheux, 2021; Ontario Northland, 2021; MTO, 2021), and air transportation in North Bay (Jack Garland Airport). The nearest international airport is the Ottawa MacDonald-Cartier International Airport 377 km to the south.

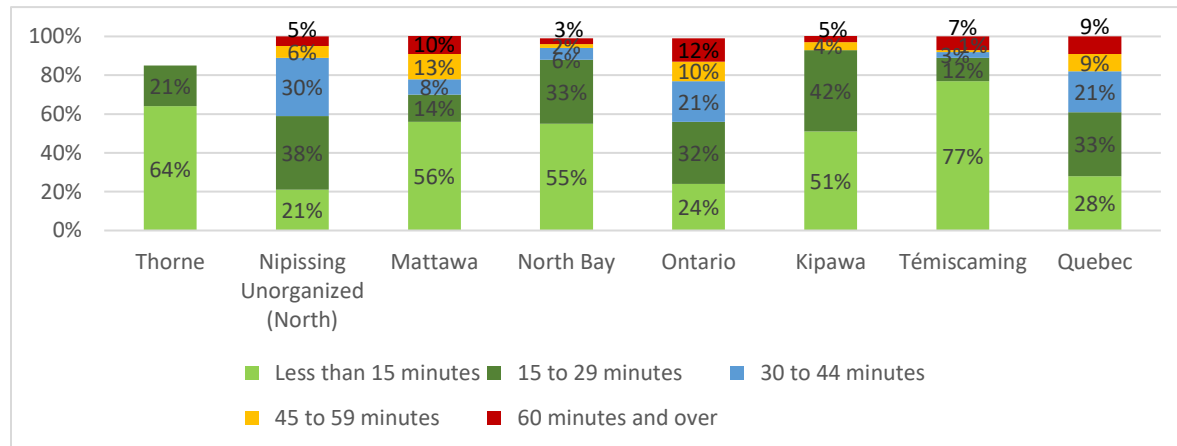
Commuting types vary in the populations living in the PSCs. Nipissing Unorganized and Kipawa had the highest rate of vehicle use for commuting, due to their location (relying on neighbouring communities for employment). Temiscaming, Mattawa, and Thorne had the highest rate of pedestrian commuting, and North Bay has the highest rate of public transit commuting (Table 14.7).

Table 14.7 Community Commuting Types

Main Mode of Commuting	Thorne	Nipissing Unorganized	Mattawa	North Bay	Ontario	Kipawa	Temiscaming	Quebec
Car; truck; van - as a passenger	10	55	20	1,765	372,480	10	75	133,760
Public transit	0	0	0	960	888,920	0	0	503,285
Walked	15	25	90	1,855	320,015	0	105	205,350
Bicycle	0	10	0	355	75,460	0	10	54,625
Other method	0	10	25	285	60,620	10	10	36,010

Figure 14.7 shows the amount of time it takes for residents to commute to their workplace. Temiscaming was recorded to have the shortest commuting hours, on average with 77% of residents commuting less than 15 minutes, and only 7% of workers travelling for over one hour per day. Mattawa has the highest proportion of residents commuting for over one hour to their workplace (10%), which is only 2% below the Ontario Provincial average of 12% (Statistics Canada, 2017d).

Figure 14.7 Commuter Travel Time



Bus services are the most accessible mode of transportation between the PSCs for those who do not have access to a passenger vehicle. To travel between North Bay and Temiscaming or Thorne, Autobus Maheux offers a bus service that takes approximately 50 minutes to an hour (Autobus Maheux, 2021). There are no bus services that travel between Mattawa and Temiscaming or Thorne. However, Ontario Northland offers a bus service between Mattawa and North Bay that takes roughly 41 minutes. Ontario Northland also offers a 25-minute bus service to Tilden Lake, which is the only other bus service that travels between the PSCs (Ontario Northland, 2021).

As for other modes of transportation, there are two airports in North Bay, the Jack Garland Airport (YYB) and the Northern Airport Service, and an airport in Mattawa, the Mattawa Airport. There are also three water aerodromes across the PSCs, which are the North Bay Water Aerodrome, Temiscaming/Lac Kipawa Water Aerodrome, and the Mattawa Water Aerodrome. Currently there are no active rail systems in any of the PSCs, however, Ontario officials are considering the development of a passenger rail system that travels from Toronto to Timmins, with 13 stops, including one in North Bay (MTO, 2021).

14.2.5 Education

Children living in Quebec PSCs attend primary and secondary school in Temiscaming. Temiscaming's English speaking school G. École Gilbert-Théberge, has 188 students in its primary program, and 107 students in its secondary program (CSSLT, 2021). Additionally, 35% of its students identify as First Nation, most of whom are members of Wolf Lake and Kebaowek First Nations (G. Theberge School, 2021). The nearest place for post-secondary education is North Bay.

In Ontario, Thorne has a Catholic French elementary school, called, École élémentaire Catholique Mariale (ÉÉCM, 2021). The closest secondary schools to Thorne in Ontario are in Mattawa and North Bay. Despite G. École Gilbert-Théberge's proximity to Thorne, a school representative stated that there were no buses that cross to the Ontario side, nor do any Ontario children attend their school (Bradley, 2021 pers. comm.). The closest post-secondary schools (Nipissing University and Canadore College) are located in North Bay. Table 14.8 shows a list of schools in the PSCs.

Table 14.8 Schools in the PSCs

Location	School Name	Type	Primary Language
Thorne	École Mariale	Catholic, Primary	French
Temiscaming	G. Theberge School	Kindergarten, Primary & secondary, before& after school programs	English
Temiscaming	Centre de Services scolaire de Lac-Témiscaming	Primary, Secondary and Adult Education, Professional Development	French
Redbridge	Phelps Public School	Kindergarten, Primary (1-8)	English
Mattawa	Mattawa District Public School	Kindergarten, Primary (1-6)	English & French immersion options
Mattawa	F.J. McElligott	Secondary	English
Mattawa	École élémentaire catholique Ste-Anne Elementary Catholic School	Catholic, Primary	French
Mattawa	St. Victor Catholic Elementary School	Catholic, Primary	English & French immersion options
Mattawa	School Secondary Catholic Élisabeth-Bruyère	Catholic, Secondary	French
North Bay	8 public elementary schools	Primary	English & French immersion options
North Bay	7 Catholic primary schools in North Bay	Catholic, Primary	English & French immersion options
North Bay	3 public secondary schools	Secondary	English & French immersion options
North Bay	St. Joseph-Scollard Hall Catholic Secondary School	Secondary	English
North Bay	CTS career College	Post-Secondary	English
North Bay	Modern College of Hairstyling & Esthetics	Post-Secondary	English
North Bay	Centre d'Apprentissage du Nord-Est-de l'Ontario	Post-Secondary	French
North Bay	Laurentian Learning Centre	Secondary and post-secondary education support (including day school, continuing education, learning connection, and English as a Second Language (ESL))	English
North Bay	St. Joseph Adult Education Centre	Secondary and literacy/ numeracy skill enhancement programs	English
North Bay	Nipissing University	Post-Secondary	English
North Bay	Canadore College	Post-Secondary	English

14.2.5.1 Education Completion Rates

With the exception of Mattawa (46%), over 50% of the population in all PSCs achieves a post-secondary diploma, certificate, or degree (Table 14.9).

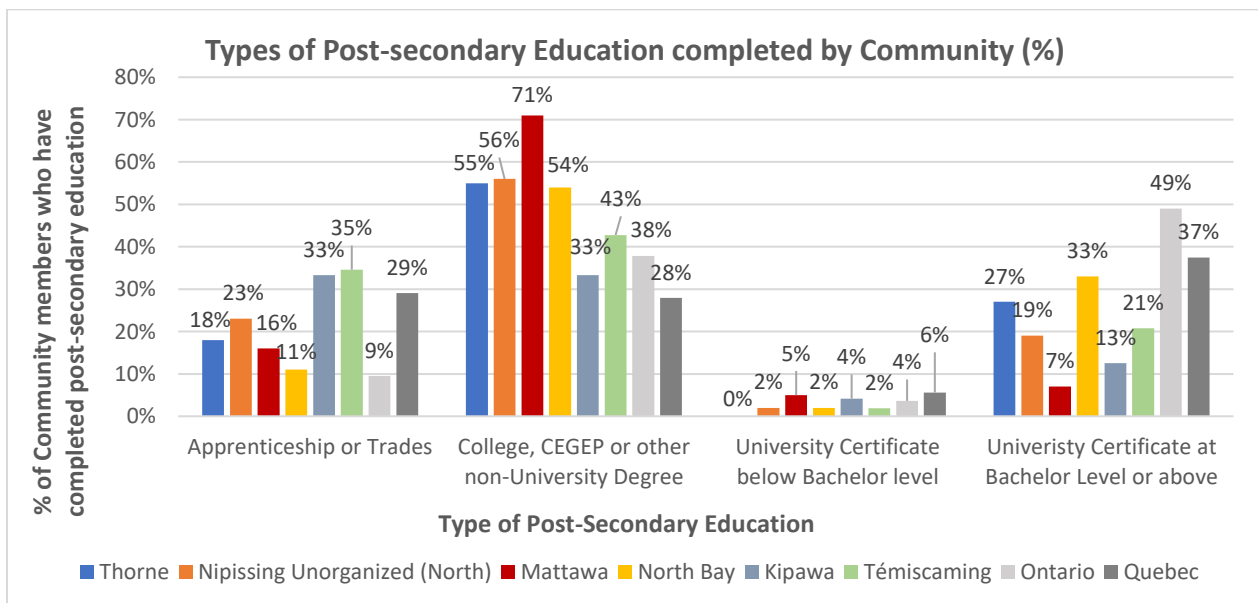
Table 14.9 Highest Education Level Reached for members aged 25 - 64 years

	Thorne (LSB)	Nipissing Unorganized (North)	Mattawa	North Bay	Ontario	Kipawa	Temiskaming	Quebec
Total population (25-64 years)	110	1,015	1,085	26,790	7,229,120	320	8,440	4,371,935
No postsecondary certificate, diploma or degree	30	130	245	2,860	752,995	70	1,830	580,635
Highschool Diploma or Equivalency Certificate	15	240	345	6,800	1,768,955	55	1,660	808,955
Postsecondary certificate, diploma or degree	65	640	495	17,140	4,707,165	195	4,950	2,982,345

Sources: Statistics Canada, 2017d

The most common type of post-secondary education achieved by residents of the PSCs is college, CÉGEP or other non-university degrees, followed by an apprenticeship or trade. North Bay and Thorne are the exception to this trend, with a university degree as their second most common post-secondary education type. Figure 14.8 shows the distribution of education type, among community members who completed their post-secondary education.

