



NUCLEAR WASTE SOCIÉTÉ DE GESTION
MANAGEMENT DES DÉCHETS
ORGANIZATION NUCLÉAIRES

Social Cultural, Economic, and Health Baseline Studies
Preliminary Summary Report for Engagement
Wabigoon Lake Ojibway Nation – Ignace Area



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This report has been prepared under contract to the NWMO. The report has been reviewed by the NWMO, but the views and conclusions are those of the authors and do not necessarily represent those of the NWMO.

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Social Cultural, Economic, and Health Baseline Studies

Preliminary Summary Report for Engagement

Wabigoon Lake Ojibway Nation – Ignace Area



InterGroup

C O N S U L T A N T S

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Land Acknowledgement

The Nuclear Waste Management Organization acknowledges work in many different Indigenous territories since the inception of the organization. The NWMO is grateful to the Indigenous and municipal communities they have worked with over the past 20 years.

The NWMO acknowledges that they are working in Northwestern Ontario in the traditional territory of Wabigoon Lake Ojibway Nation with the community of Wabigoon Lake Ojibway Nation and the Township of Ignace.

The NWMO further acknowledge that they have the privilege of working with other First Nations and organizations, with Métis communities and the Métis Nation of Ontario, and many municipal communities that have all expressed an interest in learning about the work.

As part of the commitment to reconciliation, the NWMO recognizes both the historic and current injustices far too many Indigenous communities endure. They pledge to do their part to encourage well-being in communities with which they work.

GLOSSARY AND ABBREVIATIONS

Term	Details
Baseline Studies	The Social Cultural, Economic, Health, and Indigenous Peoples Baseline Studies
Births	Unless otherwise stated, “births” includes both live and stillborn infants.
Cancer	Includes only malignant neoplasms.
COVID-19	Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. The first case was confirmed in Ontario on January 31, 2020.
CPI	Consumer Price Index
Dryden Hub	The Dryden Health Hub is an amalgamation of communities who may use/access services based in Dryden. It includes Dryden, Ignace, Machin, Eagle Lake First Nation, and Wabigoon Lake Ojibway Nation.
GBA+	Gender based analysis plus
HST	Harmonized Sales Tax
IAWG	Ignace Area Working Group
IAAC	Impact Assessment Agency of Canada
Incidence	The number of new cases of a disease, death, or other event, usually reported by year.
Indigenous identity	‘Indigenous identity’ includes persons who are First Nations (North American Indian), Métis, or Inuk (Inuit) and/or those who are Registered or Treaty Indians (that is registered under the Indian Act of Canada) and/or those who have membership in a First Nation or Indian band. Aboriginal peoples of Canada are defined in the Constitution Act 1982 section 35(2) as including the Indian, Inuit, and Métis peoples of Canada.
Indigenous Knowledge	Indigenous Knowledge is an evolving, complex, and sophisticated system of knowledge drawing on a millennia of wisdom and experience. It is an evolving knowledge system that ranges in diversity from governance, ecology, biology, ecosystems, harvesting, science, and other aspects. It constantly grows and expands with the experience of new generations. Other definitions of Indigenous Knowledge may be presented by Indigenous communities or other organizations.
IntelliHealth	Ontario Ministry of Health and Long-Term Care protected electronic Data Repository for queries and data extraction.
InterGroup	InterGroup Consultants Ltd.

GLOSSARY AND ABBREVIATIONS

Term	Details
Kenora Census Division	A Census Division is the general term for provincially legislated areas and are a geographic area between the province/territory level and the municipality level. Throughout the report the Kenora District Census Division is referred to as the Kenora Census Division.
Local Study Area	Refers to the communities most likely to experience future direct, indirect, and induced impacts of the Project, both positive and negative. The Local Study Area generally considered those locations where people can commute to the Revell Site and/or the Centre of Expertise within an hour drive, including the Township of Ignace, City of Dryden, Municipality of Machin, Municipality of Sioux Lookout, Local Services Board of Wabigoon, Local Services Board of Melgund (Dyment and Borups Corner), and other unincorporated communities along highways and roadways connecting these locations. The Local Study Area is inclusive of the Indigenous peoples that reside within the communities but is not representative of any specific Indigenous community or nation.
LSB	Local Services Board
MBCHCH	Mary Berglund Community Health Centre Hub
Mortality	Death
NWHU	The Northwestern Health Unit, or the NWHU, is an administrative boundary that includes 19 municipalities, 39 First Nations communities, and two unincorporated communities.
NWMO	Nuclear Waste Management Organization
OHT	Ontario Health Team
Populations that are potentially vulnerable to Project effects	Individuals who are at greater risk of experiencing adverse Project effects because of “disparities in physical, economic, and social status when compared with the dominant population”.
Prevalence	The number of people living with a condition. These are typically people living with a chronic disease as opposed to an infectious disease which is treated and resolved or leads to mortality.
Project Site	Refers to the area withdrawn from other land uses, or the lands accessed by the NWMO for the purposes of potential siting for the deep geological repository.
PYLL	Potential years of life lost - the number of years of life lost due to premature mortality

GLOSSARY AND ABBREVIATIONS

Term	Details
Regional Study Area	Refers to the area used to provide context for each component and may also experience future impacts of the Project (both positive and negative). The Regional Study Area generally considers the Kenora Census Division, or other similar administrative boundaries. The Kenora Census Division includes people living in municipalities, unincorporated communities, and indigenous reserves and settlements. This includes Indigenous peoples living both on- and off-reserve but is not representative of any specific Indigenous community or nation.
STI	Sexually Transmitted Infections
The Project	The Adaptive Phased Management Project
Unincorporated area	An unincorporated area is a geographic region in Canada that does not form part of a municipality or Indian reserve. In Ontario, unincorporated areas are found in the Northern Ontario region. Communities within unincorporated areas may have some services provided or administered by a Local Services Board.
WLON	Wabigoon Lake Ojibway Nation

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1.0 INTRODUCTION

1.1 ADAPTIVE PHASED MANAGEMENT AND SITE SELECTION PROCESS

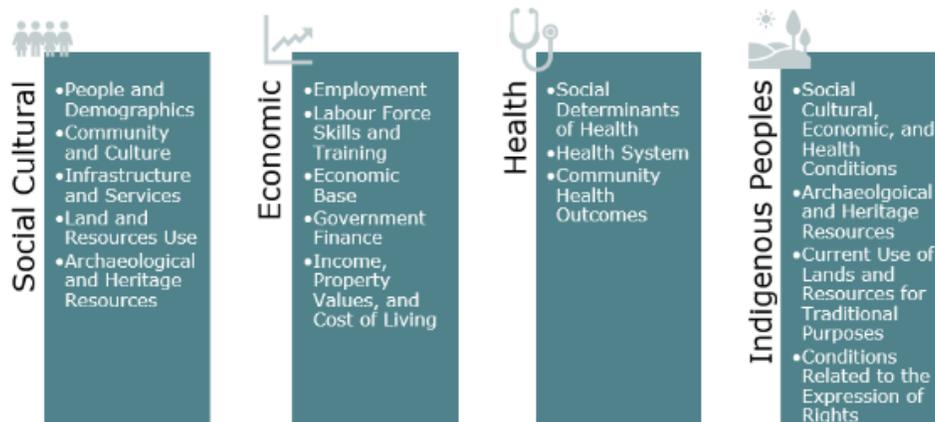
The Adaptive Phased Management Project (the “Project”) refers to the Nuclear Waste Management Organization’s (“NWMO”) plan for the long-term management of used nuclear fuel. It emerged from a three-year dialogue with specialists, the public, and Indigenous peoples. The Project is both a technical method and a management system. The technical method is the centralized containment and isolation of Canada’s used nuclear fuel in a deep geological repository in an area of suitable geology and with an informed and willing host. The management system involves realistic, manageable phases marked by explicit decision points, allowing for flexibility in how the process is implemented (NWMO 2020a, 2021).

When initiated in 2010, 22 municipalities (including two Indigenous communities in Saskatchewan) expressed interest in learning more about the potential to become a host. Site evaluations and social engagement over the years narrowed the NWMO’s focus to two siting areas –the Wabigoon Lake Ojibway Nation-Ignace area and the Saugeen Ojibway Nation-South Bruce area (NWMO 2020a; 2021; n.d.b). Continued engagement with the siting area communities and exploring a sustainable partnership that will foster community well-being are ongoing.

1.2 PURPOSE OF THE SUMMARY REPORT

The summary report provides a snapshot of baseline conditions, which are detailed in a 1,000+ page technical report to support a future regulatory process that satisfies the requirements of the *Impact Assessment Act* (2020a) and associated guidance materials. This summary report presents the highlights and key findings of efforts between 2021 and 2023 to characterize the social cultural, economic, health, and Indigenous peoples baseline components in **Figure 1.2-1**. **Section 1.2.1** provides details on how the Indigenous Peoples baseline studies are being approached, which is distinct from the other pillars in **Figure 1.2-1**.

Figure 1.2-1: Summary of Components for Social Cultural, Economic, Health, and Indigenous Peoples Pillars



Source: InterGroup Consultants 2023.

The summary is intended to support continued engagement with communities in Northwestern Ontario (the Wabigoon Lake Ojibway Nation [“WLON”] – Ignace area). It offers consideration of initial Project-related drivers of change that may warrant consideration of monitoring as the Project progresses.

1.2.1 Baseline Studies Overview

Detailed site characterization studies, including environmental and socio-economic studies, were completed to confirm the siting area is suitable for hosting the Project. This included baseline studies for the Social Cultural, Economic, Health, and Indigenous Peoples environment (the “baseline studies”) in the WLON – Ignace area. The baseline studies were undertaken in the municipal context, describing the existing and potential future conditions of both Local and Regional Study Areas in the absence of the Project. Detailed methodologies are described as part of the full technical baseline report.

The results are inclusive of Indigenous peoples who reside in the Local and Regional Study Area communities but are not reflective of the baseline conditions of any specific First Nation or Métis community. Separate Indigenous Peoples baseline studies are part of a broader program characterizing the social cultural, economic, and health conditions of Indigenous communities, inclusive of the conditions that support the expression of Indigenous and Treaty rights. The NWMO’s non-prescriptive approach to Indigenous participation in the Baseline Studies supports Indigenous communities to share knowledge and information in a fashion that communities deem suitable and at a time that is appropriate to the community.

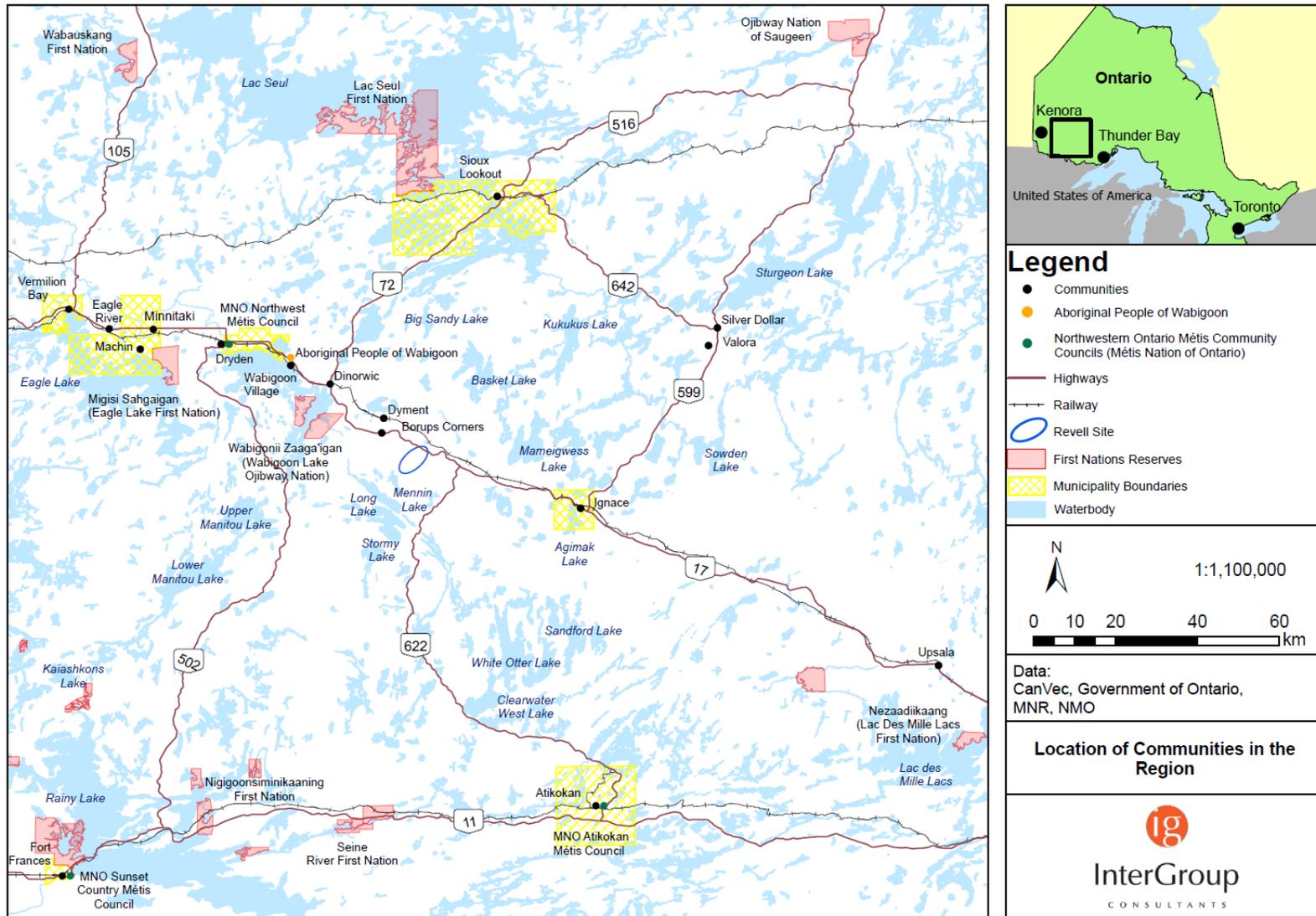
1.3 GENERAL METHODOLOGY

In 2021, a *Baseline Studies Preliminary Design Report for Engagement* was drafted to guide the baseline study process. The approach was interactive and adaptive, allowing for the research design to respond to the complexity and dynamic character of the region (Nelson 1991), inclusive of the interests of communities through the process. Engagement was central to the process, as was consideration of many other previous studies, including community studies undertaken in collaboration with the Township of Ignace. The results of these studies present a snapshot in time and forward-looking projections to the extent practicable without the Project. It is expected the baseline conditions will continue to evolve as the Project progresses through its next phases.

1.3.1 Spatial and Temporal Boundaries

The Project’s proposed location is approximately 40 km west of Ignace, Ontario and was identified as a potential site through earlier technical studies and engagement with local and Indigenous communities (NWMO n.d.a). Local communities in the area include municipalities (towns, cities), unincorporated settlements, First Nations, and Métis communities. **Figure 1.3-1** provides an overview of where communities are relative to the Project and is not intended to describe the geographic boundaries used in the Baseline Studies.

Figure 1.3-1: Location of Communities in the Region



Spatial boundaries varied by baseline component, in part due to administrative boundaries that influence how information is tracked and reported and are identified for specific components where applicable. The general¹ study areas included:

- **The Revell Site:** the area withdrawn from other land uses, or the lands accessed by the NWMO for the purposes of potential siting for the deep geological repository.
- **The Local Study Area:** the communities most likely to experience future direct, indirect, and induced impacts of the Project, both positive and negative. The Local Study Area generally considered those locations where people can commute to the Revell Site and/or the Centre of Expertise² within an hour drive, including the Township of Ignace, City of Dryden, Municipality of Machin, Municipality of Sioux Lookout, Local Services Board of Wabigoon,³ Local Services Board of Melgund (Dyment and Borups Corner),⁴ and other unincorporated communities along highways and roadways connecting these locations. The Local Study Area is inclusive of the Indigenous peoples who reside within these communities but is not representative of any specific Indigenous community or nation.
- **The Regional Study Area:** refers to the area used to provide context for each component. Communities in the Regional Study Area may also experience future impacts of the Project (both positive and negative). The Regional Study Area generally considers the Kenora District Census Division ("Kenora Census Division"), or other similar administrative boundaries. The Kenora Census Division includes people living in municipalities, unincorporated communities, and Indigenous reserves and settlements. This includes Indigenous people living both on- and off-reserve but is not representative of any specific Indigenous community or nation.

Temporal boundaries for the Baseline Studies go back far enough in time to understand the current conditions for each baseline component. For some components (e.g., population), this means considering data as far back as 30+ years to understand the trends that contributed to current conditions. For other components (e.g., infrastructure and services) greater emphasis is placed on understanding present conditions and capacity to accommodate a community's current

¹ Variations to Local and Regional Study Areas were considered on a topic-by-topic basis relative to the needs for a future impact assessment. Components such as land and resource use, archaeology and heritage resources, and health have distinct study areas.

² The Centre of Expertise will be a foundational pillar for the Project and an important landmark for local residents and visitors. The Centre will be home to a technical and social research program and a technology demonstration program that displays the entire process of packaging and placing the containers of used nuclear fuel into the repository. The Centre of Expertise will be located in Ignace (NWMO 2023).