Figure 14.8 Types of Post-secondary Education Completed by Community



Source: Statistics Canada, 2017d

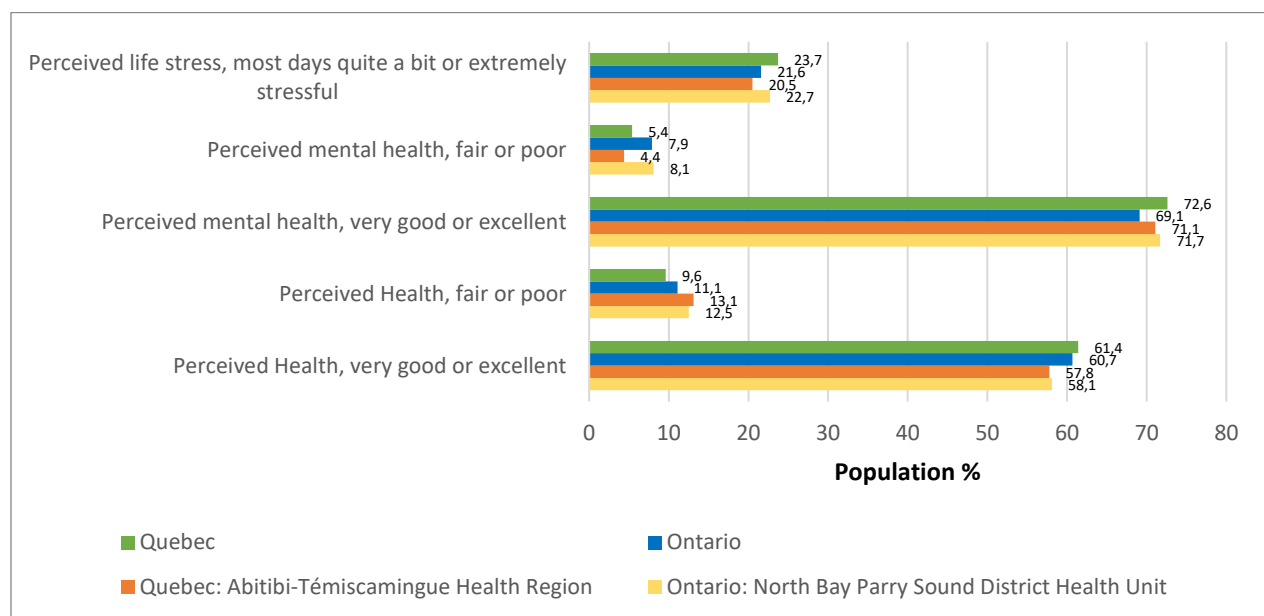
14.2.6 Health and Well-being

This section describes information available from public sources on physical and mental health conditions, health care services and other variables that contribute to health and well-being such as access to police and emergency services, drinking water infrastructure, and childcare services. All Quebec PSCs are located in the Abitibi-Témiscamingue (A-T) Health Region, while Ontario PSCs are in the North Bay Parry Sound District (NBPSD) Health Unit.

On average, both Quebec and Ontario residents of these health units had similar mental and physical health statistics between 2017 and 2018 (Figure 14.9). Overall, physical health scored lower than mental health levels in both Quebec and Ontario health units.

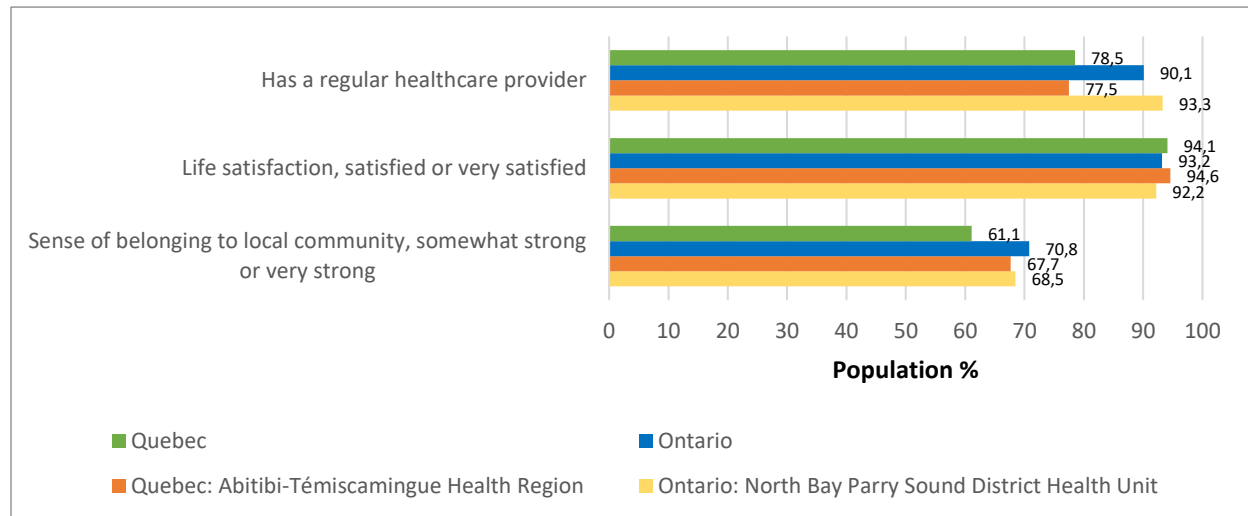
The A-T health region scored lowest in levels of stress, when compared to the NBPSD Health Unit, ON and QC provincial averages.

Figure 14.9 State of Mental and Physical Health 2017-2018



The A-T Health Region also scored slightly higher than the rest in overall life satisfaction, although it scored lowest in the availability of a personal health care provider as shown in Figure 14.10 (Statistics Canada, 2019).

Figure 14.10 Quality of Life



Source: Statistics Canada, 2019

Figure 14.11 compares a variety of health concerns among regions. Some differences among communities are apparent, such as arthritis, where the NBPSD Health Unit scored 9.4% higher than the A-T Health Region. The NBPSD Health Unit also scored higher in mood disorders, blood pressure levels, and chronic obstructive pulmonary disease (Statistics Canada, 2019).

Both A-T Health Region and the NBPSD Health Unit scored higher than both Quebec and Ontario provincial averages on all types of body mass index types, including adult obesity levels, adult overweight levels, and youth overweight or obesity levels. Data for youth overweight or obesity levels was not available in the NBPSD Health Unit (Statistics Canada, 2019).

Figure 14.11 Health conditions 2017-2018

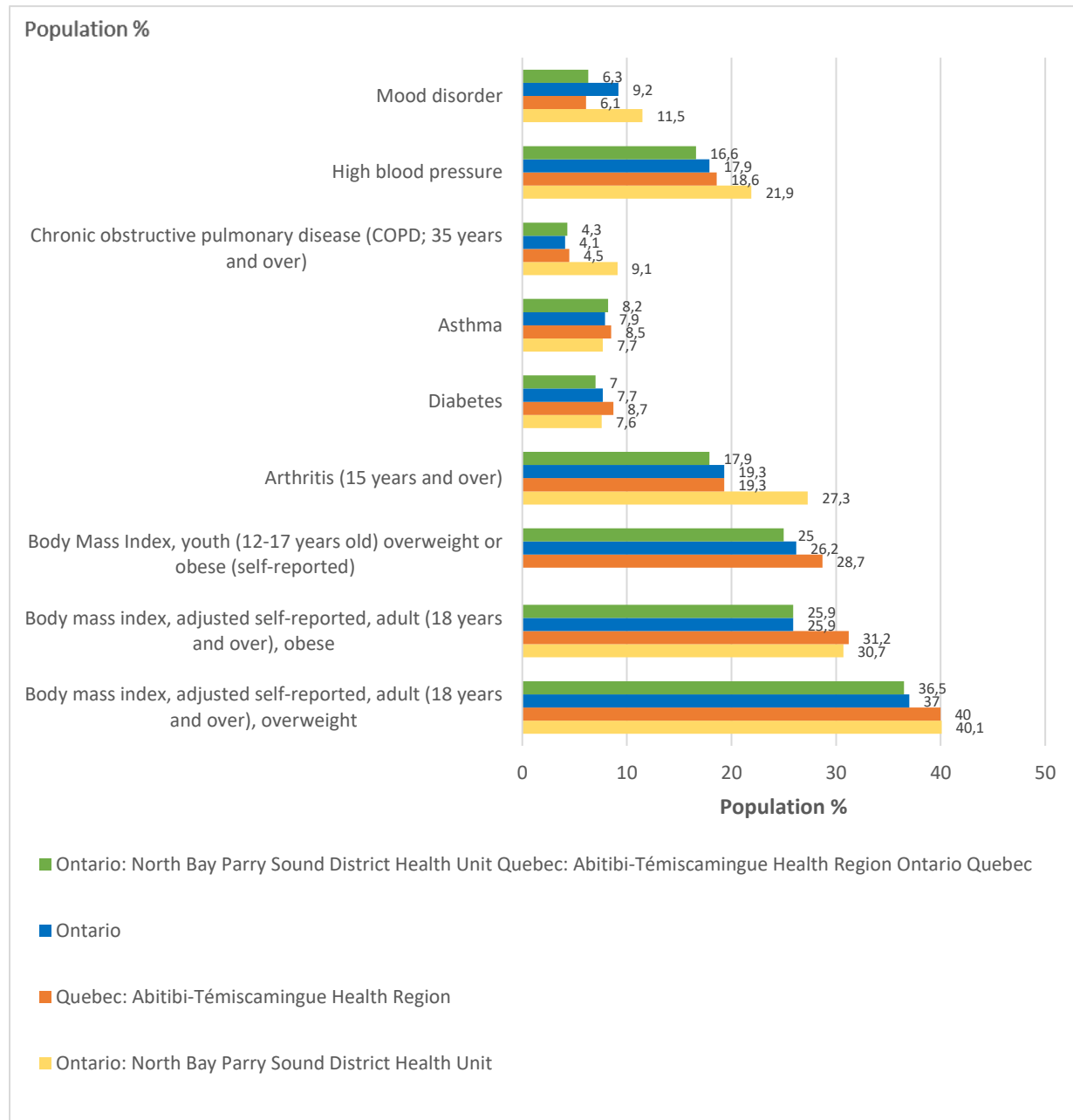
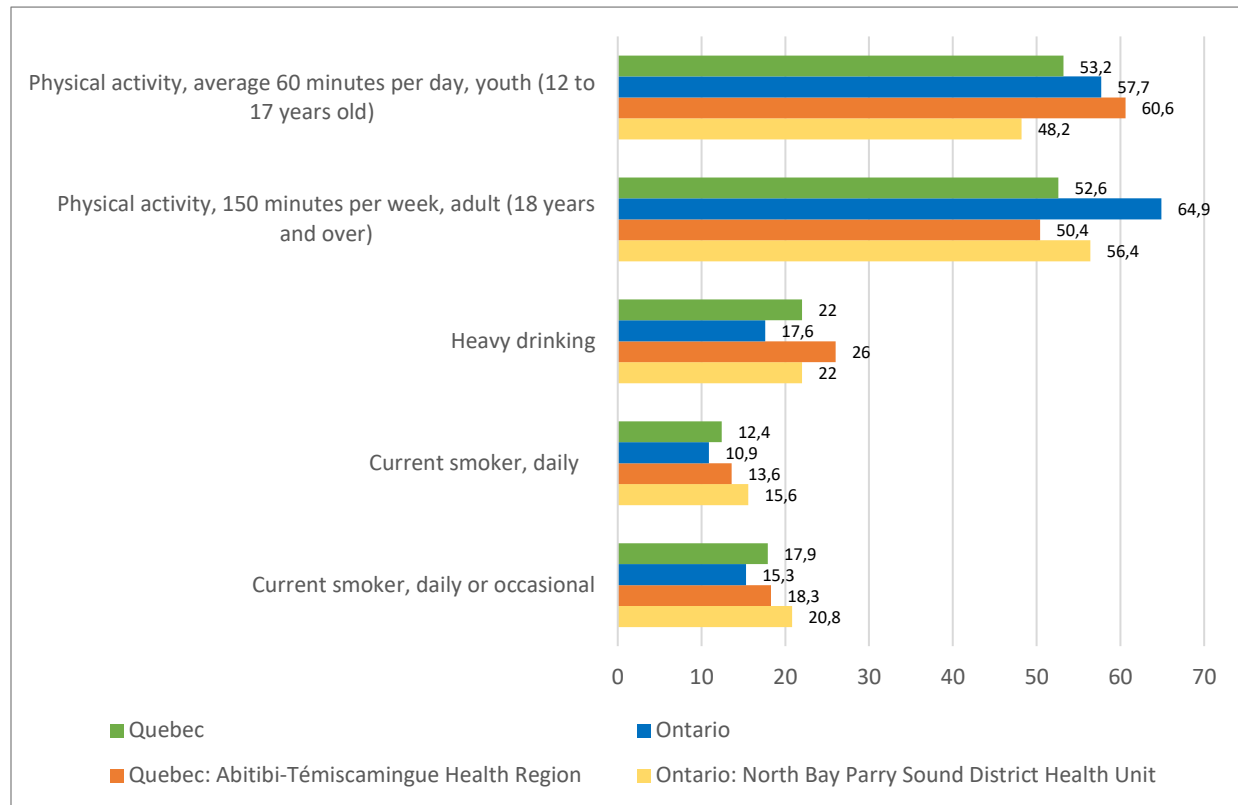