³ Statistics Canada identifies the Local Services Board of Wabigoon as a designated place, but residents refer to the community as Wabigoon or Wabigoon Village. The naming convention of the Local Services Board of Wabigoon will only be used when speaking to Statistics Canada data or when referring to the Local Services Board as an organization. When not referring to the Local Services Board organization or Statistics Canada data, the report will use the name of the community used by Local Study Area residents.

⁴ The Local Services Board of Melgund includes the unincorporated communities Dyment and Borups Corners. The naming convention of the Local Services Board of Melgund will only be used when referring to the Local Services Board as an organization (Local Services Board of Melgund). When not referring to the Local Services Board organization, the report will use the name of the community used by Local Study Area residents ("Melgund").

and anticipated needs. With respect to future baseline conditions, projections are made for select components approximately 25 years into the future (i.e., beyond the expected start of operations for the Project). Other future baseline conditions reflect an understanding of near-term conditions based on available information.

1.3.2 Engagement

Engagement played a critical role in obtaining information related to the future impact assessment process and identifying important community issues and concerns about the Project. One means of engaging with communities was to establish a “working group” to support the studies. An Ignace Area Working Group (“IAWG”) was established, and included members and observers from the Township of Ignace, other municipalities, First Nations,⁵ Métis organizations, service providers, businesses, civil society, and other interests – both local and regional. The IAWG provided input to and advised on the studies and related data collection processes, including the identification of prospective participants for interviews and workshops. Efforts were made by the NWMO to continuously expand the list of participants throughout the IAWG process, and it is expected these terms may evolve if the group remains in place through future Project phases. The purpose of the IAWG was:

- To ensure that local and regional perspectives are considered through the social cultural, economic, health, and environment studies at key points;
- To support the inclusion of community knowledge, which may be used to characterize the existing environment; and
- To contribute to the design and championing of social and environmental studies engagement, including collaboration with other Project-related committees.

Between 2021 and 2023 the IAWG met on 17 occasions to inform baseline and community studies processes. The meetings were adjusted in format based on COVID-19 health precautions as applicable, and with consideration of the preference of participants. Some meetings occurred remotely, while others adopted a hybrid model allowing for a combination of in-person and remote participation.

The IAWG process also supported the inclusion of community knowledge, which the IAAC (2023) explains as the common, shared, or specialized knowledge gathered by a community through direct use of, or experience with, an environment or resource. This knowledge was used in scoping the spatial and temporal boundaries for each baseline component, along with confirming preliminary baseline findings. This included providing detailed feedback on trends demonstrated in the data collected, and information to support the description and analysis of existing conditions.

⁵ First Nations and Métis communities were invited to participate in the IAWG to help inform potential future engagement with their communities. Individuals from First Nations and Métis communities were not present to represent or act on behalf of their communities and no Indigenous engagement took place through the IAWG.

1.3.3 Data Collection

A combination of data collection methods was used to characterize the baseline conditions. This included secondary and primary data collection.

Secondary data collection involved a review of literature, reports, municipal planning documents, websites, and databases (e.g., Statistics Canada, IntelliHealth Ontario). A list of all information sources is provided in the reference list, with additional references included in the complete technical Baseline Report. Secondary data was supported by primary data collection, which was undertaken through IAWG meetings, topic specific workshops, focus groups, and a key person interview program to characterize current status and potential future conditions for each component. Primary data collection was based on guidance from the IAWG and from participants in the baseline processes. **Table 1.3-1** provides a summary of primary data collection processes.

Table 1.3-1: Primary Data Collection Summary

Key Person Interviews	Workshops	Focus Groups	Survey
88 interviews with 111 participants	5 topic-specific workshops (local economy conditions, local social-cultural and health conditions, two workshops on community health, and gender-based analysis plus ["GBA+"])	9 focus groups focused on community health and well-being	Community Health and Wellness Survey focused on anyone accessing health services at the Mary Berglund Community Health Centre Hub with 114 participants

1.3.3.1 Data Limitations

Information summarized in this report is only a representation of current baseline conditions and forward-looking projections without the Project. There are limitations to how data were collected, are presented, and are interpreted. Some of the key limitations are described below.

Desktop research limitations: Desktop research was limited to publicly available studies and sources and subject to the timing and limitations of the authors (e.g., confidentiality and random rounding procedures used by Statistics Canada). For example, Statistics Canada does not enumerate the Local Services Board ("LSB") of Melgund. In some instances, data on a specific topic were not available for the Local or Regional Study Areas, so other data presenting provincial or national trends are offered for context. Similarly, disaggregating data for GBA+ purposes was not always possible due to size of the population in the Local and Regional Study Areas and to ensure the confidentiality of the respondents. For statistical data decimals may have been rounded to enhance readability.

Primary data collection limitations: Primary data collection reflected the lived experience of perspectives of participants and, in some instances, individuals held differing perspectives on baseline conditions. Where triangulation of data sources was possible, information was validated; however, in some instances differing perspectives were shared. Although efforts were made to include an extensive number of participants with knowledge relative to the baseline studies, not all individuals asked to participate opted to share information. Participation in the baseline studies were voluntary.

Evolving baseline conditions: Baseline conditions are constantly evolving and will continue to change throughout all phases of the Project. To enable the writing of this report, May 2023 was generally used as the cut-off for data collection, recognizing that new data sources and changes to existing conditions would persist. As such, the report is considered current to the time of drafting and finalizing sections. Future updates to the description of baseline conditions may be warranted on certain topics and are anticipated to be planned and implemented in a similarly collaborative manner after a siting decision is made.

Municipal context of the baseline studies: The baseline studies are focused on the municipal context and were written from a western scientific world view. The NWMO's understanding of Indigenous Knowledge and its approach to collecting this information has been, and will continue to be, through collaboration and engagement with Indigenous communities. How that information will be collected and shared in the future will be at the discretion of the communities involved. As such this report does not include information that could be characterized as Indigenous Knowledge.

1.3.4 Gender Based Analysis Plus (GBA+)

GBA+ is an analytical lens for documenting how a Project's impacts may affect diverse segments of the population differently, with consideration of identity characteristics such as gender, race, ethnicity, religion, age, sexual orientation, individuals who identify as 2SLGBTQIA+,⁶ and mental and physical disability. As an analytical tool, GBA+ can be considered as "a way of thinking, as opposed to a unique set of prescribed methods." The approach to the consideration of GBA+ reflects guidance from the Impact Assessment Agency of Canada (IAAC 2020c). GBA+ is guided by the principles of intersectionality; community-led, collaborative, and participatory processes; the consideration of diverse perspectives and knowledge systems; an analysis of systemic root causes; and Indigenous world views. GBA+ was built into data collection and engagement processes systematically. As a first step, Baseline Studies gathered disaggregated data from publicly available sources (e.g., Statistics Canada) to look for key trends relative to identity factors such as sex or gender, age, and Indigenous identity, recognizing that in some instances there were not always sufficient data available to collect or analyze (e.g., availability of data over relevant temporal scale, limitations to data due to data suppression techniques to ensure confidentiality). Specific limitations of each data set are described throughout the report. For example, in 2021 Statistics Canada began to report on gender identity in the Census of Population, as opposed to sex assigned at birth in previous censuses. Gender identity is an

⁶ 2SLGBTQIA+ refers to two-spirit, lesbian, gay, bisexual, transgender, queer, questioning, intersex, and asexual.

individual's personal and social identity as a man, woman, or non-binary person (Statistics Canada 2022a). As such, no comparison data is available to describe gender prior to the 2021 Census.

A selection of these data was presented for discussion to the IAWG, with the concept of GBA+ introduced to the group at that time. A subsequent IAWG meeting further discussed populations that are potentially vulnerable to Project effects in the Local and Regional Study Areas and sought feedback from all participants on how parts of these population might be defined relative to the local context. From these discussions, the identification of populations that are potentially vulnerable to Project effects went through an iterative process to identify key themes along with intersectional factors. These concepts were explored in depth at a GBA+ workshop with various service providers from the Local Study Area. In addition to these, interviews also sought to further understand perspectives and unique considerations relative to certain parts of the population. Section 5.1 provides an analysis of findings relevant to GBA+, including for key identity characteristics; education, employment, and income; affordability; and mental health and addictions which were among the key themes identified.

1.3.5 Sustainability

The Baseline Studies collected information relevant to the sustainability principles identified for the implementation the *Tailored Impact Statement Guidelines Template for Designated Projects Subject to the Impact Assessment Act* (IAAC 2020a):

- Consider the interconnectedness and interdependence of human-ecological systems;
- Consider the well-being of present and future generations;
- Consider positive effects and reduce adverse effects of a designated project; and
- Apply the precautionary principle and consider uncertainty and risk of irreversible harm.

1.3.6 Indigenous Participation

Indigenous participation refers to the ways in which Indigenous peoples participate in the impact assessment process, inclusive of the Baseline Studies. Engagement with Indigenous communities near the Project related to the Baseline Studies is in the early phases at this time. The NWMO's approach to Indigenous engagement for the Baseline Studies will be conducted in accordance with the NWMO's Reconciliation Policy (2019) and Indigenous Knowledge Policy (2020b), along with guidance provided by the Council of Elders and Youth, an advisory body to NWMO management, who provides "advice on issues that could enhance the development and maintenance of good relations with Indigenous communities" (NWMO 2022).

The NWMO's non-prescriptive approach to Indigenous participation in the Baseline Studies supports Indigenous communities to share knowledge and information in a fashion and at a time that is appropriate to the community. The NWMO is committed to co-designing and/or providing capacity for First Nation and Métis communities to independently undertake certain aspects of the impact assessment at a pace that is suitable to each individual community. Information, including Indigenous Knowledge, shared by communities will remain the intellectual property of

the community and will only be included in the Baseline Studies at each Indigenous community's discretion. Communities will be made aware that their information will be held confidentially unless express permission is given to include and use their Indigenous Knowledge and information in the Baseline Studies.

First Nation and Métis communities were invited to participate in the IAWG. They were not present to represent or act on behalf of their communities and no Indigenous engagement took place through the IAWG.

2.0 SOCIAL CULTURAL

The components in the social cultural section of the technical baseline report are population and demographics, community and culture, infrastructure and services, land and resource use, and archaeological and heritage resources. Population and demographics are key to understanding a community's characteristics. Population can drive changes to aspects of community life, including demand for infrastructure and services, housing, education and training opportunities, recreation, harvested resources, and community safety and well-being. Population is a potential driver of change to other components. Understanding the existing and possible future conditions without the Project is important to being able to understand the potential effects of the Project on the social cultural components.

Population levels the Local Study Area communities have varied from 1991 to 2021, with Sioux Lookout and Dryden experiencing an increase, Ignace and Machin experiencing a decrease, and the LSB of Wabigoon having a relatively flat population. The Local Study Area also has notable seasonal population with most residents visiting around the summer months. The population in Local Study Area has historically been affected by changes in the resource-based economy, (e.g., mining, forestry) and their associated labour force demands. Baseline population projections in the Local Study Area in the absence of a major economic driver (e.g., mining) forecast a modest population increase over the next thirty years.

The population in the area is aging, with an increasing proportion of seniors. Sioux Lookout is a notable exception where the population has not aged to the same extent as other communities and there is a larger proportion of youth. As the population ages, the lack of long-term care facilities and housing and health care supports for seniors is a growing concern. Their absence precludes aging in place. Out-migration is a concern not only for seniors, but as youth leave the area to pursue training, education, and employment, and not may not return due to limited opportunities.

The proportion of the population who identify as Indigenous has increased, which is consistent with national trends. The population is also increasing at a faster rate than the non-Indigenous population and has a younger age structure.

Residents of the area appreciate their communities and want them to prosper without losing the small-town nature that they value. Challenges to community and culture include youth retention, a lack of local education and training opportunities, a lack of transportation within and between communities, a lack of a diversity of housing, access to health care, and a lack of services.

Communities have an assortment of infrastructure and services that support residents' basic needs. Service delivery differs between communities. Communities may not have all of the services residents need, which may necessitate travel to other communities. The Local Study Area is serviced by regional providers who may not be located in the area. Housing is a key issue, as the majority of housing is single or semi-detached housing, resulting in a need for a diversity of housing in communities. The lack of housing options may be a limiting factor in attracting new residents, including those looking to relocate for employment.

The natural environment is a source of enjoyment and pride for residents and its integrity is critical to their sense of place and quality of life. The natural beauty of the area and the easy access to land and resource use activities are the biggest draws to the area for residents and visitors. Residents participate in several types of land and resource use activities including fishing, hunting, trapping, gathering, hiking, ATVing, snowmobiling, and boating. Hunting and fishing for residents is both a lifestyle and source of food. Outfitting and guiding are important to tourism, and fishing and hunting are popular tourism activities. Within the Revell Site there is minimal land and resource use activity, and the Revell Site generally does not interfere with community use. Commercial uses are present, including mining exploration, forestry, and commercial trapping and bait harvesting.

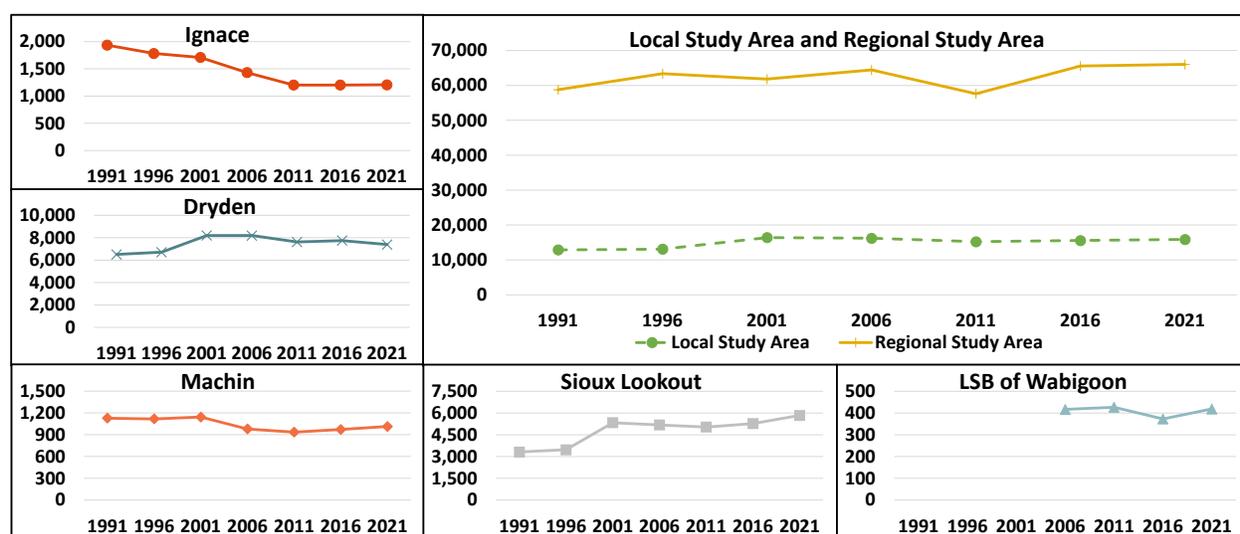
2.1 POPULATION

Population and demographics are key to understanding a community’s characteristics. Population can drive changes to aspects of community life, including demand for infrastructure and services, housing, education and training opportunities, outdoor recreation, harvested resources, and community safety and well-being. To understand potential population changes, it is necessary to understand existing population trends. Population is a driver of change to other components and population dynamics need to be well understood to anticipate and plan for potential shifts in the Local and Regional Study Areas.

2.1.1 Historical and Current Population

Figure 2.1-1 shows the population of the Local and Regional Study Areas from 1991 to 2021.

Figure 2.1-1: Total Population in the Local and Regional Study Areas, 1991 to 2021



Source: Statistics Canada 1992, 1998, 2002, 2007, 2012, 2017, 2022a.
Notes: Data were not available for the LSB of Wabigoon for 1991 to 2001.

Population growth for the Local and Regional Study Areas has been generally flat since 1991, although this does not necessarily reflect population trends in individual communities. The Local Study Area population increased from 12,878 people in 1991 to 15,864 people in 2021 and the Regional Study Area population increased from 58,748 people in 1991 to 66,000 people in 2021. As of 2021, the largest population centres in the Local Study Area are Dryden (7,388 people) and Sioux Lookout (5,839 people). Ignace has the next largest population but is notably smaller (1,206 people), followed by Machin (1,012 people), and the Local Services Board (“LSB”) of Wabigoon (419 people).

In the Local Study Area, in-migration rates are increasing; however, an increase in in-migration does not necessarily correspond to an increase in population. In-migration does not account for out-migration and changes in the population from births and deaths. Out-migration was identified as a concern in the Local Study Area and can be attributed to factors such as residents leaving to pursue employment, training, and education and not returning due to limited opportunities (NWO Community and Baseline Studies Key Person Interview Program 2022).

The following provides historical population trends in each Local Study Area community. The Local Study Area communities share demographic trends between 1996 and 2021, including an aging population, slight decreases to the number of persons per census family and children living at home, and an increasing proportion of the population who identify as Indigenous (Statistics Canada 1998, 2022a). Given the ease of access to the natural environment and the outdoors, there is a notable seasonal population which is not captured in the Census of Population.

2.1.1.1 Ignace

The population of Ignace has decreased from 1,935 in 1991 to 1,206 in 2021 for an average annual growth rate of -1.6% (Statistics Canada 1992, 2022a). The population decline from 1991 to 2011 was a result of shifts in the local economy including the closure of the Mattabi Mine in 1991, downturns in the forestry industry from 2000 to 2008 in Dryden and the closure of the Bowater Mill⁷ in Ignace, and an out-migration of families from 1991 to 2011 that contributed to a decline in the youth population (Beak and Golder 1997; Pulp and Paper Canada 2006; NWO Community and Baseline Studies Key Person Interview Program 2022). Most recently, youth may leave Ignace to pursue education and employment opportunities.

2.1.1.2 Dryden

The population of Dryden has increased from 6,505 in 1991 to 7,388 in 2021 for an average annual growth rate of 0.4% (Statistics Canada 1992, 2022a). Dryden saw a notable increase in population from 1996 to 2001 after the amalgamation of Dryden and Barclay formed the City of Dryden. Interview participants expressed concern that Statistics Canada undercounted the population of Dryden in 2021 (NWO Baseline Studies Key Person Interview Program 2022-2023; GBA+ Workshop 2023). It is believed the Indigenous population was undercounted in Dryden, there are a number of residents living in the unincorporated area surrounding Dryden, the number of seasonal residents in Dryden is difficult to track, and there is a transient population

⁷ The Bowater Mill later changed its name to Resolute Forest Products in 2011 and reopened in 2015 (Resolute Forest Products 2022).

who come to the community to access services (education, health, social services) but do not stay in the community long-term. The unincorporated population surrounding Dryden (estimated at 3,600 residents [NPI 2021]) may use services provided by the municipality while not paying property taxes. This can place capacity pressures on services provided by the municipality and lead to an insufficient tax base.

2.1.1.3 Machin

The population in Machin decreased slightly from 1991 (1,127) to 2021 (1,012) for an average annual growth rate of -0.4% (Statistics Canada 1992, 2022a). There is a notable increase in the population during the summer months due to seasonal camps, cabins and cottages, and other lodges and accommodations. Many of the seasonal guests are Americans.

2.1.1.4 Sioux Lookout

The population in Sioux Lookout increased from 1991 (3,311) to 2021 (5,839) for an average annual growth rate of 1.9% (Statistics Canada 1992, 2022a). Sioux Lookout saw a notable increase in population from 1996 to 2001 after the amalgamation of Sioux Lookout with unorganized communities in the surrounding area, including the Township of Drayton, Jordan, Vermillion, and other surrounding land in 1998 (MHBC 2019). The increase in population from 2016 to 2021 could be due to the availability of jobs and some people from First Nation communities north of Sioux Lookout choosing to settle in the community (NWO Community and Baseline Studies Key Person Interview Program 2022). Some seasonal residents come to Sioux Lookout during the summer when the local camps and lodges are open (NWO Baseline Studies Key Person Interview Program 2022-2023). It is also believed that there is a larger population of permanent Indigenous residents than reported by Statistics Canada. Sioux Lookout is a service hub for northern communities with the presence of the Sioux Lookout Meno Ya Win Health Centre, Sioux Lookout First Nations Health Authority, four tribal councils, and the Pelican Falls First Nation High School.

2.1.1.5 Unincorporated Communities

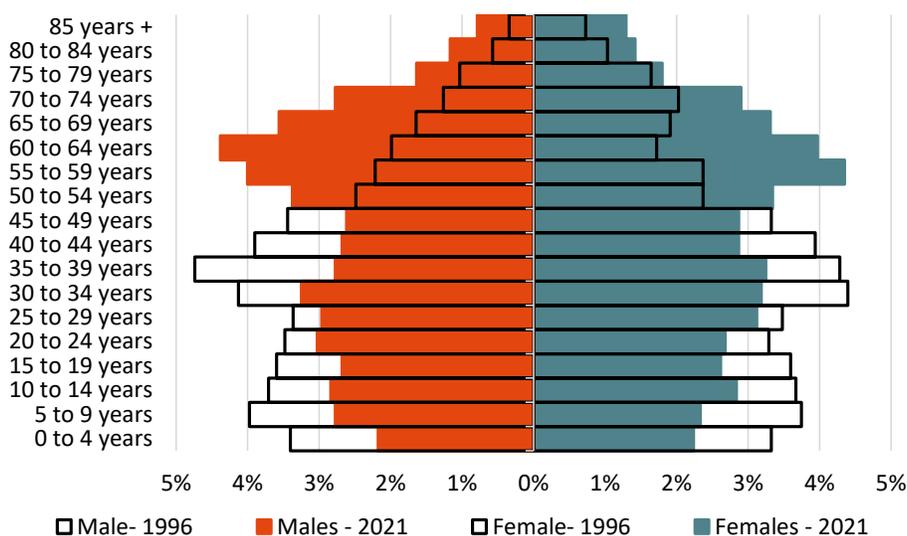
Population trends in the unincorporated communities in the Local Study Area include an estimated 419 full time residents in the LSB of Wabigoon (Statistics Canada 2022a), approximately 50 full time residents in Melgund (Borups Corners and Dyment), 10 to 20 full time residents in Silver Dollar, 150 to 200 full time residents in Upsala, and one household that resides in Valora fulltime (NWO Baseline Studies Key Person Interview Program 2022-2023). There is an increase in seasonal residents in the unincorporated communities during the summer.

2.1.2 Demographics

2.1.2.1 Age and Gender Characteristics

Figure 2.1-2 compares the proportion of the population by age and sex or gender⁸ in 1996 and 2021 for the Local Study Area. The age cohorts are presented along the vertical axis with each block representing the proportion of males or females for the corresponding year.

Figure 2.1-2: Population Age and Sex or Gender Distribution for the Local Study Area, 1991 and 2021



Source: Statistics Canada 1998, 2022a.

Notes: Data were not available for the LSB of Wabigoon for 1996.

The population in the Local Study Area has aged since 1996. In 1996, 20% of the population was 55 years and older compared to 37% in 2021. In 1996, 36% of the population were below 25 years old compared to 26% in 2021. As of 2021, the median age⁹ in the Local Study Area is 45 years old, while the median age in the Regional Study Area is 38 years old (Statistics Canada 2022a). Youth are defined as residents who are between the ages of 15 to 29 years old by Statistics Canada (Canadian Heritage 2021). Youth represent not only an important component of the labour force within a region, but also an age group that can contribute to community vibrancy and leadership into the future. The youth population in the Local and Regional Study Areas decreased from 1996 to 2021 (Statistics Canada 1998, 2022a). Key person interviews

⁸ The 1991 Census disaggregates information by sex (male and female) and the 2021 Census disaggregates information by gender (men+ and women+). Although sex and gender refer to two different concepts, the introduction of the two-category gender variable is not expected to have a significant impact on data analysis and historical comparability, given the small transgender and non-binary populations (Statistics Canada 2022a).

⁹ Median age for the Local Study Area is calculated based on a weighted average of the Local Study Area community's median age.

noted that youth are leaving communities in the Local Study Area to pursue education and employment opportunities and often not returning (NWO Community and Baseline Studies Key Person Interview Program 2022). The general decline in the youth population and the growing population over 55 years old in the Local Study Area highlight the ongoing challenge to retain and attract working age individuals and families to the region.

2.1.2.1.1 Gender Identity

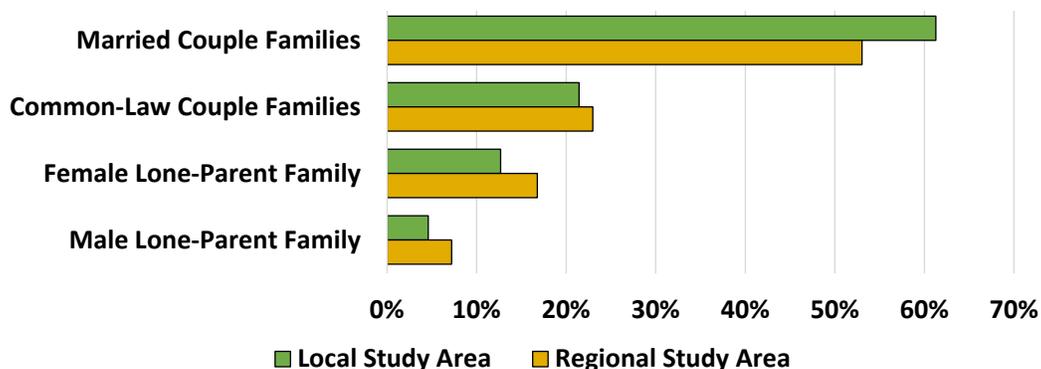
In 2021, Statistics Canada began to report on gender identity in the Census of Population, as opposed to sex assigned at birth in previous censuses. Gender identity is an individual's personal and social identity as a man, woman, or non-binary person (Statistics Canada 2022a). Gender identity is reported as men+ and women+ (i.e., cisgender men or women, transgender men or women, and some non-binary persons). A cisgender person is somebody whose gender identity is the same as their sex assigned at birth and a transgender person is somebody whose gender does not correspond to their sex assigned at birth (Statistics Canada 2022a). A non-binary person is an individual who is not exclusively a man or woman (e.g., fluid, Two-Spirit). Transpersons and non-binary persons represent a small proportion of Canadians and for confidentiality reasons data are only available at the national, provincial, and Census Metropolitan Area levels. The reporting of gender identity is to provide information to public decision makers, employers, providers of health care and social services, and educators to better meet the needs of all men+ and women+, including gender diverse people. Gender identity is typically formed early in life. People generally use gender stereotypes in their behaviours, attitudes, and dress to express their gender identity (Government of Quebec 2023).

In 2021, approximately 99.7% of the population in Ontario are cisgender persons (i.e., gender identity is the same as sex assigned at birth). In Ontario, approximately 1 in every 300 people identify as a transgender or non-binary person, which is similar to trends seen across Canada (Statistics Canada 2022a). Within the Local Study Area, key person interviews noted that 2SLGBTQQIA+ (two-spirit, lesbian, gay, bisexual, transgender, queer or questioning, intersex, and asexual) population is larger than people think and many experience small community isolation and challenges with mental health (GBA+ Workshop 2023).

2.1.2.2 Family Characteristics

A census family is defined as a married couple, common-law couple, or a lone-parent family with at least one child living in the same dwelling. Children may be biological, adopted, or fostered regardless of their age or marital status as long as they live in the dwelling and do not live with their children, married spouse, or common-law partner (Statistics Canada 2022a). **Figure 2.1-3** shows the census families by family types for the Local and Regional Study Areas in 2021.

Figure 2.1-3: Types of Census Families in the Local and Regional Study Areas, 2021



Source: Statistics Canada 2022a.

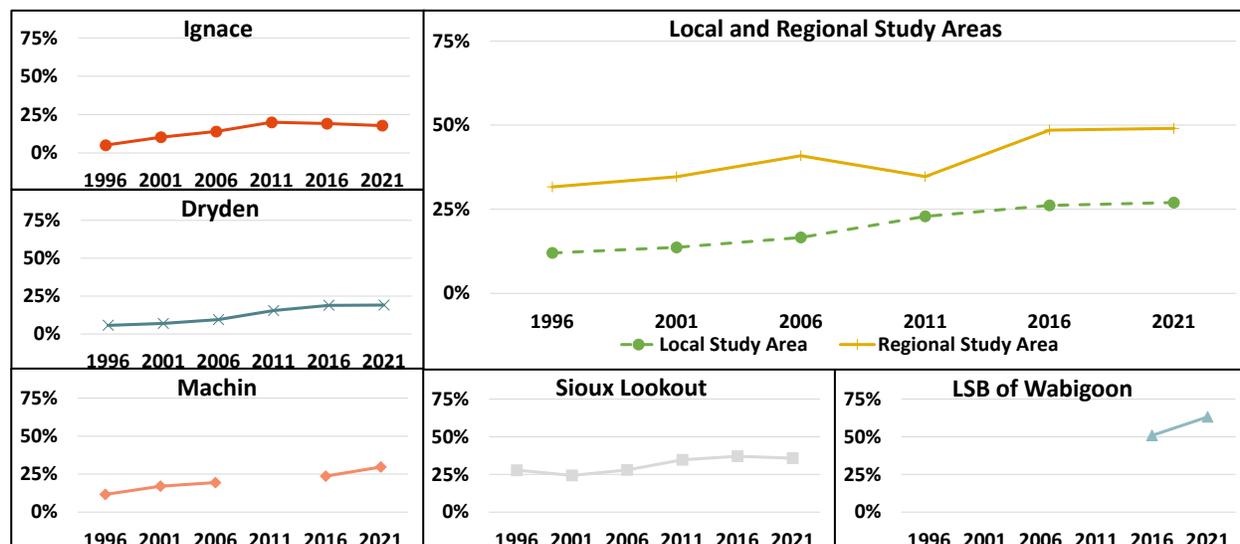
In 2021, there were a total of 4,570 census families in the Local Study Area and 18,240 census families in the Regional Study Area. The proportion of couple families (married and common-law) represented 82% of census families in the Local Study Area and 76% of census families in the Regional Study Area. The proportion of lone-parent families represented 18% of census families in the Local Study Area which is lower than the proportion of lone-parent families at 24% in the Regional Study Area.

The Local and Regional Study Area saw a slight decrease in the proportion of families with children from 1996 to 2021 (Statistics Canada 1998, 2022a). A decrease in the average size of census families is reflective of a trend of women and families having fewer children, which coincides with national fertility rate trends which have been declining since 2008 and reached a record low of 1.4 children per women in 2020 (Statistics Canada 2021b). The declining proportion of census families with children reflects an aging population and captures the challenges of attracting families to the Local and Regional Study Area.

2.1.2.3 Indigenous Identity

Figure 2.1-4 shows the proportion of the population who identify as Indigenous in the Local and Regional Study Areas from 1996 to 2021. Indigenous identity refers to individuals who identify as a North American Indian (First Nation), Métis, Inuit, and/or those who reported as a Treaty Indian or Registered Indian and/or have membership in a First Nation or Indian Band (Statistics Canada 2022a).

Figure 2.1-4: Proportion of the Population Identifying as Indigenous in the Local and Regional Study Areas, 1996 to 2021



Source: Statistics Canada 1998, 2002, 2007, 2013, 2017, 2022a.

Notes: Data were not available for the LSB of Wabigoon for 1996 to 2011 and Machin for 2011.

The proportion of the population who identify as Indigenous in the Local and Regional Study Area increased from 1996 to 2021. The growth in the Indigenous population in the Local and Regional Study Area is consistent with national population trends (Statistics Canada 2021a), which projects that the Indigenous population in Canada will increase at a faster rate than the non-Indigenous population through 2041 because of a younger age structure, higher birth rates, changes in self-reporting, and legislative changes.

Sioux Lookout has the largest Indigenous population among the Local Study Area communities, which can be attributed to more Indigenous peoples moving to Sioux Lookout from communities north of Sioux Lookout as it is an important service hub for northern communities. Dryden is also a service hub for Indigenous peoples, with a well-positioned Native Friendship Centre, and an increase in Indigenous service providers and existing service providers providing more Indigenous related services (NWO Baseline Studies Key Person Interview Program 2022-2023). The Métis Nation of Ontario Northwest Métis Council is also located in Dryden (Métis Nation of Ontario n.d.).

2.1.2.4 Visible Minorities

Visible minorities are persons other than Indigenous peoples who are non-Caucasian in race or non-white in colour and includes: Chinese, South Asian, Black, Filipino, Latin American, Southeast Asian, Arab, West Asian, Korean, Japanese and others (Statistics Canada 2022a).

The Local Study Area is largely Caucasian or Indigenous peoples, and the visible minority population represents a small proportion of the total population. However, the visible minority population is increasing in the Local Study Area. In 1996 the visible minority population in the

Local Study Area represented 1% of the total population and by 2021 increased to 5% (Statistics Canada 1998, 2022a). The visible minority population has also increased in the Regional Study Area from 1% of the total population in 1996 to 2% in 2021. Currently, there are immigration programs in Ontario which include the Rural and Northern Immigration Pilot program and the Ontario Immigrant Nominee Program that aim to address regional workforce needs (Government of Canada 2023a; Government of Ontario 2021b, 2022c; Thunder Bay CEDC n.d.; Rocha 2023).