Figure 14.12 shows a comparison of activities that may influence health of both local and provincial health regions. The figure reveals that the A-T Health Region has a 12.4% higher proportion of youth participating in physical activity (average 60 minutes per day), than the NBPSD Health Unit, while the NBPSD Health Unit showed that 6% more adults participated in physical activity than in the A-T Health Unit. Smoking levels were higher in both regional health units compared to provincial averages, with the NBPSD Health Unit having the highest smoking rates (2% higher than the A-T Health Region) for both occasional and daily smoking (Statistics Canada, 2019).

Figure 14.12 Activities Affecting Health



14.2.6.1 Health Care Centres

The PSCs primarily rely on Temiscaming’s social and mental health services. The Health and Social Services Centre (HSSC) of Temiscaming and Kipawa is located in Temiscaming, and offers health and social services including diagnostics, primary medical care, and long-term nursing care, among other services. It is part of a network of Health and Social Service Centres, operated by the Abitibi-Témiscamingue Health Authority. The HSSC accepts both Quebec and Ontario patients, and therefore area residents rely on access via the Timiskaming Dam Complex.

Five other centres are also located in the Abitibi-Témiscamingue area, including in Amos, West Abitibi, Rouyn-Noranda, Ville-Marie, and Vallée-de-l’Or. The Temiscaming HSSC collaborates with several regional partners to provide health services to the regional population. These centres include the Rehabilitation Centre La Maison, which provides support for people with physical disabilities; Rehabilitation Clair Foyer, which provides support for people with mental disabilities; Centre Normand which provides rehabilitation services for people with drug addictions; and the Youth Centre which provides services and activities for youth in the region.

While the HSSC has an emergency department, patients get transferred to the Témiscamingue Lake Health and Social Services Centre in Ville-Marie or the North Bay Regional Health Centre for major emergencies. Table 14.10 shows a list of services offered by the Temiscaming HSSC.

Table 14.10 Health Services offered by the Temiscaming HSSC

Type of Service	Description
Local Community Service Center	<ul style="list-style-type: none"> • Prenatal services • Basic childcare • Dental health • Orthophony (speech therapy) • Diabetic clinic • Public health services for adults and seniors • Nutrition • Psychosocial help • Mental health services • Handicapped services
Hospital Center Services	<ul style="list-style-type: none"> • Consultations • Pharmacy • Laboratories (radiology, diagnostic ultrasound) • Six beds for short-term care • Rehabilitation
Residential and long-term care center	<ul style="list-style-type: none"> • 14 beds for long-term care

The Municipality of Kipawa operates a health centre providing health and wellness programs to residents, such as the addictions centre; a diabetes, nutrition, and community health centre; a communicable disease centre; an immunization and other nursing program; and a home and community care program.

Thorne does not have a hospital but includes a nursing centre to treat minor conditions. Thorne and all other communities in the Nipissing Unorganized area rely on the Temiscaming health centre, and the Ville-Marie and North Bay hospitals for treatment of more serious conditions.

The regional health care centres for both the Ontario and Quebec PSCs were contacted regarding health care capacity in the communities however responses had not been received at the time of writing. Given the COVID-19 pandemic it is assumed that health care services are at or nearing full capacity. This is expected to be alleviated by the time the Project is under construction.

The North Bay Regional Health Centre (NBRHC) is the sole hospital in the city, with a maximum in-patient capacity of 389 beds. The number of physicians listed to have NBRHC hospital privileges include: ten anaesthesiologists, six dentists, one dermatologist, 17 emergency physicians, two endocrinologists, 48 family physicians, two gastroenterologists, five general surgeons, three internal medicine practitioners, five midwives, three nephrologists, six obstetricians/gynecologists, two ophthalmologists, five orthopaedic surgeons, two otolaryngologists, six paediatricians, four pathologists, 14 psychiatrists, five radiologists, one respirologist, and two urologists (NBRHC, 2021). While many of these physicians work at NBRHC, many of them run private practices outside of the hospital, including family doctors, dentists, midwives, and more. For non-emergency care, North Bay citizens can either contact their family doctor, if they have one or visit one of nine walk-in clinics in the city to access a doctor. Citizens also have the option to visit one of two North Bay Nurse Practitioner-Led Clinics, where certified nurses can prescribe some medications and order medical examinations. In total, there are 16 registered nurse-practitioners in North Bay, seven of which work at one of the two clinics (NBRHC, 2021).

Many towns across Northern Ontario, including North Bay, have spoken about shortages of health care providers. It is estimated that Northern Ontario is currently short approximately 300 doctors. In November of 2021, it was published that NBRHC was seeking to hire 22 physicians (Dillman, 2021).

14.2.6.1.1 Community Well-Being Index

The Community Well-Being (CWB) index is a methodology created by Indigenous Services Canada (ISC) that uses census data to assess the socio-economic well-being of individual communities across Canada. It has four components: education, labour force activity, income, and housing; each are assessed and measured both separately and combined to generate an overall CWB score (ISC, 2019). Components are measured on a scale of one to 100, with one being the lowest possible score and 100 being the highest. It is a useful metric for the purposes of this study for providing a quantitative measure of several socio-economic components that can be compared across communities.

The CWB index (ISC, 2020):

- Provides a systematic, reliable summary measure of socio-economic well-being for individual communities in Canada;
- Illustrates variations in well-being across First Nations and Inuit communities and how they compare to non-Indigenous communities;
- Enables the tracking of well-being over time;
- Is compatible with other community-level data to facilitate a wide variety of research on the factors associated with well-being.

Table 14.11 shows the CWB, education, labour, income, and housing scores for the communities of Temiscaming, Kipawa, Nipissing Unorganized North, Mattawa, and North Bay, in addition to the average scores for Quebec, Ontario, and Canadian communities. Of the five communities, Mattawa is the only one with an average CWB score without the other indicators; this is due to the small size of the community.

When comparing the CWB index of the five communities and the provincial and federal averages, North Bay has the highest score at 80 and Mattawa has the lowest at 74. North Bay also has the highest score for education at 63, with Kipawa being the lowest at 51. Kipawa however has the highest scores for labour at 87 and income at 80, with Nipissing Unorganized North having the lowest scores for labour of 82 and the Quebec community average having the lowest score for income at 73. Temiscaming, North Bay, Ontario communities, Quebec communities, and Canadian communities all have the same score of 95 for housing, with Kipawa and Nipissing Unorganized North having scores of 93 and 92, respectfully.

Table 14.11 2016 Community Well-Being Index

	CWB (N)	Education (N)	Labour (N)	Income (N)	Housing (N)
Temiscaming	79	56	86	77	95
Kipawa	78	51	87	80	93
Nipissing Unorganized North	76	57	82	75	92
Mattawa	74	N/A	N/A	N/A	N/A
North Bay	80	63	83	77	95
Quebec Communities	77	54	85	73	95
Ontario Communities	79	59	85	77	95
Canadian Communities	78	56	84	76	95

Sources: ISC, 2019; 2020

14.2.6.2 *Drinking Water*

The water intake for the drinking water treatment plant in the town of Temiscaming is located in Gordon Creek, upstream of Lac aux Brochets located northeast of Temiscaming (Hatch, 2014; Map 11.7). As part of an initiative to save water in the region, the town of Temiscaming is subsidizing residents for a selection of water-saving appliances that meet Environmental Protection Agency (EPA) standards (Témiscaming V. d., 2021a).

Kipawa's drinking water is sourced from Kipawa Lake, which is sensitive to pollution from the growing cottage development and activities around the lake (Moreau, 2016).

Mattawa's potable water is sourced from underground wells (Town of Mattawa, 2021) and North Bay's water is sourced from Trout Lake (CCNB, 2020). Both North Bay and Mattawa, as well as the townships of Callander, Powassan, and South River are members of the North Bay Mattawa Conservation Authority (NBMCA), which enacted their Source Plan Protection in 2015, to protect drinking water sources for this region (NBMCA, 2021).