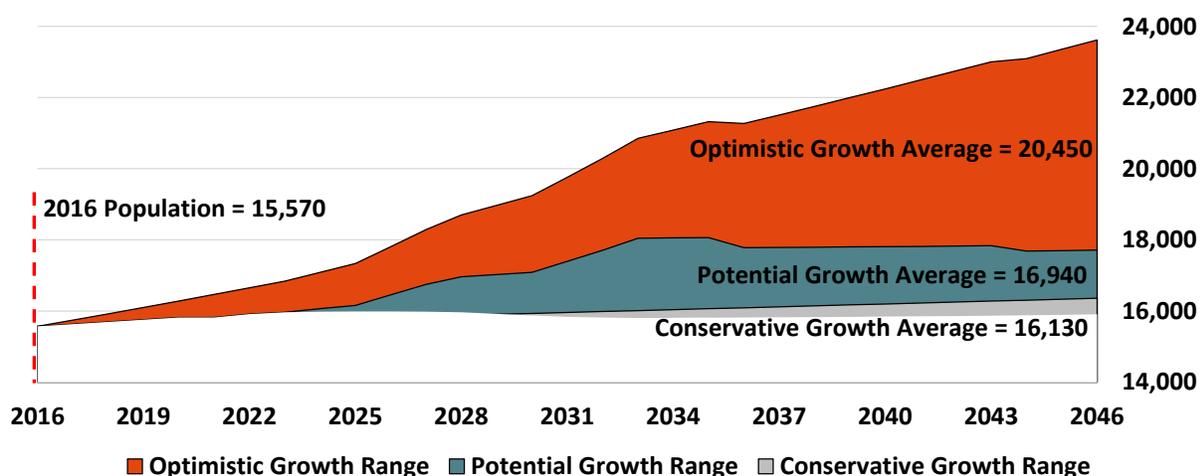
2.1.3 Population Projections

Typical drivers of population change are fertility rates, mortality rates and net migration. These drivers are affected by multiple factors including the age structure of the current population, government initiatives (e.g., programs to promote migration), and economic opportunities. This section describes potential future population trends without the Project in the Local and Regional Study Areas. Projections were completed to reflect three different scenarios to present the possible range of population growth:

- The **optimistic growth scenario** assumes major resource projects in the Local and Regional Study Areas moving forward and includes a substantial amount of in-migration, which is higher than the historical average.
- The **potential growth scenario** assumes a modest amount of growth due to major resource projects in the Local and Regional Study Areas moving forward.
- The **conservative growth scenario** assumes a slight downturn in the natural resource industries.

Figure 2.1-5 shows the population projections for the Local Study Area for 2016 to 2046.

Figure 2.1-5: Local Study Area Baseline Population Projection, 2016 to 2046



Source: Statistics Canada 2017.

Notes: Projections were prepared by InterGroup Consultants Ltd.

The Local Study Area population in 2016 was 15,570 residents and the forecasts project a growth in population over the next 30 years ranging from 16,130 to 20,450. The Regional Study Area population in 2016 was 65,500 residents and the forecasts project population growth over the next 30 years ranging 72,000 to 85,200. The Regional Study Area is forecast to grow at a higher rate due to a younger age structure compared to the Local Study Area. One trend that supports the possibility of the Regional Study Area experiencing substantial growth over the projection period is the presence of a large Indigenous population.

2.2 COMMUNITY AND CULTURE

The topics described in community and culture are community history, character, and heritage; community goals and plans; community well-being; and food security.

2.2.1 Community History, Character, and Heritage

Community history, character, and heritage describes the history and character of the Local Study Area communities, including what residents value about their home community. This section is written from a western scientific perspective and includes a regional overview of northwestern Ontario history, as well as historical information pertaining to the Local Study Area communities. Key themes identified for the communities in the Local Study Area include the importance of the small-town feel, the accessibility and closeness to nature, and the resource-based economy.

2.2.1.1 Regional History

Northwestern Ontario is a vast region sculpted by the geology of the Canadian Shield, dominated by boreal forest and bodies of water. First peoples have inhabited this region since time immemorial. Petroglyphs (carved rock) and pictographs (painted rock) found on exposed rock surfaces, as well as burial grounds and other cultural sites found throughout northwestern Ontario bear witness to the presence of first peoples for thousands of years prior to European colonization and settlement in the late 19th and early 20th centuries (Guertin and Joly 2008). The Anishinaabeg view their relationship with the natural environment as fundamental; that they were created on the land and the spirit who created them gave them their lands (Mainville 2007). Acknowledging the Anishinaabeg relationship with the land is critical to understanding the history of the northwestern Ontario region, Anishinaabeg rights, and the effects of Treaty #3.¹⁰

2.2.1.2 Township of Ignace

The Township of Ignace has a history dating back to the presence of First Nations peoples, evident through red ochre pictographs on the Canadian Shield at waterbodies surrounding the Township (Barr 1979). Settlers introduced industries like rail, forestry, and mining to the area. The Township was established in 1879 when the Canadian Pacific Railway was being built through the area. Incorporated in 1908, Ignace thrived as a railroad town until the 1950s when changes in rail transport led to reduced rail operations (Barr 1979). The construction of the Trans-Canada Highway in the 1930s facilitated further development, with the post-World War II

¹⁰ On October 3, 1873, Treaty #3 was signed and signified the beginning of the involvement of the federal government in the lands already occupied by 28 First Nations (Grand Council Treaty #3 n.d.).

era witnessing a surge in logging and mining activities through the 1960s. During the contraction of these two industries in the 1980s and 1990s, Ignace tourism began to grow. Transportation maintains a key role in Ignace's local economy, as the railway and highway remain. The Township also remains a tourism hub, offering visitors the opportunity for wilderness exploration including activities like hunting and fishing.

Located on Agimak Lake, Ignace is surrounded by a rich natural environment. Residents perceive Ignace as a safe, close-knit community where they take pride in their connection to nature, emphasizing the importance of fresh air, clean lakes, and the area's natural beauty, which contributes to the community's appeal for both residents and visitors (Local Social Cultural and Health Workshop 2021; TD Graham & Associates 2019). The community values unity, cooperation, integrity, resilience, and environmental preservation, with a vision to become a livable and vibrant small-town (Township of Ignace 2019b; InterGroup Consultants 2020).

2.2.1.3 City of Dryden

Indigenous peoples have lived in the area now known as the City of Dryden since time immemorial. Of particular importance was Paawidigong, the place of the rapids, which served as the camp and meeting place of the Anishinaabe peoples on the Wabigoon River. Following the arrival of settlers to the area, Anishinaabeg would use their camp at the rapids to trade, until settlers built a dam in 1910. After construction of the dam, the Anishinaabe peoples moved their camp inland, around the area where Dryden High School is today. The new camp and meeting place remained the location of Anishinaabeg until the early 1950s (City of Dryden n.d.a).

Lumber operations and gold prospecting began in the Wabigoon Lake area in the 1880s with construction of the Canadian Pacific Railway. Permanent European settlement in the area did not begin until the 1890s when the area was opened to agriculture (Bray 2012; City of Dryden n.d.a). Dryden was incorporated as a town in 1910 and incorporated as a city in 1998. Forestry and pulp and paper maintains a key role in Dryden's economy. Dryden remains a service hub for surrounding communities (NWO Baseline Studies Key Person Interview Program 2022-2023).

Situated on the shores of Wabigoon and Thunder Lakes, Dryden is celebrated for its abundant outdoor opportunities. It is recognized for its strong sense of community, citizen pride, and potential for growth (MDB Insight 2019). The community aims to lead in environmental stewardship, emphasizing the preservation of natural beauty and access to nature (MDB Insight 2019). Residents value the small-town feel while still having convenient access to larger metropolitan areas like Winnipeg and Thunder Bay within a four-hour drive.

2.2.1.4 Municipality of Machin

The Municipality of Machin is comprised of the communities of Minnitaki, Eagle River, and Vermillion Bay. The Municipality of Machin was incorporated in 1909. Today, Nelson Granite in Vermillion Bay and resource-based tourism, with outfitting lodges located across the communities, play important roles in the Municipality's economy (Municipality of Machin n.d.).

Residents of the Municipality value their small-town lifestyle and independence, proximity to the natural environment and natural beauty, diversity, and the sense of safety and belonging that their communities provide (Crupi Consulting 2017).

2.2.1.5 Municipality of Sioux Lookout

The Town of Sioux Lookout was incorporated in 1912. The name “Sioux Lookout” originates from the area residents’ use of the Sioux Mountain vantage point to see people on the English River route and is rooted in the battle between the Anishinaabe and Sioux Nations. This area also served as a hub for trading goods, including fur and forestry products (Municipality of Sioux Lookout 2020a). Today, Sioux Lookout is known as the “Hub of the North” for northern Ontario, connecting 31 remote northern communities and First Nations to essential services, featuring one of the busiest airports in the province (MHBC Planning 2013).

The Municipality of Sioux Lookout is on the shores of the Pelican, Abram, and Lac Seul Lakes, amidst boreal forest. Sioux Lookout priorities include community investment, wellness, and collaboration (Municipality of Sioux Lookout 2020a). The abundant natural resources that surround the community form the basis of the Sioux Lookout lifestyle, where residents embrace community, diversity, and the great outdoors (Municipality of Sioux Lookout n.d.a; Municipality of Sioux Lookout 2020b). Sioux Lookout takes pride in the deep connections it maintains with places, people, and, in particular, neighbouring First Nations communities (Municipality of Sioux Lookout n.d.a).

2.2.1.6 Unincorporated Communities

There is a shared pride in the LSB of Wabigoon where residents choose to live an outdoor lifestyle, such as taking part in activities like hunting and fishing and enjoy opportunities to be in nature. Residents consider the community to be cohesive (NWO Baseline Studies Key Person Interview Program 2022-2023).

The Local Services Board of Melgund includes the communities of Dyment and Borups Corners. Dyment, located on Melgund Lake, was established in 1898 and was once a booming mining town (Dyment Community n.d.). Today, Melgund is home to residents who appreciate its small and quiet nature, many of whom are retired or semi-retired, and enjoy the communities’ proximity to the outdoors and gathering with neighbours at the hall located between Dyment and Borups Corners (NWO Baseline Studies Key Person Interview Program 2022-2023).

The Town of Upsala was surveyed in 1914 and established a station for the Canadian Pacific Railway in 1922. In the 1920s, use of the area for pulpwood was an important source of income for settlers in Upsala. Today, Upsala plays a role in the region’s tourism, acting as a host for visitors looking to get outside and take part in activities, particularly due to its proximity to Lac des Milles Lacs (NWO Baseline Studies Key Person Interview Program 2022-2023).

2.2.2 Community Goals and Plans

Community goals and plans describes public plans for the Local Study Area. Notable plans in the Local Study Area include community Official Plans, Community Improvement Plans, Community Safety and Well-Being Plans, and Community Strategic Plans. Other community goals and plans described include the Ignace Project Visioning and Machin’s Municipal Modernization Program

2.2.2.1 Regional Goals and Plans

Ontario's Growth Plan for Northern Ontario is a 25-year plan to guide and coordinate provincial decisions and investments to aid population and economic growth in the region. The Growth Plan focuses on four areas of growth: diversifying traditional resource-based industries, workforce education and training, infrastructure investment and planning integration, and tools for Indigenous participation in the economy. The vision from the Plan is to, by 2036, have "a skilled, educated, healthy and prosperous population that is supported by world-class resources, leading edge technology and modern infrastructure" (Government of Ontario 2011). The Growth Plan should be considered in conjunction with the Provincial Policy Statement, 2020 – Under the Planning Act as it provides guidance relative to the region (Government of Ontario 2020c).

2.2.2.2 Official Plans

Official plans describe municipal policies and zoning for how lands within a community may be used, such as where housing, industry, and roads may be located. This ensures that community growth is coordinated and meets the public's needs, as well as ensures the public is aware of the community's general land use policies. Official plans also describe community improvement initiatives (Government of Ontario 2019a).

The Township of Ignace's 2020 Official Plan establishes a vision for the community and outlines six community goals. The Official Plan intent is to guide and manage the Township's development to the year 2045 and aims to balance physical and economic growth with the protection of social, cultural, and natural resources. The goals of the Official Plan include to grow as a complete and healthy community, facilitate economic diversification and growth, preserve and enhance the natural environment, promote a full range of housing options, enhance mobility and transportation, and respect cultural, heritage, and recreation resources (WSP 2020).

Dryden's Official Plan (2022) focuses on sustainable development through the integration of governance, land use, transportation, and the social, cultural, economic, natural, and built environments (Quartek Group 2022). The 2022 Official Plan establishes goals and objectives in several priority areas to guide future development in the City, including community, culture, economy, environment, housing, sustainable development, tourism, and transportation.

Sioux Lookout's Official Plan (MHBC 2019) establishes a community vision and guiding principles, objectives, and policies. The Official Plan focuses on the physical development of the Municipality and enact changes to the social, cultural, economic, and natural environments over a 20-year horizon. Sioux Lookout's vision is, "through innovative leadership, we engage our diverse population to create a caring, prosperous place to live, invest and be a desirable destination for regional services and tourism." To achieve the Municipality's vision, the Official Plan sets out eight guiding principles including sustainable development, natural environment and resources, affordable housing, diversified economy, tourist destination, complete communities that considers a mix of uses in planning and development, a multi-modal transportation system, and community and Indigenous engagement.

2.2.2.3 Community Improvement Plans

A Community Improvement Plan is a planning tool that provides a framework to guide community development towards a set of goals and objectives. Community Improvement Plans follow provincial acts such as the *Planning Act*, *Municipal Act*, *Ontario Heritage Act*, *Accessibility for Ontarians with Disabilities Act*, Provincial Policy Statement, and Growth Plan for Northern Ontario, as well as other plans created by a community.

In 2018, the Township of Ignace released its Community Improvement Plan for 2019 to 2024. The vision of Ignace's Community Improvement Plan is to "position Ignace as an investment-ready northern community by retaining and attracting businesses and residents through incentive programs, and municipal leadership strategies which contribute to revitalization and beautification" (WSP 2018).

In 2019, the City of Dryden released an updated Community Improvement Plan, modernizing the City's previous improvement plan from 2007. The vision of Dryden's Community Improvement Plan is, "Dryden will seek unique opportunities to build pride in our community by supporting existing and future businesses, attract new strategic investment, and facilitate an efficient building and development process" (WSP 2019).

Sioux Lookout's Community Improvement Plan (MHBC Planning 2013) focuses on attracting and supporting the rehabilitation and revitalization of private lands and buildings in the Municipality. The Community Improvement Plan provides objectives for improvements to private property and establishes financial incentives for property owners to encourage revitalization. The intent of the Plan is to improve existing buildings/properties, however, an incentive for new residential developments is also included.

2.2.2.4 Community Safety and Well-Being Plan

Community Safety and Well-being Plans are legally required in the Province of Ontario under legislative requirements of the *Police Services Act* (1990a) (Government of Ontario 2021a).

The Ignace Community Well-Being and Safety Plan (2021) outlines a course of action for identifying and responding to current and emerging well-being and safety challenges in the community. The goal of this plan is "everyone belongs," and this goal is reflected through community engagement and collaboration which identified the priority considerations of support for seniors, employment, mental health, and accessibility.

The Dryden, Machin, and Area Community Safety and Well-Being Plan (MNP 2021) provides a framework for communities and their stakeholders to promote and maintain community safety. The Plan works to complement and reflect existing municipal strategies, such as community official and strategic plans. The Plan's mission is to, "bring people together to advance inclusion, build upon our resilience and strengthen our community connections for a safer Dryden, Machin, and Area." This mission is guided by four main principles: community-led collaboration, anti-racism/anti-oppression, person-centred care, and data-informed practice. Community and stakeholder engagement further identified four focus areas: supporting youth, prevention/education, treatment, and social development.

Sioux Lookout's Community Safety and Well-Being Plan (2020b) outlines four strategies and actions: social development, prevention, risk intervention, and incident response. Through a collaborative process of research, community reports, and community input, the Plan identifies six priority areas: appropriate and affordable housing, mental wellness, substance misuse and addictions, crisis services' capacity for incidence response and de-escalation, employee recruitment and retention, and community cohesiveness and vibrancy.

2.2.2.5 Community Strategic Plans

Community Strategic Plans in the Local Study Area include for Ignace, Dryden, and Sioux Lookout.

The Ignace Community Strategy: Exploring Our Possibilities 2019-2024 aims to support and grow the community and its economy by outlining priorities and directing municipal efforts. The Strategy provides goals, recommendations, and actions for the Township's four development priorities: community development, economic development, tourism, and marketing and communications (TD Graham & Associates 2019). Actions for each pillar were determined through public consultation and research and are the responsibility of various stakeholders in the Township. The Community Strategy works to support Ignace's vision, "to be a safe, attractive, and caring community that focuses on quality of life which is driven by a healthy, diversified economy based on principles of sustainability."

The City of Dryden's Strategic Plan for 2020 to 2025 is a results-based plan aimed at guiding decisions, planning, and budgeting, to advance priorities and municipal operations, identify key outcomes, and allot the necessary resources for implementation. Six strategic goals were identified by the community to help Dryden realize its vision, "as a vibrant, safe, healthy, and inclusive community with a diverse economy, providing an exceptional quality of life." Dryden's priorities include community diversity and inclusion, community safety and well-being, maintain and strengthen infrastructure, fiscal sustainability, economic and investment diversity, and responsive and transparent communication (MDB Insight 2019).

Sioux Lookout's Strategic Plan for 2020 to 2025 (2020a) celebrates the Municipality's cultural diversity while identifying ways to ensure the health, happiness, and prosperity of its residents. Through a series of community and stakeholder engagement, five strategic priorities were identified to guide the Strategic Plan in its mission to foster "a vibrant community where diversity, nature, and compassion drive our prosperity." These strategic priorities include community innovation and development, community wellness, regional collaboration, community engagement, and operational excellence.