Thorne sources their water south of the dam at McDougal Creek (Dave Matthews, chair of Thorne's Local Services Board, pers. comm., March 2, 2022). In 2006, the Northern Ontario Heritage Fund invested \$5,289 to upgrade Thorne's drinking water system, which includes a stand-by chlorination pump (ENDM, 2006).

The drinking water for the PSPC house on Long Sault Island, as well as the drinking water for the Algonquin Canoe Company, comes from a surface water intake located upstream, in Lake Timiskaming, on the north-west side of the tip of Long Sault Island. This water is pumped into a well and requires minimal treatment to be potable.

14.2.6.3 *Police and Emergency Services*

Police services in Quebec PSCs are provided by the Sûreté du Québec (SQ), which is responsible for maintaining laws and population security. Laws that are enforced by the SQ include alarms, drinking water, traffic and parking, animals, water restrictions on Lake Kipawa, and security and peace in public places.

SQ's headquarters are located in Ville-Marie, and an auxiliary station is located in Temiscaming. SQ services are provided by the Regional County Municipality of Temiscaming.

Between 2008 and 2009, 70% of emergency calls came from Temiscaming and approximately 30% of emergency calls came from Kipawa (KPMG, 2010).

There are six health and social service zones provided by a local Centre de Santé et de Services Sociaux (CSSS) across the Abitibi-Témiscamingue region, with a fleet of 20 ambulances. Temiscaming and Kipawa share a joint CSSS that always has one ambulance in operation (CISSS Abitibi-Témiscamingue, 2008).

For the PSCs in Ontario, the North Bay Regional Health Centre has six ambulance bases, the Mattawa General Hospital has four ambulance bases, and Temagami has one base. In total, across the six bases, there is a fleet of 21 ambulances that are in constant rotation (DNSSAB, 2021). As of 2021, The District of Nipissing, which encompasses Nipissing Unorganized North, contracts all three paramedic services to provide first responder services across the region. In the rural areas of Nipissing, including Nipissing Unorganized North, there are Emergency First Response Teams (EFRT), who are trained volunteers that can provide necessary first aid and CPR, as well as keep patients comfortable until an ambulance arrives (DNSSAB, 2021). Currently, the District of Nipissing is the largest community in Ontario that does not have direct paramedic services in their community. In 2020 alone, ambulances responded to 17,106 calls (DNSSAB, 2021). To improve access to services, the District of Nipissing Social Services Administration Board (DNSSAB) has approved a plan that would provide directly delivered ambulance services to the region as of 2023 (Coffin, 2021).

There are two fire departments in Nipissing Unorganized North (Tilden Lake and Redbridge), one in Mattawa, and four in the North Bay region.

14.2.6.4 *Childcare*

Lack of childcare is an important barrier to employment for lone-parent families and women. In Temiscaming there is a non-for-profit community organization called “Lots for Tots” that offers a social meeting place for parents and their children. The centre was established in 1993 with support from the federal government and the Temiscaming Health Centre. Additionally, Temiscaming also offers bilingual daycare services to 68 children (2010) between the ages of 0 and 4, called “Cannelle et Pruneau Daycare Centre.” The centre employs 26 educators and has been in existence for 40 years (dun&bradstreet, 2021).

No registered childcare centres were found in Nipissing Unorganized North as of 2021, however, the Mattawa Child Care Centre provides services in the region and accepts childcare subsidies provided by the District Nipissing Social Services Administration Board (Mattawa Child Care Centre, 2021). In North Bay and the nearby communities, there are 66 daycare facilities (North Bay Nipissing, 2021).

14.2.7 *Recreation and Tourism*

Recreation activities in the PSCs are mainly centered around outdoor activities. Many tourists travel through this area for boating (kayaking, canoeing, and rafting), camping, hiking, swimming, fishing, hunting, and horseback riding. The Algonquin Canoe Company, located on Long Sault Island adjacent to the Project, provides boating rentals and cabins for overnight lodging. Additionally, Opémican National Park, which opened in 2018, attracts outdoor enthusiasts from around the world (Sépaq, 2021). In the winter, the local area provides snowmobiling trails and ski hills.

In Temiscaming sports and recreation facilities include six parks, a gymnasium, a swimming pool, and an arena with a curling rink and an outdoor ice rink, a public beach, sports fields, a golf club, and a Recreation Center (“The Centre”), which includes a fitness room (Témiscaming V. d., 2021). The town is also home to O’Splash, a free public beach with on duty lifeguards between the end of June to the end of August.

Several cultural events and facilities are enjoyed by residents and tourists. These include access to the Temiscaming public library, and Temiscaming’s old pipeline circuit, which surrounds the town’s borders and is a historical landmark representing the town’s development history (Témiscaming V. d., 2021). Temiscaming is also home to Musée de la Gare, which has several permanent exhibitions about the history of the Temiscaming region, including the pulp factory and the effects of the railway on the community over time. Other seasonal exhibitions include local artists from the region (Musée de la Gare, 2021).

Other culturally significant sites include the Dottori Hall in the Town of Temiscaming, which offers live musical and theatrical entertainment, as well as films, receptions, and other special events (Témiscaming V. d., 2021).

Kipawa, Temiscaming, and Kebaowek First Nation have a joint tourism strategy, where the three communities work together to support business, infrastructure, and tourism development, by collaborating with local stakeholders. The three communities work together to hold events including Algonquin cultural festivals, pow-wows, and exhibits. They also support the development of permanent touristic attractions including interactive walking trails, a permanent traditional Algonquin village, and boosting the aesthetics of the communities (Municipality of Kipawa, 2015).

The PSCs in Ontario all fall under the Northeast Ontario Tourism Region, which has 26 sub-regions. The Mattawa Voyageur Country region includes Bonfield Township, the Municipality of Calvin, the Town of Mattawa, Papineau-Cameron Township, and Mattawan Township. This region is also recognized as having highly sustainable outdoor activities, including hiking and canoeing. The tourism region encompasses Antoine Mountain, Samuel de Champlain and Algonquin Provincial Parks, the Voyageur Multi-Use Trail System, and the Canadian Ecology Centre, all of which help to sustain local businesses.

Tourism plays a major role in North Bay’s economy. In 2019, the tourism industry generated close to \$1 million in tax revenues alone (Lee, 2020). Several attractions in North Bay are water-based activities given its location between Lake Nipissing and Trout Lake. In the city, there are 40 public beach access points to Lake Nipissing, as such, many tourists flock to the region to fish, sail, swim, canoe, and water-ski. (Tourism North Bay, 2022). There are also several cultural centres in the city including museums, art galleries, and the Capitol Centre that often showcases live entertainment.

14.2.8 Land and Water Use

14.2.8.1 Fishing and Boating

Anglers access the Ottawa River downstream of the dam for boating and fishing from the boat launch on the south end of Long Sault Island. There is a marina and boat launch to access Lake Timiskaming in Temiscaming, upstream of the dam. Fishing is not permitted in either the Ottawa River or Lake Timiskaming from Long Sault Island. Anglers fish from the Ontario shores of the Ottawa River below the Ontario portion of the Timiskaming Dam Complex, but access from the Quebec shores is limited by the presence of the Rayonier mill. Anglers who possess either a Quebec or an Ontario fishing licence are permitted to fish along this stretch of the Ottawa River, however, regulations differ between the provinces and permit holders must obey the regulations of the province in which they fish (Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry, 2022). To fish in any of the surrounding lakes that do not border between Ontario and Quebec, individuals must hold fishing permits for that province. The Ontario side of the river is a Fish Sanctuary in which fishing is not allowed before June 15, to preserve the fish spawning.

There is one ZEC (Zone d'exploitation contrôlée or Controlled harvesting zone), where fish and wildlife harvests are closely monitored, in the PSCs located in Kipawa. In the ZEC, there are five canoe-camping routes, and several locations to fish. Within the 2,500 km² region, hunting and fishing laws differ from the rest of the surrounding zone. To fish in the Kipawa ZEC, individuals must obtain a permit for the area and are limited to fishing brook trout, lake trout, yellow walleye, and northern pike between May 15 to September 18 (KPMG, 2010).

In the Ontario PSCs, anglers must abide by Ontario's Recreational Fishing Regulations for Fish Management Zone 11, with the exception of the Ottawa River which falls under Zone 12 (Ontario Ministry Northern Development, Mines, Natural Resources and Forestry, 2022). In Quebec, anglers must abide by the Sport Fishing Regulations, where the Ottawa River's regulations are listed under Zone 25 and the rest of the PSCs, aside from ZEC Kipawa, must abide by Zone 13's regulations (MRNF, 2022).

In addition to the fishing restriction in the fishing sanctuary on the Ontario side of the Ottawa River (fishing not allowed before June 15), Ontario and Quebec regulations provide for different fishing periods depending on the species (Table 14.12). For salmonid species such as brook trout and lake trout, fishing is permitted from April to the end of September. Bass and muskellunge can be fished from mid-late June to late November. Walleye can be fished from May to the end of March while other species, including yellow perch and lake whitefish, can be fished year-round. To our knowledge, there are no official statistics to determine key fishing periods, but it can be assumed that the main fishing season is from June to September. According to the information presented in Chapter 13, members of Indigenous communities fish year-round, either in the Ottawa River or in adjacent lakes and rivers. However, the species sought change with the seasons.

Table 14.12 Fishing Periods in Ontario and Quebec

Species	Ontario	Québec
All species – Fishing sanctuary	Fishing prohibited from April 1 to June 15 - Lac la Cave (Ottawa River) - from the Timiskaming Dam downstream to a line drawn due east from the southernmost point of land at the mouth of Fournier Creek in the township of Poitras	N/A
Brook trout	From the Friday before the 4 th Saturday of April to September 30	April 22 to September 30
Lake trout and mussel trout	From the Friday before the 4 th Saturday of April to September 30	April 22 to September 30
Whitefish	Open all year round	Open all year round
Largemouth bass and smallmouth bass (any combination)	From the Friday before the 4 th Saturday of June to November 30	June 24 to November 30

Species	Ontario	Québec
Muskellunge	From the Friday before the 3 rd Saturday of June to December 15	June 17 to November 30
Northern pike	From January 1 to March 31 and from the Friday before the 3 rd Saturday of May to December 31	May 20 to March 31
Walleye	From January 1 to March 31 and from the Friday before the 3 rd Saturday of May to December 31	May 20 to March 31
Yellow perch	Open all year round	Open all year round

Sources : [La pêche en Ontario 2022 Résumé des règlements de la pêche récréative et Pêcher au Québec | Gouvernement du Québec \(quebec.ca\)](#)

14.2.8.2 Forestry

The main land use within the Local Study Area (LSA), which encompasses the area within a 20-kilometer (km) radius of the Project site, is forestry. Rayonier operates the mill in Temiskaming and provides 700 jobs for local workers. Rayonier provides services such as forestry management (RYAM Forest Management), and manufacturing of lumber products. It is a dominant industrial land use in the immediate vicinity of the Project and relies heavily on the bridge located on the Quebec and Ontario dams to provide access to forestry resources and workers.