2.2.2.6 Additional Goals and Plans

2.2.2.6.1 Ignace Project Visioning

The Ignace Project Visioning Community Conversations report (2020) presents community feedback on Township priorities and objectives in relation to the Project. The five categories of priorities and objectives include: people, economics and finance, infrastructure, community and culture, and natural environment.

2.2.2.6.2 Machin Municipal Modernization Program

Machin’s Municipal Modernization Program (BDO 2020) outlines recommendations to improve service delivery and potential opportunities for modernization based on historical demographic and financial data and stakeholder consultation. The report aims to provide achievable improvements for the current state of services in the Municipality while keeping the future in mind. These improvements take the form of six priority areas for Machin: operating/capital grants, municipal systems/processes, human capital, communication, short-term infrastructure, and long-term infrastructure. These priority areas are presented with short-term action plans that consider the roles of governance, administration/finance, fire services, public works, and the Woodland Arena.

2.2.3 Community Well-being

Community well-being can be defined as “the social, economic, environmental, cultural, and political conditions identified by individuals and their communities as essential for them to fulfill their potential” (Wiseman & Brasher 2008). The community well-being index measures the socio-economic well-being of Canadian communities over time as an indication of progress made to improve the health and well-being of communities (Indigenous Services Canada 2023). The index encompasses four components: education, labour, income, and housing, which are combined to provide each community with a score out of 100. The community well-being index components are based on and limited to Census data; thus, they do not represent a complete list of dimensions of community well-being, nor do they necessarily reflect community values in the Local Study Area. **Table 2.2-1** shows the community well-being index scores for the Local Study Area from 2006 to 2016.

Table 2.2-1: Community Well-Being Index Scores for the Local Study Area, 2006 to 2016

Year	Ignace			Dryden			Machin			Sioux Lookout		
	2006	2011	2016	2006	2011	2016	2006	2011	2016	2006	2011	2016
Education	44	51	49	57	58	59	48	43	53	57	60	59
Income	72	69	77	77	78	79	73	73	77	77	78	79
Housing	95	91	94	95	93	93	94	92	92	94	96	92
Labour	85	77	79	88	87	86	88	79	81	93	90	89
CWB Index Score	74	72	75	79	79	79	76	72	76	80	81	80

Source: ISC 2023.

Notes: Data were not available for the LSB of Wabigoon, LSB of Melgund, Upsala, Valora, or Silver Dollar.

Ignace, Dryden, Machin, and Sioux Lookout saw a relatively consistent community well-being score from 2006 to 2016. In 2016, Ignace had the lowest score and Sioux Lookout had the highest score.

2.2.4 Food Security

Food security is when a person has the physical, social, and economic access to sufficient, safe, nutritious, and culturally appropriate food for an active, healthy lifestyle at all times (OECD n.d.). Food security is an important social determinant of health; being food secure helps maintain one's physical and mental well-being (MNP 2021). Understanding the state of food security in a community or region is important when potential development and changes may occur in the area, as changes to goods and services can negatively affect food security (IAIA 2023).

Food insecurity is growing across northwestern Ontario, as challenges such as poverty, inflation, addictions, mental health, lack of education and/or employment opportunities, and other social issues continue to affect peoples' ability to obtain an affordable, healthy, and culturally appropriate diet. Cultural food access is a key issue in northwestern Ontario (NWO Baseline Studies Key Person Interview Program 2022-2023). Rates of food insecurity are often highest amongst individuals of low socio-economic status, Indigenous peoples, newcomers to Canada, single parent households, and individuals living on social assistance (MNP 2021).

In 2016, the Northwestern Ontario Health Unit (2017), which includes the Rainy River District and most of the Kenora District, had the most expensive food basket in Ontario. For a family of four, consuming healthy foods costs approximately \$1,020 per month, nearly \$160 more per month than the monthly cost for a family of four living in Toronto. Further, food basket costs collected from 2022-2023 show that Ignace has a higher unit price across all food basket categories (e.g., dairy, eggs, fruit and vegetables, meat) compared to Dryden and Thunder Bay, suggesting smaller communities in northwestern Ontario see even higher food costs in the region and province (**Section 3.6.1**). This financial barrier is particularly challenging for residents who do not have the means to travel to a larger, nearby urban centre, such as Dryden, to purchase groceries at a lower cost. Community remoteness is positively correlated to the cost of a healthy diet, with high costs of healthy foods being a major contributor to food insecurity in northwestern Ontario (Northern Policy Institute 2018). Programs and supports in the Local and Regional Study Areas include the Regional Food distribution Association and various food banks in Ignace, Dryden, Machin, and Sioux Lookout, among other programs (NWO Baseline Studies Key Person Interview Program 2022-2023).

2.3 INFRASTRUCTURE AND SERVICES

Infrastructure and services describe the built infrastructure and municipal services available in the Local and Regional Study Areas. Descriptions include consideration of current capacity and, where applicable, the potential to expand capacity in the future. Topics described in infrastructure and services include educational facilities, social services, emergency services, recreation, housing and temporary accommodations, transportation infrastructure, and utilities. Change in population can create added pressures on infrastructure and services through increased demand for housing, infrastructure, and services.

2.3.1 Educational Facilities

This section presents a summary of the primary, secondary, and post-secondary facilities in the Local Study Area communities. Education is important as it helps qualify an individual for future employment. Details on educational attainment are provided in **Section 3.2**.

2.3.1.1 Primary and Secondary Educational Facilities

Within the Local Study Area the school boards and operators consist of the Keewatin Patricia District School Board, the Northwest Catholic District School Board, Conseil Scolaire de District Catholique des Aurores Boréales, and a private First Nations operated school. The Local Study Area includes 10 primary schools and 4 secondary schools (includes the Ignace Public School which is kindergarten to grade 12). Primary and secondary educational facilities in the Local Study Area are provided in **Table 2.3-1**.

Table 2.3-1: Primary and Secondary Educational Facilities in the Local Study Area

School Board or Operator	Location	School	Grades	Enrollment ¹	Capacity ¹
Keewatin Patricia District School Board	Dryden	New Prospect Elementary Public School	Kindergarten to grade 8	342 students	493 students
	Dryden	Open Roads School	Kindergarten to grade 8	363 students	470 students
	Vermillion Bay	Lillian Berg Public School	Kindergarten to grade 8	79 students	265 students
	Sioux Lookout	Sioux Mountain Public School	Kindergarten to grade 8	321 students	530 students
	Upsala	Upsala Public School	Kindergarten to grade 8	<10 students	Not available
	Ignace	Ignace Public School	Kindergarten to grade 12	159 students	679 students
	Dryden	Dryden High School	Grade 9 to 12	566 students	1,040 students
	Sioux Lookout	Sioux North High School	Grade 9 to 12	492 students	500 students
Northwest Catholic District School Board	Dryden	St. Joseph's Catholic School	Kindergarten to grade 8	390 students	Not available
	Sioux Lookout	Sacred Heart School	Kindergarten to grade 8	330 students	Not available
Conseil Scolaire de District Catholique des Aurores Boréales	Ignace	École Immaculée Conception	Kindergarten to grade 8	15 students	60 students
	Dryden	École Catholique de l'Enfant-Jésus	Kindergarten to grade 8	21 students	Not available
Private, First Nations school	Sioux Lookout	Pelican Falls First Nation High School	Grade 9 to 12	180 students	Not available

Source: Government of Ontario 2023b; KPDSB 2022; NWO Baseline Studies Key Person Interview Program 2022-2023; OpenGov n.d.; School Options North 2023.

Notes: Enrollment and capacity presented for the (1) Keewatin Patricia District School Board is for 2022/2023, (2) Northwest Catholic District School Board is for 2020/2021, (3) Conseil Scolaire de District Catholique des Aurores Boréales is for 2022/2023, and (4) private First Nations operated school is 2019.

Primary and secondary schools in the Local Study Area generally have physical capacity for additional students, with the exception of Sioux North High School which is close to capacity. Residents of the unincorporated areas or smaller communities often travel to a different community for secondary school. Approximately 50% of the Dryden High School students are bussed daily from within the City of Dryden, Vermillion Bay, Eagle Lake First Nation, Wabigoon Lake Ojibway Nation, and the unincorporated areas around Dryden (Dryden High School n.d.). A small percentage of students attend the Dryden High School from northern Reserves.

All the secondary schools offer courses that are required in the Ontario core curriculum, including English, Science, Math, Canadian History, and Physical Education (Government of Ontario 2024). Also offered are co-op programs, Specialist High Skills Major Programs, the Ontario Youth Apprenticeship Program, and dual credit courses which can be used towards both the Ontario Secondary Diploma and an eligible post-secondary certificate or diploma. The Wahsa Distance Education Centre is an accredited online private high school that offers courses through learning centres across northern Canada in remote and rural communities, including Sioux Lookout (Northern Nishnawbe Education Council n.d.).

Within the Local Study Area, Seven Generations Education Institute offers adult education in Ignace, Dryden, and Sioux Lookout for people looking to obtain or upgrade their Ontario Secondary School Diploma (Seven Generations n.d.).

2.3.1.2 Postsecondary Educational Facilities

Postsecondary educational attainment refers to the completion of an apprenticeship or trades certificate or diploma, college or other non-university certificate or diploma, and university certificates, diplomas, or degrees (Statistics Canada 2022a). Higher levels of education can have a notable impact on wages. People with a postsecondary education tend to have higher wages compared to people with a high school certificate or lower (Cross 2021).

Postsecondary institutes in the Local Study Area include Confederation College (satellite campuses in Dryden and Sioux Lookout; main campus in Thunder Bay), Contact North in Dryden and Sioux Lookout, Seven Generations Education Institute in Sioux Lookout, and the Sioux Lookout Mining Centre of Excellence (Confederation College n.d.; Contact North 2023; Seven Generations n.d.; Sioux Lookout Mining Centre of Excellence n.d.). There are limited program options available at institutions in the Local Study Area, which presents a challenge for residents in obtaining a postsecondary education. In Northeastern Ontario, there are several institutions that offer programming related to mining, geology, environmental sciences, and other STEM-related (science, technology, engineering, and math) fields. Thunder Bay is also home to Lakehead University. The driving distance from Local Study Area communities to Winnipeg is similar to Thunder Bay, and there are a number of major postsecondary educational institutes in Winnipeg. There are no universities in any Local Study Area communities.

2.3.2 Social Services

Social services available in the Local and Regional Study Area include childcare, senior services, services for victims of gender-based violence, mental health and substance use services, and Indigenous services. Social services are key to supporting potentially vulnerable populations, as these populations are often more reliant on the services provided (GBA+ Workshop 2023).

2.3.2.1 Childcare Services

There is currently one licenced childcare provider in Ignace, six locations in Dryden, one location in the Municipality of Machin (in Vermillion Bay), and four locations in Sioux Lookout. The Kenora District Services Board ("KDSB") is the primary childcare provider in the Local Study Area. **Table 2.3-2** provides the childcare services available in the Local Study Area.

Table 2.3-2: Childcare Services in the Local Study Area

Community	Operated By	Location Name	Space Available
Ignace	Ignace Nursery School in partnership with the KDSB	Ignace Nursery School	Toddlers: 14
Dryden	KDSB	Albert Street Early Learning Centre	Infants: 10 Toddlers: 15 Family Age Grouping: 15
		New Prospect Early Learning Centre – New Prospect School	Toddlers: 15 Preschool: 20 Kindergarten: 26 Primary/Junior School Age: 30
		Open Roads Early Learning Centre – Open Roads School	Preschool: 16 Kindergarten: 26 Primary/Junior School Age: 30
		St. Joseph’s Early Learning Centre	Preschool: 20 Kindergarten: 26 Primary/Junior School Age: 30
	Dryden Nursery School Cooperative in partnership with the KDSB	Dryden–Nursery School Cooperative - New Prospect School	Preschool: 16
	Dryden Native Friendship Centre in partnership with the KDSB	Homeward Bound (DNFC)	2 Family Age Groupings of 15 each
Vermillion Bay	Vermillion Bay Area Nursery School Cooperative in partnership with the KDSB	Vermillion Bay Area Nursery School Cooperative and Machin Early Learning Centre	Preschool: 15 Afterschool: 13 Kindergarten: 26
Sioux Lookout	KDSB	(Biidaaban) Sacred Heart Early Learning Centre – Sacred Heart School	Toddlers: 25 Preschool: 24 Kindergarten: 26 Primary/Junior School Age: 30
		Sioux Mountain Early Learning Centre	Toddlers: 15 Preschool: 24 Kindergarten: 26 Primary/Junior School Age: 30
	Waninawakang Aboriginal Head Start Resource Centre in partnership with KDSB	Waninawakang Aboriginal Head Start	Toddlers: 16
		Waninawakang Childcare Centre	Infants: 9 Toddlers: 30

Source: KDSB n.d.b.

Currently, there is an unmet need for licensed full-time childcare in Ignace, as well as after school care and services who accommodate shift work. The Ignace Nursery School is operating under capacity; however, this is due to its limited hours of operation (half days). Dryden childcare services are currently operating at capacity (NWO Community and Baseline Studies Key Person Interview Program 2022). The majority of childcare options in Dryden are not year-round, which can impact the ability of parents to work fulltime. This barrier particularly impacts women, who are often the primary caregivers of children, who may need or want to work year-round but may be unable to do so due to limited childcare options in their community (Havens 2023). A primary barrier in expanding childcare services is a lack of qualified staff available in the region (WSP 2022c). Capacity constraints in childcare is an issue across the region and province; it is estimated that there are only enough spaces in licensed childcare centres for 24% of children in Ontario (Government of Ontario 2023c).

The cost for childcare in Ignace is \$12 for one child per session/day. The cost for childcare in Dryden, Machin, and Sioux Lookout ranges from half-day care rates (toddler care to after school at \$12/day) to full day care rates (e.g., infant care (\$33.08/day), toddler (\$22.44/day), and preschool (\$21.26/day) (KDSB n.d.a). Childcare providers have noted that it is likely they will need to double (or triple) their workforce if the universal childcare agreements entered into between Ontario and the federal government result in a \$10/day Canada-wide Early Learning and Childcare system, as the demand in spaces is likely to increase (NWO Community and Baseline Studies Key Person Interview Program 2022; Government of Canada 2022a).

2.3.2.2 Senior Services

Social supports for seniors include the Silver Tops Seniors Centre in Ignace, the Dryden Go Getters Senior Centre, the Patricia Region Senior Services in Dryden, the Happy Go Lucky Seniors Club in Machin, the Sioux Area Seniors Activity Centre in Sioux Lookout, and the Lost Lake Seniors Drop In Centre in Sioux Lookout. There is a lack of seniors housing, long-term care, and speciality services to address the high proportion of seniors in the Local Study Area. Transportation can be a barrier to accessing those services in locations different than a resident's home community (NWO Baseline Studies Key Person Interview Program 2022-2023).

2.3.2.3 Services to Support Survivors of Gender-Based Violence

There are currently no shelters for victims of gender-based violence in Ignace or Machin, with the closest shelter being Hoshizaki House in Dryden. The facility space at the Hoshizaki House in Dryden is adequate but there are challenges with staff retention due to the high-stress work (NWO Community and Baseline Studies Key Person Interview Program 2022; Hoshizaki House n.d.). The Sexual Assault and Domestic Violence Care and Treatment Program at the Dryden Regional Health Centre provides emergency and follow-up care to women, men, and children who have been sexually assaulted and/or are survivors of intimate partner abuse in Ignace, Dryden, Machin, and Wabigoon Village (DRHC n.d.d).

In Sioux Lookout, the First Step Women's Shelter provides support, assistance, and emergency shelter for women and children who have been physically, sexually, and/or emotionally abused (FSWS n.d.).

2.3.2.4 Mental Health and Substance Use Services

Facilities and spaces to support individuals living with mental health and substance use challenges are a gap in both the Local and Regional Study Area. In the Local Study Area, these services are limited to Dryden and Sioux Lookout. Services are available in Dryden through the Dryden Regional Health Centre and Addiction Services including the Rapid Access Addiction Medicine Clinic and the Ontario Addiction Treatment Centres. Services are available in Sioux Lookout through Ontario Addiction Treatment Centres. Individuals from other communities must travel to Dryden or Sioux Lookout to receive support.

Challenges with existing mental health and substance use services in Dryden include transportation within the community, wait times/limited spaces, limited hours of operation, and siloed/uncoordinated service delivery (MNP 2021). In addition, there has been an increase in demand in services following the COVID-19 pandemic (NWO Community and Baseline Studies Key Person Interview Program 2022).

In Sioux Lookout, demand for emergency shelters continues to exceed the capacity of services and a lack of residential addictions treatment and detox beds continues to be a challenge (Municipality of Sioux Lookout 2022). Youth are considered to be especially at risk of mental health challenges in the community (Municipality of Sioux Lookout 2020b).

2.3.2.5 Indigenous Service Providers

Indigenous service providers located in the Local Study Area include the Dryden Native Friendship Centre, Sioux Lookout Meno Ya Win Health Centre, and the Nishnawbe-Gamik Friendship Centre in Sioux Lookout. A lack of culturally appropriate Indigenous services remains a gap in Dryden (MNP 2021).