Regional forestry management is under Region 754, Nipissing Forestry Management Unit in Ontario. This area consists mainly of crown land and includes provincial park/conservation reserve areas along the Ottawa River (see Map 4.2 in Chapter 4) as well as patent lands in residential zones 7r4 (MNR, 2018). On the Quebec side, the region is part of the Abitibi-Témiscamingue forestry administrative region 08, and is split into two sub-sections: 081-51 and 081-52 (MFFP, 2021). Both areas are mostly crown lands and include several protected sites north of Temiskaming, visible in Map 4.2 (MFFP, 2021).

The Regional Study Area (RSA) comprised in the Ottawa River watershed is approximately 85% deciduous and mixed forest cover by area. The abundant forest cover provides the material for the local forestry industry that generates approximately \$600 million to the central and eastern Ontario economy, and accounts for approximately 20% of the overall Quebec pulp, paper, and paperboard industry (ECCC, 2019). Nine pulp and paper mills operate within the watershed that are heavily reliant on the Ottawa River for water intake and outlet.

14.2.8.3 Power Generation

The Timiskaming Dam Complex does not provide hydroelectric power. Instead, it provides flood control and water retention for existing hydroelectric installations downstream of the Project site in the Ottawa River.

While no power generating dams are present in the LSA, there are more than 50 dams in the RSA, 43 of which are used for producing hydroelectric power (ECCC, 2019). The two nearest power generating stations to the Project include the Première-Chute Hydro Quebec station which is 112 km upstream of the Project site and directly adjacent to Timiskaming First Nation, and the Otto Holden Ontario power station which is approximately 50 km downstream of the Project location, 8 km from Mattawa and adjacent to Antoine Nation (Map 11.1).

Hydroelectric power makes up nearly all of Quebec's electricity use, and approximately a quarter of Ontario's electricity use (ECCC, 2019). The dams also help to control water levels to reduce flood risk, which can extend a number of benefits to navigation, tourism, fisheries, and recreation.

14.2.8.4 Mining and Mineral Exploration

The nearest proposed mining activity to the Project site is the Rare Earths open pit mine 40 km east of the municipality of Kipawa, Quebec and 50 km from the Project site (IAAC, 2021). This project is under assessment by IAAC. Currently, there is no active open pit mine near the Project site. Several other mines

are located in Val-d'Or (Quebec), 300 km from the Project (MERN, 2021), and in Sudbury (Ontario), 200 km away from the Project (OMA, 2021). The RSA hosts 16 active mining projects in Quebec, and 12 active and seven proposed mines in Ontario, approximately half of which are gold mines (ECCC, 2019).

14.2.8.5 Nuclear Energy Research

The study area hosts Canada's largest science and technologies complex, the Chalk River Laboratories approximately 160 km downstream of the Project site. The laboratories employ nearly 3,000 people, with activities underway to remediate contaminated lands from over 70 years of operations including a proposal for a near surface nuclear waste depository on the Ottawa River (ECCC, 2019).

14.2.8.6 Agriculture

Agricultural activities are limited in the LSA, due to poor soils and an established economy in forestry (Témiscamingue, 2021). The RSA hosts approximately 6,000 farms, the majority of which are cattle ranching and livestock farming which can be highly water intensive. Irrigation levels in the drainage basin are the lowest in the country for crops (ECCC, 2019).

14.2.9 Housing and Temporary Accommodations

Housing infrastructure suitability in the PSCs are relatively on par with Ontario and Quebec provincial averages, which is determined through the National Occupancy Standard (NOS).

In terms of housing conditions, all PSCs are below provincial average (6% of homes need major repairs in both Ontario and Quebec). In Ontario PSCs, homes in Thorne have the highest need for repairs (14%) and in Quebec, Kipawa has the highest need for repairs (15%). North Bay has the lowest rate of major repairs needed (8%), although the rate is still above the provincial average (Table 14.13).

Table 14.13 Housing Conditions

	Thorne (LSB)	Nipissing Unorganized (North)	Mattawa	North Bay	Ontario	Kipawa	Temiscaming	Quebec
Total private households by housing suitability	105	790	780	22,615	5,169,175	235	1,100	3,531,660
Suitable	95%	97%	97%	97%	94%	100%	98%	96%
Non-suitable	10%	3%	3%	3%	6%	0%	1%	4%
Total occupied private dwellings by condition	105	795	775	22,615	5,169,175	230	1,095	3,531,665
Only regular maintenance and minor repairs needed	90%	87%	88%	92%	94%	89%	89%	94%
Major repairs needed	14%	13%	12%	8%	6%	15%	11%	6%

Sources: Statistics Canada, 2017d

¹ The National Occupancy Standard (NOS) bases suitability on the number of bedrooms to the number of occupants in the home

Table 14.14 shows that the majority of residents in the PSCs are homeowners. Thorne and the rest of Nipissing Unorganized (North) have the highest home ownership rates (between 90-95%), which is over 20% above the Ontario provincial average; while Mattawa and North Bay have a 61% ownership rate, which is 9% under provincial average. Kipawa and Temiscaming have between 83-85% ownership rate, which is over 20% higher than the Quebec provincial average (Statistics Canada, 2017d).

Table 14.14 Home Ownership Rate

	Thorne (LSB)	Nipissing Unorganized (North)	Mattawa	North Bay	Ontario	Kipawa	Temiscaming	Quebec
Total private households by tenure	105	795	775	22,610	5,169,175	230	1,290	3,531,665
Owner	95%	90%	61%	61%	70%	83%	85%	61%
Renter	0%	10%	39%	39%	30%	17%	27%	39%

Sources: Statistics Canada, 2017d

There are three motels in Temiscaming that offer year-round accommodations. The Temrose motel has six motel rooms and 11 suites with kitchenettes, Motel au Bercail has 31 rooms, four with kitchenettes, and the Auberge Canadienne has 31 rooms. Kipawa is the second closest location to the Project area that offers accommodations. Both Auberge Canadienne and the Temrose said that they have increased demand for bookings in the summertime, whereas Motel au Bercail stated that business varies throughout all seasons and does not necessarily see an influx of guests during the summer. When asked about the number of guests in 2016 during the construction of the Ontario side of the dam complex, both the Temrose and Motel au Bercail did not know if there was an increased number of guests, however, the owner of Auberge Canadienne said that the construction of the dam did not increase business (pers comm., Representatives of Auberge Canadienne, Motel au Bercail, and Temrose Motel, December 1, 2021).

The second closest place to the Project site that offers year-round accommodation is Miwapanee Hotel and Lodge in Kipawa; there is no temporary accommodation available in Thorne. Miwapanee has a main lodge with nine individual rooms, and four cottages with kitchenettes that can each accommodate four people. There are two other businesses that offer seasonal accommodations in Kipawa; Dumoine Lake Cottages has six cottages which can accommodate up to 56 people from May to October and Camp Kipawa has four cabins that can accommodate up to a total of 19 people from May to September.

Given the majority of residents in the area are homeowners, rental units are scarce. Most available rentals units in Temiscaming, Thorne, and Kipawa can be found on a public Facebook group called *Témiscaming and Area Real Estate and House/Apartment Rentals*. On the Facebook site in 2021, the average available unit was priced around \$700 for a two- or three-bedroom apartment. When researching houses for sale in Temiscaming, Thorne and Kipawa in 2021, the only available houses were in Temiscaming. In Late November of 2021, six units were available for under \$100,000, one available for \$200,000, and two available for approximately \$600,000.

In Mattawa, there are nine businesses that offer overnight accommodations year-round. These include the Two Rivers Motel, Le Voyageur Inn, Valois Motel, Welcome Inn Motel and Cabins, Mattawa River Resort, Mattawa Golf and Ski Resort, Nature's Harmony Ecolodge, The Canadian Ecology Centre, and Top of Algonquin Bed and Breakfast. Additionally, there are three businesses that offer seasonal camping and RVs, including Lazy rock, Sid Turcotte Park Campground, and Antoine Park.

There is very low apartment availability in Mattawa. When searching online for an apartment in the area, every website researched either directed to available units in North Bay or listed zero availability. Houses that were on the market in late November 2021, ranged between \$100,000 and \$525,000, averaging \$237,000.

In North Bay there are 89 hotel and motels and 73 cottage rentals making it the most accessible place within the PSCs to find temporary accommodations. Finding an available apartment unit is also easier than in the other PSCs, with several available units at any given time. On average, apartments rented for \$500-\$600 per room. In the first 10 months of 2021, 1,368 homes were sold in North Bay at an average price of \$393,531, a jump of 31.1% from the first 10 months of 2020 (Canadian Real Estate Association, 2021).

14.3 IMPACT ASSESSMENT FOR NON-INDIGENOUS PRIMARY STUDY COMMUNITIES

The following section is an assessment of the impacts that the Project may have on the Primary Study Communities (PSCs). Early consultation activities conducted in Temiscaming and with other stakeholder groups and government agencies identified that specific value components (VCs) included the management of water levels during the construction, water levels being too high and potentially leading to erosion and the location of the new dam. Water level management is mitigated through design capacity of the Timiskaming Dam Complex and is described in Chapter 7 of this EIS. Dam location alternatives that were evaluated are also contained in Chapter 6.

Stakeholders and the public noted the potential positive effects on longer-term regional economic conditions and expressed optimism about the planned construction phase. Experiential information gained from the contractors involved in the construction of the Ontario portion of the Timiskaming Dam Complex did not report any health or socio-economic, land use or cultural impacts of the construction activities which will be virtually the same for the Quebec dam replacement. Given the relatively low numbers of construction workers which is not expected to exceed 50 workers at any one time, the magnitude of socio-economic effects in the local PSCs is not anticipated to be high. Regardless, this section provides an assessment of the significance of potential negative and positive impacts on PSCs from the Project construction or operation activities using the methods outlined in Chapter 10 of this EIS.

After a thorough evaluation of the potential impacts to the VCs identified by government agencies and other stakeholder groups using the methodology identified in Chapter 10, it has been determined that the Project is unlikely to result in any significant adverse effects to the communities in the LSA or RSA. The following sections outline the justifications of this determination.

14.3.1 Potential Project Interactions

The sense of social and cultural well-being of a community or region is dynamic and influenced by multiple factors and may be experienced differently by different people. Generally, the Project construction and to a lesser extent, operation will have a positive effect in terms of economic opportunities related to jobs, income, contracting, and spin-offs for local services and businesses. However, social, cultural or land use issues may arise primarily due to the introduction of temporary construction workers into local communities.

The assessment of effects on health and socio-economic conditions considers a range of factors that may influence community perspectives of impacts and their connection to well-being in relation to the Project.

The following provides the potential interactions that will be assessed that may arise from Project construction and operation activities on health and socio-economic conditions, land uses, and cultural and physical heritage in the PSCs.

Due to the introduction of construction workers into the local communities, there is a potential for impacts on local health and socio-economic conditions, including:

- Employment and business opportunities from Project construction activities;
- Increased use of local businesses by the construction workforce;
- Disruption of community life due to construction activity and temporary workers;
- Change in population and demographics during construction;
- Increased demand on health care facilities during construction.

The local area is well known and used for tourism and outdoor recreational activities. Due to the temporary influx of construction workers into the local communities, there could be an increase in fishing, boating or other recreational use when they are off shift. This increase in recreational use could decrease the availability of fish for local and Indigenous anglers. This could be exacerbated by any effects on fish abundance as a result of the loss of fishing habitat and spawning grounds, or any unintended impacts of the fish passage during operation.

All other land and resource uses are not expected to be impacted by either the Project construction or operation phase activities as they are not being practiced in the areas that will be impacted by the Project construction activities. The Algonquin Outfitter business located on Long Sault Island owned and operated by Wolf Lake First Nation is not expected to be impacted and can remain open throughout the construction phase.

The location of and proximity between the Project site and the potential human receptor points (e.g., permanent or seasonal residential sectors, recreational sectors and industrial sectors) could impact soundscapes important for community aesthetics and well-being. The effects of the Project on noise within the PSCs directly adjacent to the Project site is assessed in Section 11.2.3, including the effect on the Algonquin Canoe Company. The Project is not expected to have an impact on human health (See Section 13.6).

All PSCs access drinking water from sources other than the Ottawa River, which is the only waterbody influenced by the Project. The buildings on the island take their drinking water from Lake Timiskaming. This will not be impacted by the Project construction (see Section 11.2.8). Effects on drinking water in the PSCs is therefore not expected nor assessed.

Studies conducted on the physical and cultural heritage and archaeological resources in the Project area, found that there were no structures, sites or things of historical, archaeological, paleontological or architectural significance that would be impacted by the Project construction or operational activities. However, an assessment of the riverbed was recommended and will only be possible once the cofferdam is constructed and the riverbed is dry during the first phase of construction. The potential effects on archaeological resources that could be on the riverbed during this phase will, therefore, be assessed.

Finally, there is the potential for positive and negative effects on water and land-based access and travel routes. The dam provides beneficial land-based interprovincial access in the region that supports community and economic development activities. Conflicts are possible however between pedestrian and recreational vehicle traffic on the bridge deck which will be assessed. Water-based navigation is also assessed in this section.

14.3.2 Assessment: Employment and Business Opportunities from Project Construction Activities

Construction of the Project will generate demands for goods, services, and workers, some of which are anticipated to be sourced from the local area. The Project labour requirements that cannot be supplied locally will be supplied from outside of the region. In terms of direct local employment opportunities associated with construction, the extent to which local residents and businesses will participate in the Project construction will depend on a number of factors. These factors include the size of the available local workforce, the percentage of the labour force with relevant qualifications and experience, the range and capacity of local businesses to provide goods and services, and the extent to which other projects will be competing for labour, goods and services. The residual impact on employment and business opportunities from the Project construction and to a lesser extent, operation phase activities is positive, due to the work force demands of the Project and given the commitment to maximize local participation.

While there are local trades businesses in the region, particularly in Mattawa and North Bay, currently there are high demands for them and for all other job types in this region. This is, in part, due to market forces that have been and continue to be influenced by COVID-19 and is expected to be alleviated by the time construction starts in 2026. Further, the number of workers needed at any one time is not expected to exceed 50 (at workforce peak), which may not exceed overall local capacity.

PSPC is committed to optimizing opportunities for local participation in the Project-related employment, most of which will be through contracting opportunities related to construction. Where qualified local contractors are available, they will have the opportunity to participate in the contracting process established. It is anticipated that regional and Indigenous businesses could participate by providing various goods, services, and technical expertise. This means that these businesses will realize economic benefits from the construction phase that will result in positive employment effects. Several enhancement measures will be implemented to support employment and business opportunities from Project construction activities, including prioritizing local and Indigenous service providers, and encouraging joint ventures with businesses that can create benefits for local and Indigenous communities.

During the operation phase, there is one employment position available to operate the Timiskaming Dam Complex. It is anticipated that local Indigenous groups will be involved in environmental monitoring (part-time, few days during spring and fall periods), however, overall employment and business opportunities during the operation phase is positive but to a lesser extent than during the construction phase.

Possible effect: Employment and business opportunities from Project construction activities	
Possible Interaction	Enhancement measure
Availability of direct and indirect employment and business opportunities during the 3-year construction period (e.g. direct construction work, environmental monitoring, indirect supply of equipment and materials etc.). This can result in increased disposable income, less stress resulting from job insecurity and more money. Increased income is associated with higher rates of satisfaction and feelings of well-being.	<ol style="list-style-type: none"> 1. Prioritize local and Indigenous service providers and workers to optimize direct and indirect employment in the region 2. Encourage joint ventures when local capacity does not exist to create benefits for local and Indigenous communities 3. Ensure equal pay and employment opportunities 4. Encourage contractor to use qualified local and Indigenous-owned services
Direction of Residual Effect: Positive	
Monitoring/ follow-up	Monitoring of employment and business outcomes as a condition of a Socio-economic Monitoring plan (SEMP)

14.3.3 Assessment: Increased Use of Local Businesses by the Construction Workforce

The influx of any construction workers from outside of the local communities will result in a spin-off demand for local goods, services and sustain the employment and income (and therefore also well-being) for those employed in those businesses. Non-local workers will be residing in the area and spending personal income on goods and services, including accommodation, food, gasoline, entertainment and personal items. Those attending public meetings about the Project in 2017 were optimistic about the construction phase and its effect on sustaining economic development. Several enhancement measures will be implemented to support increased use of local businesses by the construction workforce, including, encouraging non-local workers to stay in local accommodations and use local businesses and services and discussing workforce needs with local business organizations.

Overall, it is anticipated that regional businesses will benefit from this increased demand for accommodations, personal use goods and services during construction. The impact balance is positive since increased opportunities for local businesses will be desirable for the local business community and support overall community development and regional economic growth.

Possible effect: Increased use of local businesses by construction workforce	
Possible Interaction	Enhancement measures
Increased revenues for local businesses resulting in a benefit to the local economy.	<ol style="list-style-type: none"> 1. Encourage non-local workers to stay in local accommodations and use local businesses and services. 2. Discuss workforce needs with local business organizations (Chambers of Commerce, etc.) so that they

	may provide goods and services that are needed / wanted by the workers and encourages them to obtain them locally.
Direction of Residual Effect: Positive	
Monitoring/ follow-up	None recommended

14.3.4 Assessment: Disruption of Community Life Due to Construction Activity and Temporary Workers

As identified above, the opportunities for income related to the Project are anticipated to have positive effects for communities, as are the local economic benefits for businesses. While these factors will affect well-being in a positive manner, effects on community life could occur during the construction phase related to the construction workforce displacing tourist accommodations, a disruption to community life, safety and well-being as a result of temporary, non-local workers.

While the presence of temporary workers will most likely result in economic benefits for communities, due to spending of income, some undesirable outcomes may also occur. The presence of temporary workers, and their need for accommodation can result in decreased capacity at local hotels and motels for tourists during high tourism periods or at times when there are other temporary demands on accommodations such as during Rayonier shut down rotations. This could result in tourists avoiding areas they would normally visit, which could negatively impact businesses in the area that rely on tourism.

In addition, Project related income can be spent in ways that are beneficial and can lead to improved lifestyles, but income can also be spent on drugs, alcohol, or gambling, which could be considered detrimental. This type of spending can contribute to social issues in local communities or more increased traffic violations and accidents which in turn may strain local policing, emergency, and health care services. Further, temporary workers will likely not have family, or their regular community supports in place during the period they are working on the Project. These factors can result in temporary workers being more readily drawn to socially disruptive behaviours. Negative interactions between workers and communities are not always the case and outcomes will depend heavily on individual choices.

The contractor for the Ontario dam replacement project did not note any disruptive behaviours or community complaints, and none were mentioned by local stakeholders during the 2017 community meetings. Discussions with local motel and auberge businesses did not note any conflicts during the Ontario dam construction. The contractor for the Ontario dam had rented a house for temporary workers locally which mitigated this potential effect. Given the similarities in the two dam replacement projects, there are no expected adverse effects related to the construction workforce. Regardless, a range of mitigation measures will be implemented to reduce the potential for negative interactions. These measures include providing information about peak season availabilities to contractors to ensure best use of local temporary accommodations, adherence to prime contractor health, safety, and environment commitment policies and the implementation of personal conduct policies on the job and, where appropriate, in communities with zero-tolerance policies for these situations.

The impact balance of the disruption of community life, due to construction activity and temporary workers is considered to be negative but with low probability.

Based on the criteria presented above the disruption of community life due to construction activity and temporary workers is negligible/non-significant as the number of workers at any one time will be less than 50, and as much as possible, the workforce is expected to be locally sourced. A low magnitude rating is therefore given. The geographic extent is in the local PSCs, in particular, Temiskaming, the duration is medium during any of the construction phases, frequency is continuous since any disruptions would occur in the construction phase and the effect is reversible once construction has ceased. Since the operations phase will employ a few local workers, there are no community disruption impacts expected in this phase.