Indigenous service providers located in the Regional Study Area that serve communities in the Local Study Area include Tikinagan Child and Family Services, with services in Ignace, Dryden, and Sioux Lookout; Anishinaabe Abinoojii Family Service, with services in Dryden, Wabigoon Village, and Sioux Lookout; Paawidigong First Nations Forum, with services to Eagle Lake First Nation, Wabigoon Lake Ojibway Nation, and Lac Seul First Nation; and Métis Nation of Ontario and Northwest Ontario Métis Child and Family Services, that both have branches in Kenora and Dryden.

2.3.3 Emergency Services

Emergency services described include police, fire, and emergency medical services.

2.3.3.1 Police Services

The Ontario Provincial Police is responsible for providing police service in the Local Study Area. The Ontario Provincial Police have detachments in Dryden and Sioux Lookout that provide service to all the Local Study Area communities. The Dryden detachment provides policing service to Dryden, Machin, Ignace, Ojibway Nation of Saugeen, and Savant Lake and has satellite offices in Ignace and Vermillion Bay. The satellite office in Vermillion Bay is rarely used (WSP 2022d).

Staffing is considered sufficient at the Dryden office, Sioux Lookout Office, and Ignace satellite office, but there is no administrative staff at the Ignace office, resulting in all administrative work being sent to Dryden (WSP 2022d). Policing costs in northwestern Ontario are generally higher than provincial averages and Dryden's cost are notably higher than other communities in the Local Study Area (DrydenNow 2021b). In 2022, Statistics Canada estimated Dryden policing cost were about \$1,040 per property, over triple the average cost per property in Ontario (\$310).

The Sioux Lookout detachment has a large service area. In addition to providing policing services in and around Sioux Lookout, the detachment has agreements with First Nations communities to provide policing or support and has agreements in place to support the Nishnawbe-Aski Police Service and the Lac Seul Police Service (Ontario Provincial Police 2022b).

2.3.3.2 Fire Services

Ignace, Dryden, Machin, and Sioux Lookout have fire services that cover a vast area beyond the municipal boundaries. The large service areas can affect the ability to respond to calls in a timely manner due to road closures during the winter and low volunteer or paid-for-call staffing numbers. Oxdrift and Wabigoon Village both have fire departments which respond to calls in the community and surrounding areas.

Ignace has one fire hall (WSP 2022d). The existing fire station in Ignace does not meet current building code standards or firefighting standards. The Township is considering two potential locations for a new fire station (WSP 2022d). Dryden has two fire halls. Fire hall #1 is the larger of the two halls. Fire hall #2 is not as up to date and requires upgrades. Overall, the City's facilities are adequate for the needs of fire services (NWO Baseline Studies Key Person Interview Program 2022-2023). Machin's fire hall currently meets the demands of the municipality (BDO 2020). The Sioux Lookout fire department has two fire halls.

In the Local Study Area, the Ministry of Natural Resources and Forestry has fire bases in Ignace, Dryden, and Sioux Lookout for responding to forest fires. The Ministry of Natural Resources and Forestry also operates out of the Dryden Regional Airport for dealing with forest fires.

2.3.3.3 Emergency Medical Services

Northwest Emergency Medical Services is under the KDSB and provides emergency medical services in the Regional Study Area through nine ambulance bases, including a base in Ignace, Dryden, and Sioux Lookout (KDSB 2023d). The KDSB is currently looking to build an ambulance base in Vermillion Bay (WSP 2022d).

Attracting qualified paramedics is challenging in the region in part because there are no training programs in the Local or Regional Study Areas (NWO Baseline Studies Key Person Interview Program 2022-2023). Burnout among emergency medical services staff in Ignace has been identified as a challenge, along with consistent staffing and coordinating response with the Dryden emergency response teams (Ignace Health and Wellness Focus Group 2023; Ignace EarlyOn Child and Family Centre Staff and Parent Focus Group 2023). Dryden has experienced an increase in emergency call volumes, which can be attributed, but not limited to, social issues including mental health and drugs/alcohol addiction (WSP 2022d).

2.3.4 Recreation

The communities in the Local Study Area have a variety of indoor and outdoor recreational facilities and community recreation opportunities (WSP 2022a). The extent of recreation programming is directly related to the size of the community (IAWG March 31, 2022). Communities within the Local Study Area place importance on the outdoors, have a strong connection to the surrounding natural environment, and value opportunities to engage in recreational activities (City of Dryden n.d.c; Crupi Consulting 2017; InterGroup 2020; WSP 2022a; Municipality of Sioux Lookout 2021a; SMM and InterGroup 2022; NWO Community and Baseline Studies Key Person Interview Program 2022). It is a source of pride and adds to their sense of place and quality of life. The natural setting provides various opportunities for fishing, forestry, hunting/trapping, tourism, and a passive appreciation of the natural environment, through camping, swimming, hiking, biking, skiing, wildlife viewing, boating, canoeing, and berry picking.

The Ignace Recreation Committee organizes recreational programming for the community (Township of Ignace n.d.a). The Township is responsible for maintaining municipally-owned facilities, public beaches, and trails (NWO Community and Baseline Studies Key Person Interview Program 2022). No recreation facility is currently considered to be over capacity (IAWG May 05, 2022). Residents of Ignace have commented that there are currently not enough recreational activities and services for youth and small children, which may also act as a deterrent for people wishing to relocate to the community for employment opportunities (Local Social Cultural and Health Workshop 2021). Ignace residents may travel to Dryden to access a broader range of recreation opportunities, although some residents may not be willing to travel for recreation, particularly with winter road conditions (SMM and InterGroup 2022; Local Social Cultural and Health Workshop 2021; IAWG March 31, 2022).

Recreation in Dryden depends on volunteers, as well as the community service department, green space maintenance, and public works employees (NWO Baseline Studies Key Person Interview Program 2022-2023). Volunteer groups in Dryden include the Dryden Recreation Extension and Modification (DREAM) committee (IAWG March 31, 2022). Upgrades of current facilities and the development of new facilities and public spaces are set out in the Facilities Master Plan (NWO Baseline Studies Key Person Interview Program 2022-2023).

Recreation programming in Machin is mostly volunteer based. The small population size constrains the variety of recreational programming available in the community, and results in people needing to travel to Dryden or other communities to access certain programs (NWO Baseline Studies Key Person Interview Program 2022-2023).

Recreational facilities and programs in Sioux Lookout are staffed by a mix of Municipal employees through the Recreation and Culture Department, volunteers, and coordinators. The Recreation department is responsible for organizing programs and maintaining municipal facilities. Hockey, curling, and golf are near capacity, but the Municipality would consider offering additional time slots if capacities were reached (NWO Baseline Studies Key Person Interview Program 2022-2023).

Wabigoon Village has a recreation department for organizing programming, but residents typically go to Dryden for any formal recreation. Residents of Melgund have provided that there are not currently gaps in recreational services and facilities, but there is always something that could be improved. The LSB of Melgund Board is responsible for recreational programming. Dinorwic does not have a recreational committee or any organized recreational programming. Residents of Silver Dollar feel the natural environment is important to them and is a way of life, with recreational opportunities focused on the outdoors. Upsala has a recreation centre for indoor programming which is maintained by the Upsala Local Services Board.

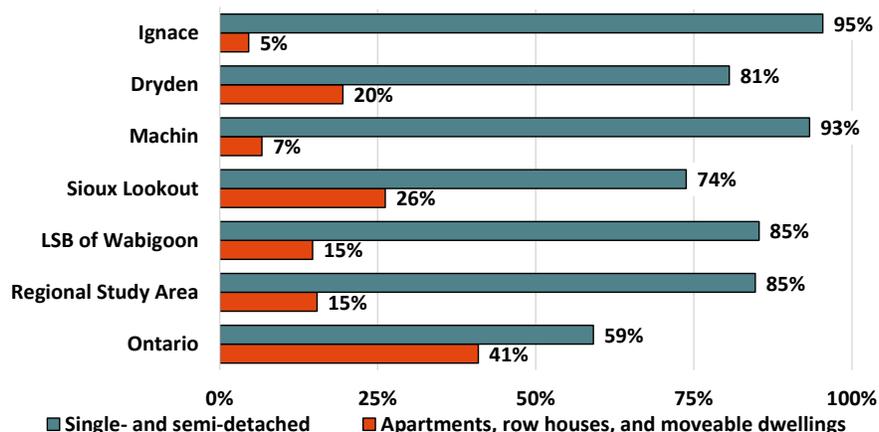
2.3.5 Housing

The current state of housing in the Local Study Area is described through dwelling counts ownership rates, affordable and social housing, and homelessness. Temporary accommodations are also described. Shelter costs and property values are described in **Section 3.6**.

2.3.5.1 Dwelling Counts

Private dwellings include single- and semi-detached dwellings, apartments, row houses and other single attached houses, and moveable dwellings. The majority of private dwellings in the Local Study Area are located in Dryden, followed by Sioux Lookout, Ignace, Machin, and the LSB of Wabigoon. **Figure 2.3-1** provides a summary of the types of dwellings in the Local and Regional Study Area and Ontario for 2021.

Figure 2.3-1: Types of Dwellings in the Local and Regional Study Area and Ontario, 2021



Source: Statistics Canada 2022a.

Notes:

1. Row houses include row houses and other single attached houses.
2. Totals may not add due to rounding.

The majority of housing in the Local Study Area is single- or semi-detached and the need for a greater diversity of housing types has been identified (BDO 2020; Crupi Consulting 2017). There is a housing shortage in the Local Study Area communities. In Ignace and Machin a housing

shortage is particularly affecting seniors. In Ignace a shortage of rental units and a lack of a diversity of housing poses a challenge for families and workers to find housing. (HSAL 2022; NWO Baseline Studies Key Person Interview Program 2022-2023). In Dryden, the shortage of rental units poses challenges for various demographics, including youth, young professionals, newcomers, teenagers, young adults (18-22), and Indigenous peoples, with efforts underway to address this issue through subsidized seniors housing complexes (Explorer Solutions 2022a; Quartek Group 2022). Sioux Lookout faces a similar housing shortage, with high prices hindering residents from accessing available employment opportunities, prompting community administration efforts to encourage housing development (NWO Baseline Studies Key Person Interview Program 2022-2023). Many communities in the Local Study Area recognize the need to expand and diversify their housing stock to meet the diverse needs in the community. The lack of diversity in the housing stock has a greater affect on potentially vulnerable populations, with a lack of available housing options for those who are experiencing homelessness (KDSB 2021b).

2.3.5.2 Dwelling Ownership

The majority of dwellings are owned by its occupants in the Local Study Area. As of 2021, a total of 79% of dwellings are owned by its occupants in Ignace, 73% in Dryden, 84% in Machin, 67% in Sioux Lookout, and 76% in the LSB of Wabigoon (Statistics Canada 2022a). Dwelling ownership rates generally exceed those across the Regional Study Area (60%) and Ontario (68%).

A total of 21% of dwellings are rented by its occupants in Ignace, 27% in Dryden, 15% in Machin, 33% in Sioux Lookout, 20% in the LSB of Wabigoon, 20% in the Regional Study Area, and 31% in Ontario (Statistics Canada 2022a). In Ignace, a lack of rental units is increasing prices and causing some individuals to live with parents or roommates. In Machin, the low number of available rental units has been noted as an impediment for those who would like to move to Machin. In Sioux Lookout, despite having a higher-than-average proportion of homes being rented in the community, rental demand remains strong with units being rented out before they go to market. A lack of rental units is cited as being an issue in Sioux Lookout (NWO Baseline Studies Key Person Interview Program 2022-2023).

2.3.5.3 Affordable and Social Housing

The Local Study Area communities are taking steps to promote affordable and social housing. The survey of residents collected as part of the Ignace Community Safety and Well-Being Plan (Township of Ignace 2021) shows that 92% of respondents felt that their housing needs were being met. The remaining community members brought up issues surrounding limited housing choice and low building standards. To offer more affordable housing options the Township is looking to promote a full range of housing options at different levels of density (Township of Ignace 2020). Members of the community have expressed support for alternative housing options that are geared towards seniors and affordable housing options (Township of Ignace 2019a; KPMG 2018). Further, the development of seniors housing could alleviate market pressure on other alternative multi-family housing options (IAWG February 24, 2022).

In Dryden, social housing is administered by the KDSB (Explorer Solutions 2022a; KDSB 2023b). There has been ongoing effort by the KDSB to secure funding through federal programs to begin developing new affordable housing units and upgrade existing affordable housing (Explorer Solutions 2022a; NWO Baseline Key Person Interview Program 2022-2023). The City of Dryden's official plan highlights the need to encourage and incentivize affordable housing, assisted seniors' housing, and housing for special needs groups.

In Machin, a lack of affordable housing and rental units is an issue the community (Crupi Consulting 2017). The KDSB operates both family and seniors housing in Machin with rent subsidized housing existing in Vermillion Bay and Eagle River. To build more housing, Machin would require additional infrastructure such as a wastewater plant, roads, and infrastructure to support health and educational services (NWO Baseline Studies Key Person Interview Program 2022-2023).

In Sioux Lookout, a lack of affordable housing is cited as an issue in the community (NWO Baseline Studies Key Person Interview Program 2022-2023). Strong population growth has led to a shortage of available housing, including seniors housing (Municipality of Sioux Lookout 2021a). The Municipality has also stated that it supports the location and integration of affordable housing within new or existing development (Sioux Lookout 2018). KDSB operates family units, seniors housing, and supportive housing programs in Sioux Lookout (NWO Baseline Studies Key Person Interview Program 2022-2023; KDSB 2023c).

2.3.5.4 Homelessness

Individuals experiencing homelessness or who are precariously housed are individuals without a permanent address or residence, appropriate housing, or the immediate prospect, means, and ability to acquire it (KDSB 2021a). These individuals are considered a vulnerable population.

The KDSB delivers social services in the Kenora District (KDSB 2023a), including those servicing individuals experiencing homelessness in all communities in the Local and Regional Study Areas. The top five challenges or problems that homeless individuals reported to the KDSB that prevented them from finding suitable housing were having too low of an income, rent being too high, addiction, discrimination, and mental health issues. Indigenous individuals are overrepresented in the homeless population with 88% of individuals self-identifying as Indigenous. Most homeless individuals (76%) are between the ages of 25 to 55, while 15% are under the age of 25, and 8% are 56 years of age or older (KDSB 2021a).

Indigenous individuals may move off reserves and from their home communities to seek better services and may struggle to find housing in larger communities (GBA+ Workshop 2023). Some residents have reported that discrimination can play a role in not being able to find housing.

2.3.5.5 Temporary Accommodations

There are many temporary accommodations among the Local Study Area communities in the form of hotels, motels, campgrounds, cabins, and RV parks, but many operate at or near capacity on a frequent basis. Local Study Area communities face challenges with temporary accommodations at capacity due to the large number of transient workers (KDSB 2023c).

Throughout hotels, motels, and bed and breakfasts, Ignace has approximately 90 rooms available, Dryden has over 400 rooms, Machin has over 25 rooms, Sioux Lookout has over 185 rooms, and Wabigoon Village has at least five rooms. Temporary accommodations are also provided at nearby campgrounds, of which Ignace has approximately 75 campsites, Dryden has 229 campsites or RV sites, Machin has 50 campsites, Sioux Lookout has 144 campsites, RV sites, or cabins, Wabigoon Village has 17 campsites or RV sites, and Dinorwic has 9 cabins and a bunkhouse that can sleep 14 people. Currently, there are not enough locations to accommodate temporary workers and visitors in the Local Study Area and temporary or seasonal residents may reduce housing availability (KDSB 2023c).

2.3.6 Transportation Infrastructure

Transportation infrastructure describes regional and local roads, airports, and railways in the Local Study Area.

2.3.6.1 Regional and Local Roads

The Local Study Area communities are located along or just off Highway 17 (Ignace, Dryden, Machin, Wabigoon Village, Melgund, Dinorwic, and Upsala); Highway 72 (Sioux Lookout); and Highway 599 (Valora and Silver Dollar). In 2016, the average annual daily traffic along Highway 17 was 5,950 vehicles/day, 3,200 vehicles/day for Highway 72, and not exceeding 300 vehicles per day along Highway 599 (WSP 2022d). The average annual daily traffic and summer average daily traffic are currently below capacity for Highway 17. For Ignace, Dryden, and Sioux Lookout the majority of municipal roads (over 65%) are considered to be in fair or better condition (Explorer Solutions 2022a; PSD Citywide 2020). For Machin, approximately 77% of the municipal road network is considered to be in “poor to very poor” condition, whereas 5% were assessed as “very good condition” (PSD 2016).

Residents of Local Study Area communities are concerned about road safety. Accidents along the regional highway network within the Local Study Area are primarily due to inclement weather, animal encounters, reduced visibility due to poor lighting, and aggressive driving (WSP 2022d). There are operational and maintenance issues along Highway 17 between Ignace and Dryden including limited emergency access for firetrucks, heavy vehicle parking despite the presence of prohibited parking signs, excessive snow piling along the highway main corridor and sidewalks (sightline impairment), and increased highway traffic congestion (WSP 2022d). Residents of Local Study Area communities have also expressed concern about winter driving and the number of accidents along the regional highway network within the Local Study Area (WSP 2022d).