Possible effect: Disruption of community life due to construction activity and temporary workers				
Possible Interaction		Mitigation measure		
<p>Workforce may displace tourism business in peak seasons and dampen longer term demand for visitation in the region.</p> <p>Peak capacity of local accommodations may be exceeded if local workforce shifts are in conflict with other local construction or maintenance work crews in the area - for example if there are shut downs at Rayonier or other construction projects planned.</p> <p>Temporary, non-local, workers who may disrupt community life, and the safety and well-being of permanent residents due to illegal activities including drug and alcohol abuse, prostitution, disputes, etc.</p>		<ol style="list-style-type: none"> 1. Provide information about peak season availabilities to contractor to ensure best use of local temporary accommodations. 2. Encourage renting local housing rather than using hotels and local campgrounds and other tourism-based accommodations. 3. Request listing of local accommodation establishments, number of rooms and that are willing to provide long-term rentals. 4. Liaise with hotel owners in advance of construction to secure the needed Project accommodation, if required. 5. Create short-term accommodations (work camp / trailers) on vacant lands rented from willing local municipal, Indigenous or private property hosts, if required. 6. Provide community orientation to workers and contractors stressing requirement for respectful behaviour and use of community facilities. 7. Ensure adherence to contractor health, safety, and environmental policies. 8. Institute zero-tolerance policy for inappropriate behaviour on the job and in communities, where appropriate. 9. Communicate early and regularly with contractor, local police, social services, and municipalities to establish working relationships and ongoing exchange of information, incident tracking, corrective actions, and other strategies, as required. 		
Direction of Residual Effect: Negative				
Magnitude	Geographic extent	Duration	Frequency	Reversibility
Low	Local	Medium	Continuous	Reversible
Overall Assessment: Non-significant				
Monitoring/ follow-up	<p>None recommended, local business owners may use external grievance system set up by PSPC/Contractor to report issues and have them resolved.</p> <p>Annual or more regular as needed meetings with local police, emergency service providers and community leaders to discuss any incidents and determine other mitigative actions.</p>			

14.3.5 Assessment: Change in Population and Demographics During Construction

In any project context, temporary or permanent population growth may occur when the existing labour force cannot fully meet a project's needs. Population growth may be in response to direct labour needs of a project and also by indirect employment. Population growth is generally desirable for many communities in the context of economic growth, assuming the service needs can be anticipated and supporting planning can occur. The majority of the PSCs have experienced declining populations between the 2011 and 2016 census periods, and therefore will also have corresponding available service capacities. The lack of available health care workers in the region and some limited housing availability if sustained until the construction phase may limit the ability and preferences of permanent re-location to local communities. Population growth is generally welcomed by PSCs, especially to fill current demands for a broad range of skilled and unskilled workers in the region and to sustain or increase economic growth.

It is anticipated that approximately 50 construction workers (at the peak of the construction phase) will be required for the Project's three-year construction which is not sustained into the operation phase. If the majority of these are temporary non-local workers, this could mean a change in demographics and population in local communities during construction. If contractors and companies that supply goods and services also have employment needs, this could further drive population in-migration.

Shifts in community demography are, however, influenced by many factors beyond the Project, including general economic trends, individual choices, service availability, and workforce needs of other industries.

Given the dynamic nature of community demographics, some of the direct and indirect issues that may arise due to short-term changes in community population and demographics during construction will be uncertain and not directly manageable by the Project. Such issues can be identified and monitored through ongoing issues tracking, consultation and adaptive management as required through the construction phase.

Overall, a short- or long-term increase in populations in the PSCs, is considered a positive effect of the Project and the residual is not assessed (as would be the case for negative impacts). Enhancement measures such as incentives to permanently re-locating and buying local houses is a personal choice which cannot be influenced by the Project. Actions to diversify the workforce to balance local population demographics may be taken by the contractor but is not expected to greatly influence local populations given the low number of construction workers in a relatively short, three-year construction phase.

14.3.6 Assessment: Increased Demand on Health Care Facilities During Construction

Increased demand on health care facilities during construction from accidents could put pressure on hospital or health care facilities. Health care service levels are determined by the provincial health care authorities and, therefore, will be responsive to any increased demand that may result from the Project. Temporary workers tend to disproportionately increase demand on hospital emergency departments. Emergency departments are generally open 24 hours a day and can be accessed following shift work. Given the high demands and lack of available primary care in the PSCs, using emergency departments or walk-in clinics is the most likely use of health care services expected by non-local construction workers. The number of non-local construction workers is not expected to exceed 50 at any given time during construction. The probability of an accident that would need to address the needs of all 50 workers concurrently and therefore exceed local emergency room capacity, is very low.

Since there are few employment opportunities during operation, which are expected to be filled by workers already resident in PSCs, the effects during this phase are not anticipated.

A range of mitigation measures will be implemented to reduce the potential for negative interactions during the construction phase. These measures include hiring local workers so that existing medical care services are already geared to addressing the current population, providing first aid facilities on site and having first aid responders on site at all times and publicizing the importance, and urging best practices to reduce the spread of contagions - particularly if COVID-19 continues to be a health care crisis during construction.

The impact balance of increased demand on health care facilities during construction is considered to be negative but at a low magnitude, experienced in local PSCs and only during the construction phase (medium in duration). The frequency of the effect would be cyclic as the need for medical services is intermittent and reversible following construction. The significance of the effect is therefore considered non-significant.

Possible effect: Increased demand on health care facilities during construction	
Possible Interaction	Mitigation measure
Hospital capacity may be stretched if workforce must access emergency services.	<ol style="list-style-type: none"> 1. Ensure contractors have excellent safety records. 2. Recommend employees access regular medical care in their own communities. 3. Hire locally to avoid pressure on existing medical services by increasing the population. 4. Enforce worksite best practices to reduce spread of contagious disease, as required. 5. Implement testing or vaccination requirements, as required. 6. Deliver a health and safety program for all workers before and during construction employment so that the industry's excellent safety record is maintained. 7. Provide first-aid facilities on site and having first aid responders on site at all times.

Direction of Residual Effect: Negative				
Magnitude	Geographic extent	Duration	Frequency	Reversibility
Low	Local	Medium	Cyclic	Reversible
Overall Assessment: Non-significant				
Monitoring/ follow-up	Monitor feedback from local health authorities regarding capacity issues. Monitor onsite, occupational vs non-occupational, urgent vs. non-urgent incidents and those requiring medical treatment or transfer to hospital. Monitor COVID-19 reported positive cases.			

14.3.7 Assessment: Increased Recreational Land and Resource Use During Construction

The Project area is well known and used for tourism and outdoor recreational activities. The influx of non-local, non-Indigenous workers during construction could result in an increase in land and resource use, primarily fishing and boating, but potentially other recreational uses by workers during the construction phase. This increase in land and resource uses could put pressure on resource abundance, and recreational facilities. Resource abundance could be exacerbated by any effects on fish habitat and spawning grounds during construction. The effects on fish abundance are assessed in Chapter 12.

Construction activities conducted on Long Sault Island may also restrict access to fishing areas, however, fishing is not permitted in either the Ottawa River or Lake Timiskaming from Long Sault Island and the access ramp on the south tip of the island will remain accessible during all the construction period. Anglers fish from the Ontario shores of the Ottawa River below the Ontario portion of the Timiskaming Dam Complex which will not be impacted by construction and fishing access from the Quebec shores is limited by the presence of the Rayonier.

The potential effect is considered low in magnitude due to the low number of construction workers (less than 50) that will be onsite during construction at any one time and the lack of impact on permitted fishing areas. The application of mitigations such as preferential contracting to local businesses to reduce the number of non-local workers so that there is little or no change to existing land use activities, and ensuring workers are aware of provincial regulations for fishing, hunting and other recreational uses also reduces any negative effect. The fact that local outfitters and tourism businesses may welcome additional patronage from construction workers when they are off shift to support the local economy supports a potential positive rather than negative direction of effect.

The residual effect of increased land and resource uses by construction workers is considered positive or negative, and either direction of effect is considered low in magnitude. The effect would also be local in geographic extent, impacting only recreational areas within a short distance of the Project site that can be reached easily during off-shift hours. The duration would be medium, occurring during construction phases and reversible once construction ends. The significance of the residual effect is therefore non-significant.

Since there are few employment opportunities during operations, which are expected to be filled by workers already resident in PSCs, the effects during this phase are not expected.

Possible effect: Increased land use during construction				
Possible Interaction	Mitigation measure			
Decline in availability of fish, wildlife or plants for Indigenous harvesters if construction workers partake in these activities.	<ol style="list-style-type: none"> 1. Give preference to local and Indigenous workers to minimize changes to harvesting. 2. Ensure all workers are aware of, and follow, provincial rules and regulations regarding hunting and fishing; work with provincial conservation officers to monitor/enforce rules. 			
Direction of Residual Effect: Negative				
Magnitude	Geographic extent	Duration	Frequency	Reversibility
Low	Local	Medium	Cyclic	Reversible

Overall Assessment: Non-significant	
Monitoring/ follow-up	None

14.3.8 Assessment: Destruction of Archaeological Resources

Due to over a century of urban and industrial development, only Long Sault Island was determined to have any remaining archaeological potential. PSPC commissioned a survey of the island and did not identify any remaining archaeological resources (Archéotec, 2017; 2017a; Appendix 13.2). Thus, the construction and operation phases of the Project are not expected to further impact archaeological resources on Long Sault Island.

Possible effect: Destruction of archaeological resources (on Long Sault Island)	
Possible interaction	Mitigation measure
Construction and operation activities have the potential to destroy archaeological resources in the Project footprint on Long Sault Island which in turn, impacts the health and well-being of Indigenous groups.	<ol style="list-style-type: none"> 1. Halt activities if any archaeological resources are discovered, protect the site, notify Indigenous groups and relevant authorities (provincial archaeological authorities). 2. Comply with the Ontario Heritage Act 3. Involve interested Indigenous groups in archeological studies. 4. PSPC will work with Indigenous groups prior to construction to prepare a protocol for the protection and management of any recovered artefacts based on the archaeological intervention plan (refer to Phase 4 below). 5. If artefacts are found, they will be held in trust by PSPC until the protocol can be implemented.
Direction of Residual Effect: Neutral	

As part of the conformity review following the submission of the EIS in October 2022, the Agency asked Parks Canada as a federal archaeological expert to conduct a review of the archaeological components of the EIS. Parks Canada identified gaps in baseline data for marine archaeological resources that could potentially be affected by the Project. Based on Parks Canada's recommendations for addressing the non-conformant items related to marine archaeology, PSPC will proceed with four phases as presented below. Given that the contracting process for professional services can take as long as 2 months and given that the marine archaeological survey cannot be conducted during winter and spring seasons due to cold weather and extreme hydrological conditions, the timeframe to complete these four phases could take 6 to 8 months with an expected completion date in September 2023. Consequently, the results of the underwater archaeological assessment are not included in this EIS and will be submitted to the Agency once completed. The following is a description of the four phases. These phases will be carried out by an underwater archaeologist licensed in Ontario and the assessment will follow the protocols outlined by the Ministry of Tourism and Culture of Ontario.