2.3.6.2 Airports

Within the Local Study Area, there are airports in Ignace, Dryden, Sioux Lookout, and Machin; however, the Ignace and Machin airports do not currently have operational status.

The Dryden Regional Airport helps to support several services for the community and broader region including aerial firefighting, scheduled passenger service, general aviation, search and rescue operations, corporate charters, and medical evacuation flights (City of Dryden n.d.b).

Sioux Lookout is known as the “Hub of the North” for northern Ontario, and the Sioux Lookout Airport connects 31 remote northern communities and First Nations to essential services, making it one of the busiest airports in Ontario (MHBC Planning 2013).

2.3.6.3 Railways

The Canadian Pacific Railway has stations in Ignace, Dryden, and passes through Machin. Canadian Pacific is a freight rail service provider with passenger services limited to luxury tours provided by Royal Canadian Pacific (Canadian Pacific 2023). The Canadian National Rail Line travels through Sioux Lookout with passenger services available through VIA Rail.

2.3.7 Utilities

Utilities and associated infrastructure describe the infrastructure for electricity, natural gas and propane, water, wastewater, and stormwater, solid waste and recycling, and telecommunications in the Local Study Area. Utility costs are described in **Section 3.6.2**.

2.3.7.1 Electricity

Electricity service providers in the Local Study Area include Hydro One Networks and Sioux Lookout Hydro. Hydro One Networks is the electricity provider for Ignace, Dryden, Machin, Wabigoon Village, Melgund, and Dinorwic (Hydro One n.d., Township of Ignace 2018; City of Dryden 2017; NWO Baseline Studies Key Person Interview Program 2022-2023). Sioux Lookout Hydro is electricity provider for Sioux Lookout (Sioux Lookout Hydro 2023).

2.3.7.2 Natural Gas and Propane

Union Gas (Enbridge) is the only provider of natural gas service in the Local Study Area and provides service to Ignace, Dryden, and Machin (OEB 2023b). Sioux Lookout, Wabigoon Village, Melgund, and Dinorwic do not have natural gas service. Superior Propane and Morgan Fuels serve the communities of Dryden and Sioux Lookout (Explorer Solutions 2022b; NWO Baseline Studies Key Person Interview Program 2022-2023). A TC Energy natural gas transmission pipeline runs through the Local Study Area, roughly twinning the Trans-Canada Highway, but does not distribute natural gas to the Local Study Area communities. The gas pipeline has rights of way that cross municipal lands for Ignace, Dryden, Machin, Wabigoon Village, and Melgund (Quartek Group Inc 2022).

2.3.7.3 Water, Wastewater, and Stormwater

The Township of Ignace, City of Dryden, and Municipality of Sioux Lookout have water and wastewater treatment and distribution systems. The Municipality of Machin has a water treatment and distribution system, but its residents are responsible for their own septic fields and/or tanks. The main water source for Ignace is Michel Lake, for Dryden is Wabigoon Lake, for Machin is Eagle Lake, and for Sioux Lookout is Pelican Lake. Residents in unincorporated communities are responsible for their own water and wastewater. Service can come in the form of cisterns and water wells for water service and septic tank and field for wastewater service (NWO Baseline Studies Key Person Interview Program 2022-2023).

The water treatment and distribution systems in Ignace, Dryden, Machin, and Sioux Lookout are running below capacity; however, to accommodate future growth in Ignace, Dryden, and Sioux Lookout, upgrades or replacement of water treatment plant assets may be required (BDO 2020; Explorer Solutions 2022a; Municipality of Machin 2019; Urban Systems 2021; WSP 2022b). The wastewater treatment and distribution systems in Ignace, Dryden, and Sioux Lookout are running below capacity; however, the systems are constrained by performance and operation limitations and needed replacements (Explorer Solutions 2022a; PSD 2020; WSP 2022b).

Municipal stormwater management is provided to residents of Ignace, Dryden, Machin, and Sioux Lookout. The Township of Ignace, City of Dryden, and Municipality of Sioux Lookout each manage a system of stormwater sewer mains, culvert, ditches, catch basins, and manholes. The Municipality of Machin maintains ditches with culverts. The Ministry of Transportation maintains the ditches and culverts for Wabigoon Village, Melgund, and Dinorwic (NWO Baseline Studies Key Person Interview Program 2022-2023). In Ignace, stormwater assets are nearing the halfway point of their useful life. In Dryden, most storm sewers are in moderate or worse condition (Explorer Solutions 2022a). In Machin, a majority of culverts have exceeded their estimated useful life and are in very poor condition (PSD 2021). In Sioux Lookout, the average condition of stormwater infrastructure is in good condition (PSD 2020).

2.3.7.4 Solid Waste and Recycling

Ignace, Dryden, Machin, and Sioux Lookout offer solid waste collection and disposal services. Recycling services vary between the Local Study Area communities. Ignace currently does not offer municipal recycling collection services (NWO Baseline Studies Key Person Interview Program 2022-2023; Circular Materials n.d.). In Machin, recycling can be dropped off at bins at their landfill site. There is no curbside pickup for residents of Wabigoon Village, Melgund, or Dinorwic but there are landfills where garbage can be dropped off at. The City of Dryden also provides curbside yard waste collection services every spring and fall and hazardous waste disposal is available through the Public Works Department. Ignace has one landfill that is also used by several adjacent unorganized communities in the surrounding area and services approximately 5,000 residents (Pinchin 2021). Dryden has one landfill, Machin operates two landfills, and Sioux Lookout operates one landfill (Machin Messenger 2022; Pinchin 2021).

2.3.7.5 Telecommunications

Telecommunications includes cellular phone, landline, television, and internet service.

Cellular phone service for all Local Study Area communities is provided by Bell Canada, TBayTel, Telus, Rogers, Virgin Mobile, Fido, and Koodoo. Bell Canada provides landline service in the Local Study Area. In Dryden, the Dryden Municipal Telephone System provides landline service and is owned by Bell Canada (WSP 2022b).

The television service providers for all Local Study Area communities includes Bell Canada and Shaw Direct (WSP 2022b).

Internet service providers vary by community. Internet service providers for all Local Study Area communities include Starlink, Xplornet, Bell Canada, and Shaw. Ignace also receives service from Celerity Telecom, Dryden from Celerity Telecom, TBayTel, and the Dryden Municipal

Telephone Service, and Sioux Lookout from Kuhkenah Network and TekSavvy (WSP 2022a; Municipality of Sioux Lookout 2021a).

2.4 LAND AND RESOURCE USE

The natural environment is important to residents and visitors of the Local Study Area. For residents the natural environment plays an important role in a community's culture, not only through the economic support commercial resource use has played in a community's economy but also through the connection residents have with the surrounding boreal forest for personal use and outdoor recreation. As the natural environment is important to the communities in the area, it is key to understanding how land and resources have been used in the past and how they are currently used to support predictions related to future impacts as a result of the Project. This section summarizes land use designations, commercial uses, and recreational uses. Indigenous land and resource use, including access to culturally important resources and country foods, will be documented in the Indigenous Peoples baseline. Indigenous communities will guide the information shared and the way it is shared in accordance with their privacy protocols.

The Local Study Area¹¹ for land and resource use includes the Revell Site (i.e., the potentially geologically suitable area where borehole drilling has occurred and the Project may be located) with a 10 km buffer to provide additional context. The land and resource use Local Study Area was informed with consideration of the local study areas identified for terrestrial and aquatic ecosystems studies (Zoetica 2020a; 2020b), along with the local study areas for sampling for environmental media studies (CanNorth 2020), all of which are captured within the 10km buffer.

2.4.1 Land Use Designations

The Local Study Area contains seven individual land use areas designated by the Ministry of Natural Resources and Forestry¹². Five of these areas are designated as general use provincial Crown land and extend beyond the Local Study Area (provincial Crown land general use areas G2531, G2533, G2544, G2545, and G2511) with permitted uses including camping, fishing, hunting, snowmobiling, accessing cottages or cabins, and other recreational activities such as hiking, canoeing, or swimming. (Government of Ontario n.d.). Some commercial and private uses are also permitted on provincial Crown Lands, with uses described in more detail in **Section 2.4.2** and **Section 2.4.3**.

The other two areas are designated as conservation areas and include the Pyatt Lake Conservation Reserve and the Adair Lake Conservation Reserve, both located north of the Revell Site on the northern side of Highway 17. Both conservation reserves share identical vegetation types, management policy guidelines, and permitted land uses. Commercial activities are heavily restricted in the conservation reserves, with only existing activity including fishing operations, bear hunting, and wild rice harvesting permitted. Permitted land and resource management

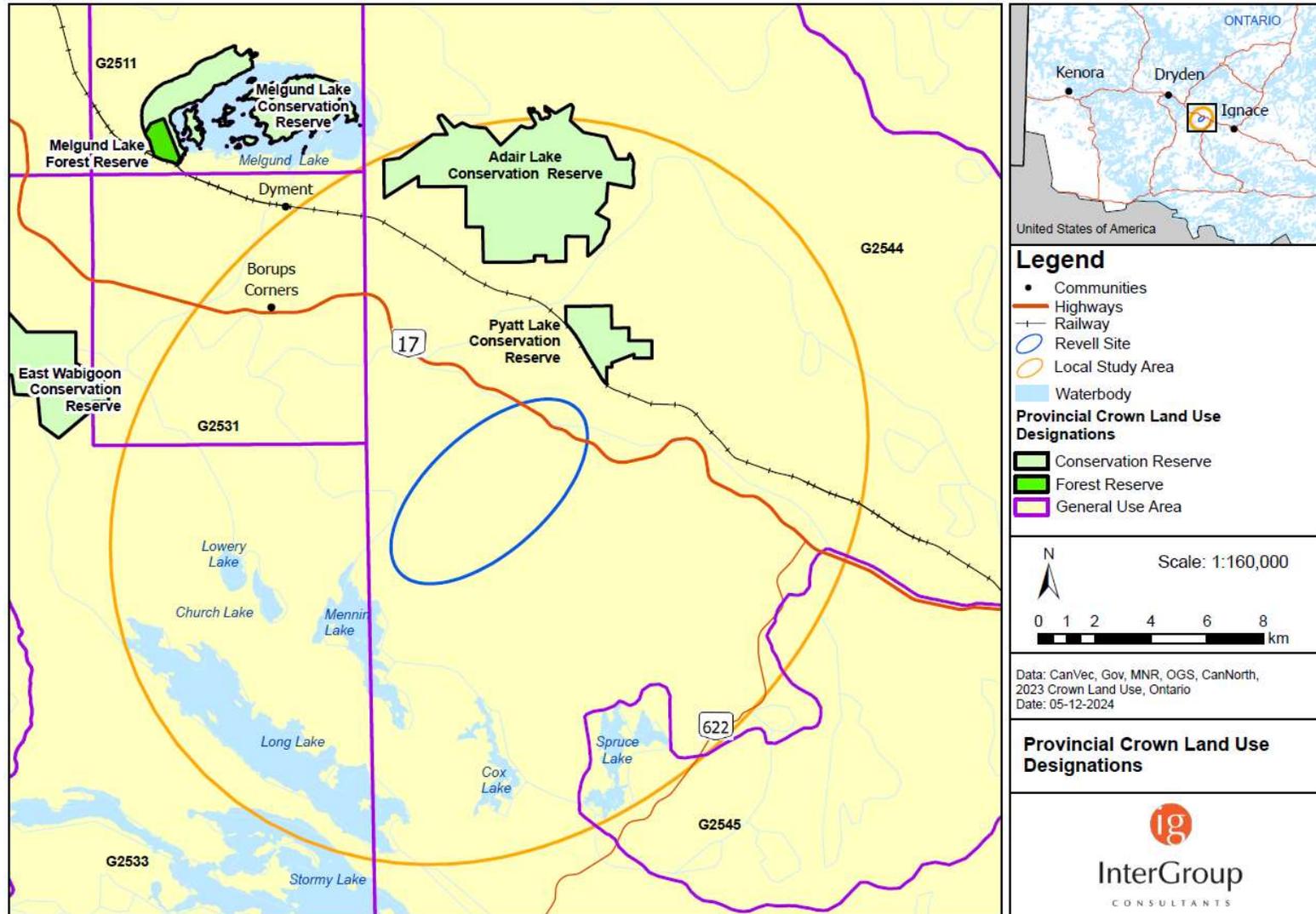
¹¹ A Regional Study Area for land and resources use will be revisited and defined after the site selection process, with consideration of primary and secondary studies for terrestrial, aquatic, environmental media, and Indigenous community studies relative to the expression of Indigenous and Treaty Rights.

¹² The names and boundaries of provincial Crown land use designations are determined by the Province of Ontario and are not an indication of Indigenous land and resource use.

activities include only fire suppression and inventory/monitoring. Recreational activities permitted include all-terrain vehicles and snowmobiling on trails only, food gathering, mountain biking, sport fishing, and hunting. **Figure 2.4-1** provides a summary of Crown land use designations in the Local Study Area.¹³

¹³ The names and boundaries of provincial Crown land use designations are determined by the Province of Ontario and are not an indication of Indigenous land and resource use.

Figure 2.4-1: Provincial Crown Land Use Designations in the Local Study Area



2.4.2 Commercial Land and Resource Use

The Local Study Area falls within the Wabigoon Forest management unit as designated by the Ministry of Natural Resources and Forestry. The Wabigoon Forest has a Forest Management Plan for 2019 to 2029, which outlines management of its corresponding forest including conditions on operations. According to the Wabigoon Forest 2022-2023 Annual Work Schedule, there are 12 regular harvest areas operated by Domtar for 2023-2024 in the Local Study Area (Domtar Inc. 2022).

Currently, there are no active commercial fishing licences in the Local Study Area. Six bait harvest areas cross into the Local Study Area.

There are six traplines in the Local Study Area. Species typically trapped in the Local Study Area include beaver, pine marten, fisher, red fox, weasel, mink, lynx, and squirrels. The practice of trapping is declining in the region, as there is a loss of interest amongst younger generations (NWO Baseline Studies Key Person Interview Program 2022-2023).

Outfitting and guiding are important to tourism in the Local Study Area. Fishing is the most popular tourism activity, with hunting also important (NWO Baseline Studies Key Person Interview Program 2022-2023). Outfitting operators/lodges based in the region offer a variety of services and activities, with some also offering winter activities including ice fishing and snowmobiling. Sandy Point Camp is the only outfitter located within the Local Study Area; however, other operators will sometimes use the lands and resources in the Local Study Area to carry out their operations. Tourists from the United States make up 90% to 100% of outfitting and guiding clients in northwestern Ontario (NWO Baseline Studies Key Person Interview Program 2022-2023).

There are no active mines in the Local Study Area. Current exploration activities in the Local Study Area include the Howie Lake Project, gold exploration by Ashley Gold Corporation in the Kawashegamuk/Long Lake area (Government of Ontario 2023d). There are abandoned mines in the Local Study Area, all of which were gold mines. The abandoned mines constitute abandoned exploration shafts. There are no abandoned mines in the Revell Site.

Figure 2.4-2 provides a summary of active and planned harvests, Forest Management Units, mining claims, and abandoned mines in the Local Study Area. **Figure 2.4-3** provides a summary of bait harvest areas, registered trapline areas and bear management areas.