Phase 1– Underwater Archaeological Potential Assessment (Stage 1)

An underwater archaeological potential assessment (Stage 1) will be conducted where impacts to archaeological resources are expected (defined as the archaeological assessment area, see below) and will include the following:

- A review of the past and present environmental conditions and land use history which should at least search for and document the following archaeological remains:
 - 1934 dam;
 - 1934 cofferdam(s), if applicable;
 - 1912 dam and associated structures, including upstream boom piers;
 - 1912 cofferdam(s), if applicable;

- Indigenous fishing sites;
- Various pre-1912 crossing structures;
- Abandoned or sunken boats and dock structures;
- Other isolated artifacts.
- A review of historical aerial photographs;
- A review of historical maps, hydrographic charts, photographs, land registry records, historical directories, etc.;
- A review of topographical and environmental mapping of the area;
- A review of all previous archaeological assessments conducted within and immediately surrounding the study area, both marine and terrestrial;
- A determination of archaeological potential with an overlay map;
- Recommendations for appropriate field strategies for further archaeological work within areas determined to retain archaeological potential and with consideration for the archaeological assessment area, and;
- A feasibility assessment of the underwater archaeological field work as the archaeological assessment area has extremely fast and dangerous water.

The archaeological assessment area includes the following:

- A limited area upstream of the dam to consider the potential impacts from the demolition of the dam (50 meters from the dam). No work is anticipated in the upstream area except the demolition of the dam;
- The downstream area between the dam and the downstream end of the Long Sault Island;
- The shorelines and banks of these two areas upstream and downstream.

Phase 2 – Underwater Archaeological Surveys (Stage 2)

If it is recommended and assessed feasible in Stage 1, an underwater archaeological survey (Stage 2) will be conducted within the archaeological assessment area and will include:

- A visual inspection of the underwater shorelines and banks (depth 0-3 m);
- A side-scan sonar (or equivalent) and multibeam sonar (or equivalent) coverage for the entire archaeological assessment area. The quality of the surveys must allow the detection of targets of 50 cm and more (depth more than 2-3 m);
- Visual surveys by scuba diving or by remotely operated underwater vehicle (ROV) for all areas that cannot be covered by remote sensing if required and if it's deemed feasible based on the feasibility assessment completed in Stage 1;
- If recommended by the underwater archaeologist: a cover of the work area with a high-resolution marine magnetometer;
- An analysis and cross-interpretation of data from side-scan sonar, multibeam sonar (and, if necessary, magnetometer) by an underwater archaeologist in order to identify anomalies with archaeological potential (low, medium and high) to be verified in the field;
- A verification/evaluation of archaeological remains and all anomalies with archaeological potential of medium and high potential, either by scuba diving or using a ROV if it is deemed feasible based on the feasibility assessment completed in Stage 1;
- A detailed record and description of any archaeological resources identified, according to their heritage value, and in particular, all those that will be destroyed during the work.

Phase 3 – Underwater Archaeological Impact Assessment

When Phase 1 and Phase 2 are completed, the underwater archaeologist will conduct an underwater archaeological impact assessment for the archaeological assessment area. This assessment will include:

- An assessment of environmental, residual and cumulative effects (including those due to cumulative vessel traffic and changes in hydrological conditions following construction) based on the baseline data from previous phases;

- With the involvement of Indigenous groups, identification of mitigation measures adapted to the heritage value of the archaeological resources affected or destroyed by the work, including measures such as in situ documentation, archaeological excavation, conservation treatment of remains and artifacts, enhancement of the site and/or artifacts (publication, exhibition, panel).

Phase 4 – Archaeological Intervention Plan

An archaeological intervention plan will be prepared, and reviewed with Indigenous groups, for work planned during the construction phase, especially when the cofferdam is installed and the area between the cofferdam and the existing dam is dewatered. The intervention plan will be based on field data from Stage 2 if it has been possible to conduct that stage and will include:

- A detailed description of the planned recording methods for all archaeological resources identified during the potential assessment, inventory and surveys;
- Detailed procedures in case of fortuitous discoveries during the work;
- A list of laboratories for the management and conservation treatment of waterlogged artifacts;
- A list of deposit locations where underwater archaeological collections can be stored.

In addition, since there could be the potential for archaeological resources on the Ottawa riverbed in the area that will be disturbed from construction of the new dam, an archaeological assessment of the Ottawa riverbed and shores once the coffer dam has been installed and the riverbed is dry will be conducted based on the archaeological intervention plan prepared in Phase 4. This assessment will include an on-site inventory and visual inspection of the riverbed to confirm or deny the presence of artefacts. Test pits and trenches (typically 50 cm x 50 cm) to the depth of natural soil may be dug by trowel or shovel to determine the state and/or contents of the possible site. If any archaeological resources are found, they are collected and documented based on the intervention plan. A report is then prepared that includes additional historical research and is submitted to the relevant ministries (Ontario and/or Quebec) together with an excavation plan to receive appropriate provincial permit(s) to further investigate and excavate the site if necessary. Any conservation strategies for any sites of cultural heritage value will be discussed with Indigenous groups, the local municipalities, heritage stakeholders, and any other approval authorities.

Although it is yet unknown if there are archaeological resources in the Ottawa River riverbed, the mitigation measures proposed to document and excavate any resources found in consultation with Indigenous groups is expected to result in a neutral residual effect (destruction) to any found archaeological resources.

Possible effect: Destruction of marine archaeological resources	
Possible Interaction	Mitigation measure
Construction and operation activities have the potential to destroy archaeological resources in the bed of the Ottawa River which in turn, impacts the health and well-being of Indigenous groups.	<ol style="list-style-type: none"> 1. Conduct an underwater archaeological potential assessment (Phase 1), underwater archaeological surveys (Phase 2, if recommended and deemed feasible), an underwater archaeological impact assessment (Phase 3) and develop an archaeological intervention plan (Phase 4) 2. Comply with the Ontario and/or Quebec Standards and Guidelines for Consultant Archaeologists 3. Conduct archaeological investigation based on the archaeological intervention plan in the dewatered area once cofferdam installed, document and recover any archaeological resources, if discovered, to prevent destruction 4. Involve interested Indigenous groups in archeological studies 5. PSPC will work with Indigenous groups prior to construction to prepare a protocol for the protection and management of any recovered artefacts based on the archaeological intervention plan

Possible effect: Destruction of marine archaeological resources	
	6. If artefacts are found, they will be held in trust by PSPC until the protocol can be implemented
Direction of Residual Effect: Neutral	

14.3.9 Assessment: Land and Water Access and Use and Travel Routes

This VC includes the ability to travel to important locations (for work, health care, education, family, recreation, traditional practices, etc.) by land or waterways. Since the construction of the Timiskaming Dam Complex in 1909, road travel has been made possible between Ontario to Quebec in the Timiskaming region. Today, road access on the bridge also provides access to important services, such as schools, health care, and a variety of employment opportunities. With the reconstruction of the new dam, this positive effect is sustained and made safer for the long-term benefit of local residents and businesses.

Construction phasing will ensure that the old dam will remain open, thereby allowing motorized and pedestrian traffic to pass normally and without any hinderance. Once the dam replacement is completed, traffic will start using the new bridge while the old bridge is demolished. The Project has the possibility to positively affect pedestrian and snow machine travel across the bridge as a result of the widening of sidewalks. While this may be considered a positive, there could be negative effects if there are conflicts between pedestrian and motorized recreational traffic on the walkways for which mitigations will be proposed. These include fencing and signage to limit conflicts or accidents between pedestrians and snow machines or other recreational vehicles using the walkway.

Waterway travel along the Ottawa River was historically hindered by the Long Sault rapids, and portage routes were necessary. Since the construction of the Timiskaming Dam in 1909, the rapids were replaced by the dam, however the original portage route remains and boaters are able to access the Ottawa River downstream of the dam via a boat launch on Long Sault Island and upstream of the dam into Lake Timiskaming via the boat launch in Temiscaming.

Fishing is not permitted in either the Ottawa River or Lake Timiskaming from Long Sault Island. Anglers fish from the Ontario shores of the Ottawa River below the Ontario portion of the TDC, but access from the Quebec shores is limited by the presence of the Rayonier. The key fishing windows are from June to September (see Table 14.12). In-water work will not begin before mid-July (see Table 7.4 in Chapter 7), thus preserving the first portion of a key and authorized fishing period (spring to mid-July). The fishing season from mid-July to the end of August is likely to be most affected, with the installation of the turbidity curtain and cofferdam in Phase 1 (2026) and the closure of the dam with the installation of the turbidity curtain at the beginning of Phase 4 (2029). The removal of the cofferdams (Phases 1 and 3) was planned for late December (2026 and 2028), which is during a fishing period where fishing is prohibited for many species. However, in addition to the in-water work, the construction will generate noise and other nuisances which could affect the fishing experience near the work as well as being affected by the flow changes between the Ontario and Quebec dams. The different phases are listed below:

- Phase 1: Mid-July to December 2026 – in-water work - installation of the turbidity curtain and cofferdam around mid-July – demolition of the cofferdam at the end of December;
- Phase 2: End of December 2026 to beginning of August 2027 – no in-water work;
- Phase 3: Beginning of August 2027 to end of December 2028 – removal of the half sheet pile cofferdam before the end of December 2028;
- Phase 4: Mid-July 2029 to the end of September 2029 – closing of the new dam and installation of the upstream turbidity curtain in mid-July and removal at the end of September 2029.

In general, the Project will have very minimal negative and mostly positive effects on regional motorized and pedestrian travel routes.

The possible conflicts between recreational vehicle and pedestrian traffic on the dam deck is low in magnitude since it has not been identified as an issue by local stakeholders and does not change access for both types of traffic from what is currently in place on the dam. The geographic extent is in the Project footprint as it is confined to the passageway on the dam, and the duration is permanent as the passageway will be in place for the life of the Project. The frequency of the effect is cyclical as it would only occur when there are pedestrians and recreational vehicle traffic using the dam concurrently. The effect is reversible with the suggested mitigation of signage to reduce conflicts. The residual effect is considered non-significant.

Possible effect: Conflicts between recreation vehicles and pedestrian traffic on the dam				
Possible Interaction		Mitigation measures		
Possible conflicts between recreational vehicles and pedestrian traffic on expanded walkway which may lead to accidents. Noise and other nuisances (SS, in-water work in water, flow changes) during the fishing period, affecting the fishing experience near the work.		1. Install appropriate fencing and signage to limit pedestrian-recreational vehicle conflicts on the walkway		
Direction of Residual Effect: Negative				
Magnitude	Geographic extent	Duration	Frequency	Reversibility
Low	Footprint	Permanent	Cyclical	Reversible
Overall Assessment: Non-significant				
Monitoring/ follow-up	None			