Figure 2.4-2: Active and Planned Harvest, Forest Management Units, Mining Claims, and Abandoned Mines in the Local Study Area

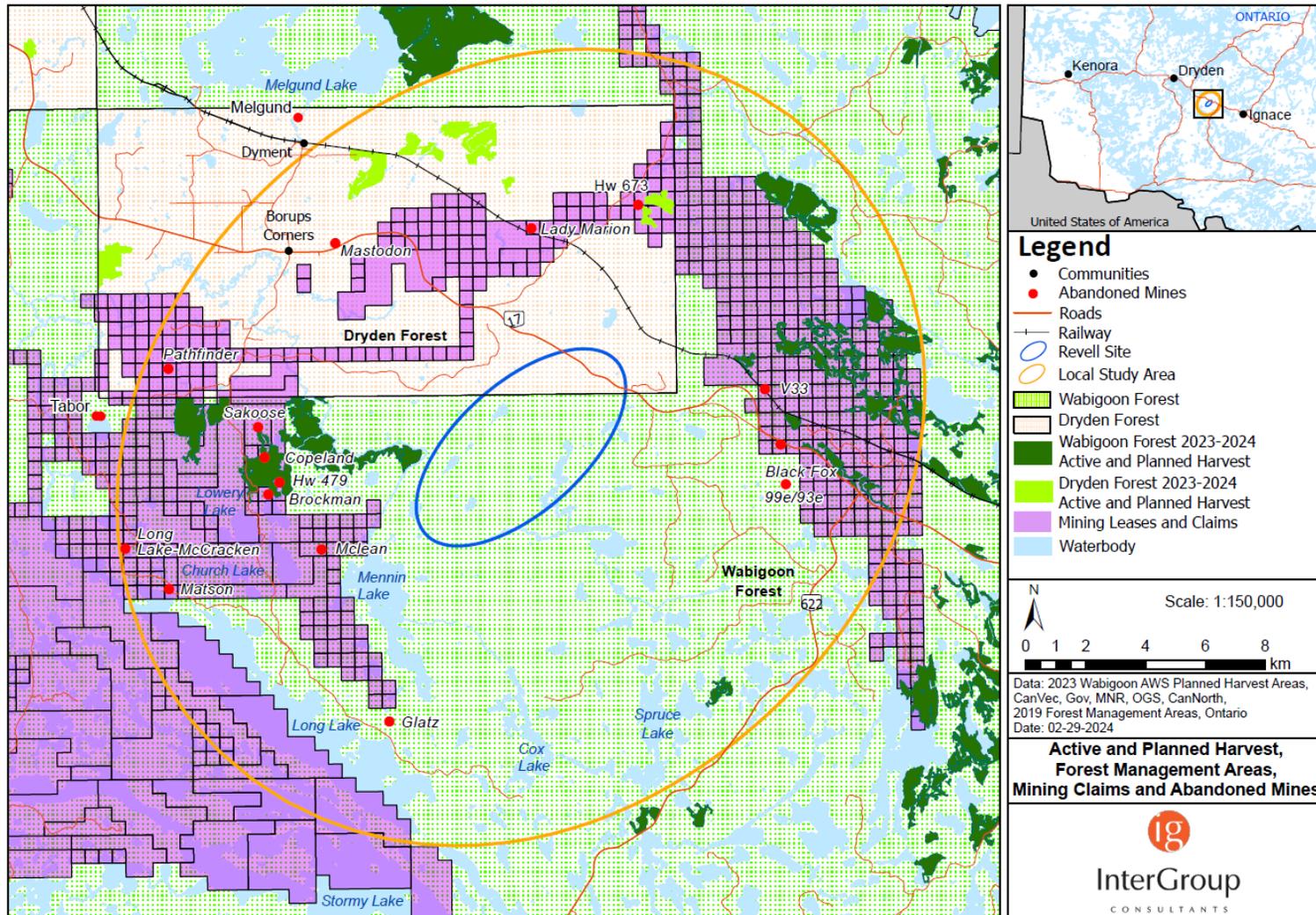
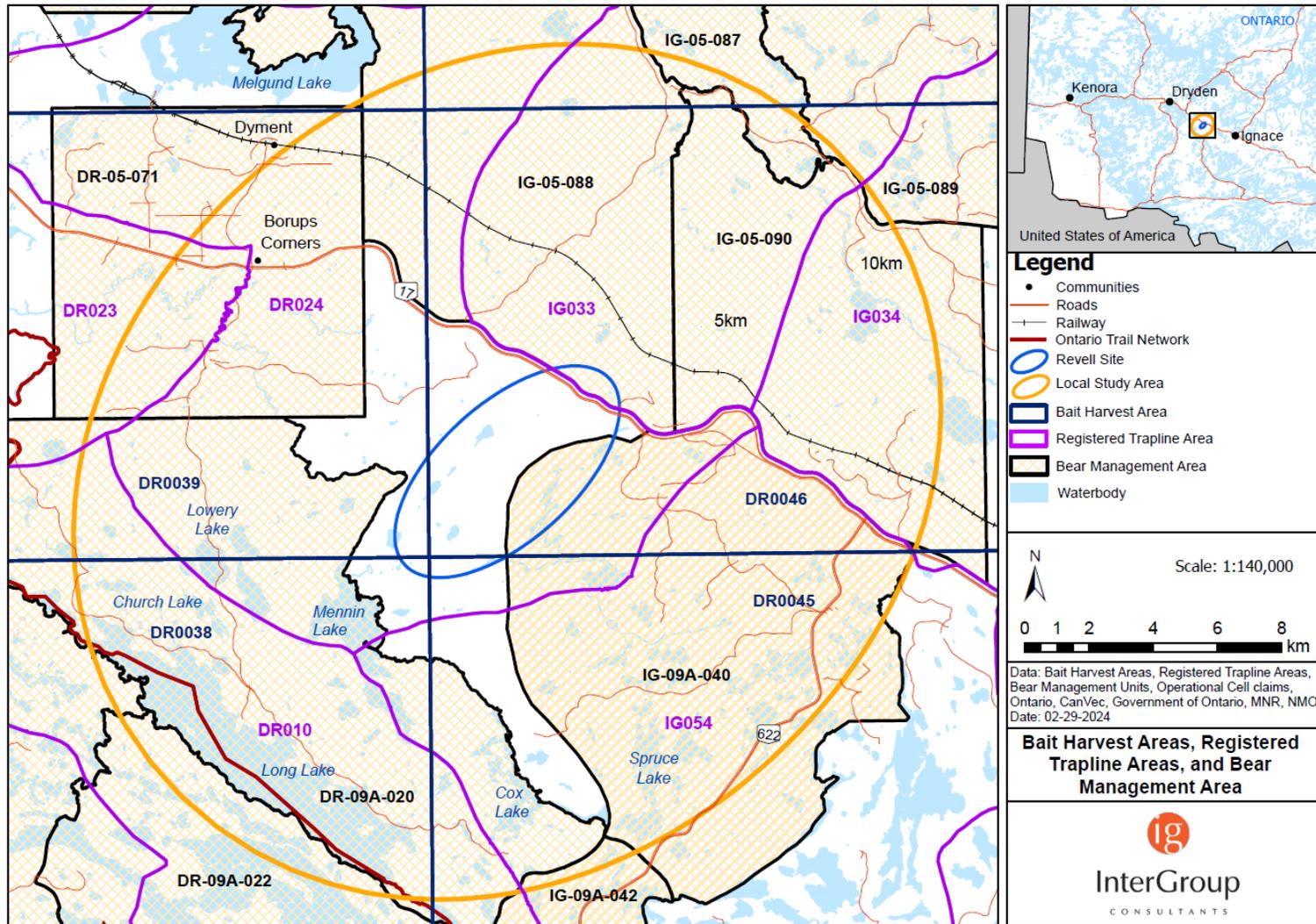


Figure 2.4-3: Bait Harvest Areas, Registered Trapline Areas, and Bear Management Areas in the Local Study Area



2.4.3 Recreational Land and Resource Use

The natural beauty of the area, the level of remoteness that can be achieved, and the easy access to land and resource use activities are the biggest draws to the area and are among the reasons why residents and visitors enjoy their camps/cottages/cabins (NWO Baseline Studies Key Person Interview Program 2022-2023). Camp and cabin owners participate in several types of land and resource use activities including fishing, hunting, trapping, hiking, bird watching, ATVing, snowmobiling, gathering berries and mushrooms, wood harvesting, biking, snowshoeing, cross-country skiing, canoeing, kayaking, and boating.

Many residents hike in the Local Study Area and often partake in recreational activities while hiking such as bird watching, gathering blueberries, collecting moose sheds, and harvesting wood. Gathering berries while hiking and wood harvesting also occurs around the Revell Site. Use of ATVs through the Revell Site occur on an informal trail system (NWO Baseline Studies Key Person Interview Program 2022-2023). Snowmobiling is a widely enjoyed winter activity by many residents and visitors in northwestern Ontario and is generally permitted on Crown land unless it is a restricted area.

Recreational fishing is a key activity in the Local Study Area and to communities in the region. The most popular species for recreational fishing are walleye, northern pike, lake trout, brook trout, smallmouth bass, lake whitefish, sauger, and yellow perch. Residents and visitors to the area enjoy fishing in the region because of the healthy fish populations, the easy access to remoteness/isolation when out on a lake, and the natural beauty of the area. Long Lake and Menin Lake are two known areas used for recreational fishing in the Local Study Area (NWO Baseline Studies Key Person Interview Program 2022-2023).

Hunting for residents in the region is both a lifestyle and source of food for many residents. Hunting typically targets animals like white-tailed deer, moose, black bears, small game, hare, and birds such as grouse and waterfowl. The Local Study Area includes Wildlife Management Units 5 and 9a. (NWO Baseline Studies Key Person Interview Program 2022-2023).

2.5 ARCHAEOLOGY AND HERITAGE

Archaeological and heritage resources are under provincial jurisdiction. In Ontario, the Ministry of Tourism, Culture and Sport enforces Part VI of the *Ontario Heritage Act* (Government of Ontario 1990b). This section of the *Ontario Heritage Act* defines priorities, policies, and programs for the preservation of archaeological resources determined to have cultural heritage value. The Ministry of Tourism, Culture and Sport provides guidance on how to comply with the terms and conditions of an archaeological licence and other ministry requirements, such as the Standards and Guidelines for Consultant Archaeologists (Ministry of Tourism and Culture 2011).

Heritage resources were characterized for the Local and Regional Study Area by reviewing locations of previously recorded archaeological sites. In Ontario, archaeological sites include Indigenous hunting camps and villages; battlefields; pioneer homes, burial grounds and cemeteries, shipwrecks; and other evidence of past human activity (Government of Ontario 2022d).

The Regional Study Area is a 30 km buffer around the Revell Site to provide context for archaeological potential. The Local Study Area is the Revell Site.

2.5.1 The Revell Site

The NWMO has completed borehole drilling at six locations in the Revell Site. These locations were chosen based on the technical needs of the Project combined with Indigenous and non-Indigenous community and organizational inputs. As part of a cultural verification study in 2017, studies were initiated to verify that the borehole area did not contain sites of cultural significance prior to the start of borehole site establishments. The cultural screening noted that there were no known archaeological or historical sites in or near the borehole sites (NWMO 2018).

2.5.2 Heritage Potential

In the 19th century, there were Hudson's Bay Company posts built near the study area in Eagle Lake by modern day Dryden and at Wabigoon/Dinorwic. The latter of these two posts operated until 1940. The area was an important historic transportation route with traffic travelling through Rat Portage. The Regional Study Area is interspersed with 34 recorded archaeological sites as well as other areas that are considered sacred by Indigenous peoples (Ministry of Tourism and Culture 2011).

3.0 ECONOMIC

The components in the economic section of the technical baseline report include employment; labour force skills and training; economic base; income, property values, and cost of living; and local government finances. The Project would create employment and could have effects on labour force characteristics, income, education and training, business opportunities, municipal finances, and cost of living. Population growth related to employment could also have effects on other components in the existing environment including health and well-being and infrastructure and services. Understanding the existing and possible future conditions without the Project is important to being able to understand the potential effects of the Project on the economy.

The Local Study Area is a resource-based economy with a long history of mining and forestry operations. Other major industries contributing to the local economy include health care, retail trade, public administration, educational services, and tourism. Dryden and Sioux Lookout are the largest communities in the area and often act as a service hub for the smaller communities.

The cyclical nature of forestry and mining has resulted in economic upturns and downturns when these industries grow and contract. Diversified economies are generally considered more sustainable and are less vulnerable to economic downturns than those that depend on a small number of industries. Economic development plans in the area prioritize diversification with a focus on supporting entrepreneurs, local businesses, and the tourism industry. For example, the major employers in Sioux Lookout are in the public sector, including health care, public administration, and educational services, which helps stabilize the community's economy during resource-sector downturns.

Labour force participation and employment rates declined from 2006 to 2021 while unemployment rates increased in the area. A number of factors contributed to these changes, including things like the COVID-19 global pandemic. The local population is aging with an increasing proportion of seniors leaving the workforce. Retaining younger people has been a challenge as youth may not return to the area after completing post-secondary education as there may be better employment opportunities in larger communities. It is anticipated that the labour demand in the Local Study Area will continue to increase over the next three decades, while the available labour force may be challenged in meeting that demand without in-migration.

The Indigenous population is growing in the Local and Regional Study Areas, and at a faster rate than the non-Indigenous population. Indigenous peoples in the Local Study Area tend to experience higher unemployment rates than non-Indigenous peoples. Factors contributing to the higher unemployment rates include a number of barriers to employment such as systemic discrimination, access to childcare, and a lack of local education and training opportunities.

In general, incomes are higher and property values are lower in the Local Study Area compared to northwestern Ontario, which contributes to affordability. In the smaller communities in the area, the cost of food is higher and there are fewer products and services to choose from compared to larger population centres, such as Dryden. The smaller communities and unincorporated areas rely on Dryden or places like Thunder Bay for larger shopping trips and to access services. Ignace, Dryden, Machin, and Sioux Lookout provide municipal services to residents which contributes to the affordability of the communities, while households in

unincorporated communities are responsible for their own water or wastewater services and typically spend more for these services.

3.1 EMPLOYMENT

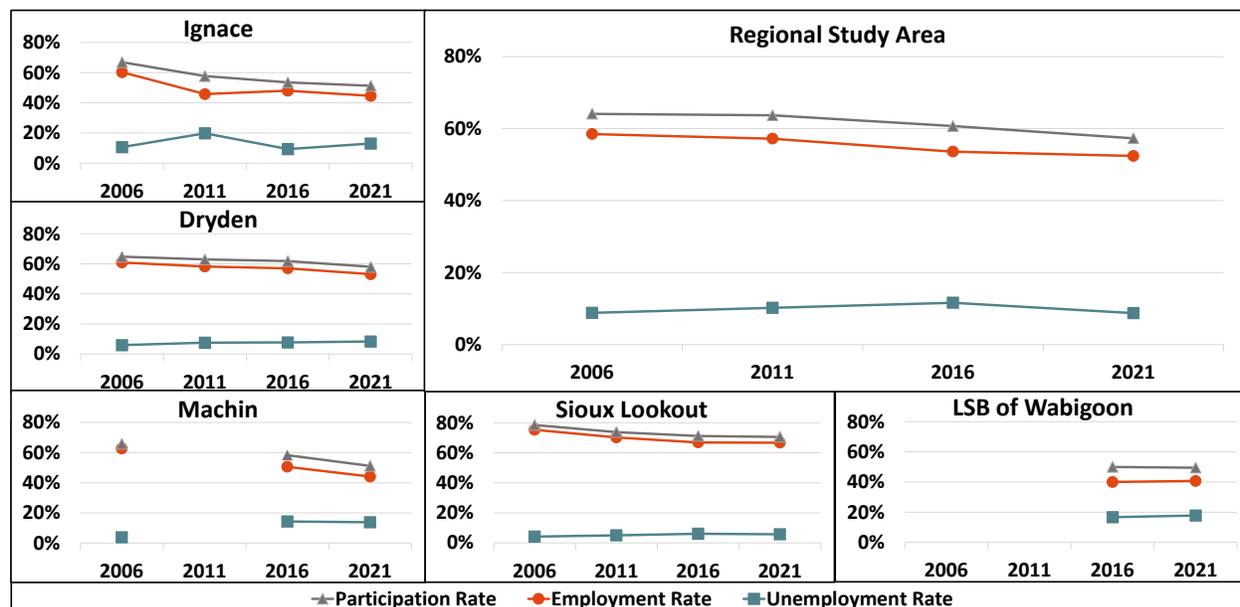
Employment is a primary indicator of economic well-being and a significant contributor to individual health. The future Impact Assessment will provide details on Project employment opportunities in the Local and Regional Study Areas. Labour force is a foundational concept in describing the labour economy. Statistics Canada defines labour force as the portion of the working age population (those aged 15 years and older) who identify as able and available to work (Statistics Canada 2022a). The baseline for employment is focused on the labour force characteristics of participation, employment, and unemployment rates:

- **Participation rate** is the proportion of people participating in the labour force, or those working (employed) or able and available to work (unemployed), from the entire working age population (15 years old and over).
- **Employment rate** is the number of people employed as a percentage of the working age population (15 years and over). Conceptually, the employment rate is the proportion of people working out of all people who could theoretically work.
- **Unemployment rate** refers to the number of people unemployed, expressed as a percentage of the labour force. The unemployment rate represents the proportion of people who want to work but do not have work.

3.1.1 Labour Force Status

Employment is a social determinant of health (See **Section 4.3.2**) as it has a causal relationship to a person's income. Financial insecurity can result in negative impacts on mental health, nutrition, and well-being (Social Determinants of Health 2017). In 2021 the Local Study Area labour force was 8,090 people, with the largest concentrations in Dryden (3,605 people), Sioux Lookout (3,325 people), and Ignace (500 people). The Local Study Area labour force represented 28% of the Regional Study Area labour force (29,245 people) (Statistics Canada 2022a). **Figure 3.1-1** shows the participation rate, employment rate, and unemployment rate of people aged 15 and over for the Local and Regional Study Areas from 2006 to 2021.

Figure 3.1-1: Labour Force Status in the Local Study Area Communities and Regional Study Area, 2006 to 2021



Source: Statistics Canada 2007, 2012, 2017, 2022a.

Notes: Data for Local Study Area communities were not available for the LSB of Wabigoon for 2006 and 2011 and Machin for 2011.

Participation rates and employment rates generally decreased, and unemployment rates increased in the Local and Regional Study Areas from 2006 to 2021. The decrease in participation and employment rates reflect an aging labour force which results in a larger number of people who are not in the labour force. Participation rates generally decline after 55 years old as people approach retirement (NWO Baseline Studies Key Person Interview Program 2022-2023). For the 15 to 24 age cohort, participation rates are generally lower than those aged 25 to 54 (Statistics Canada 2022a). Most of Canada’s projected labour force growth is due to an increase in the number of immigrants (Cross 2021).

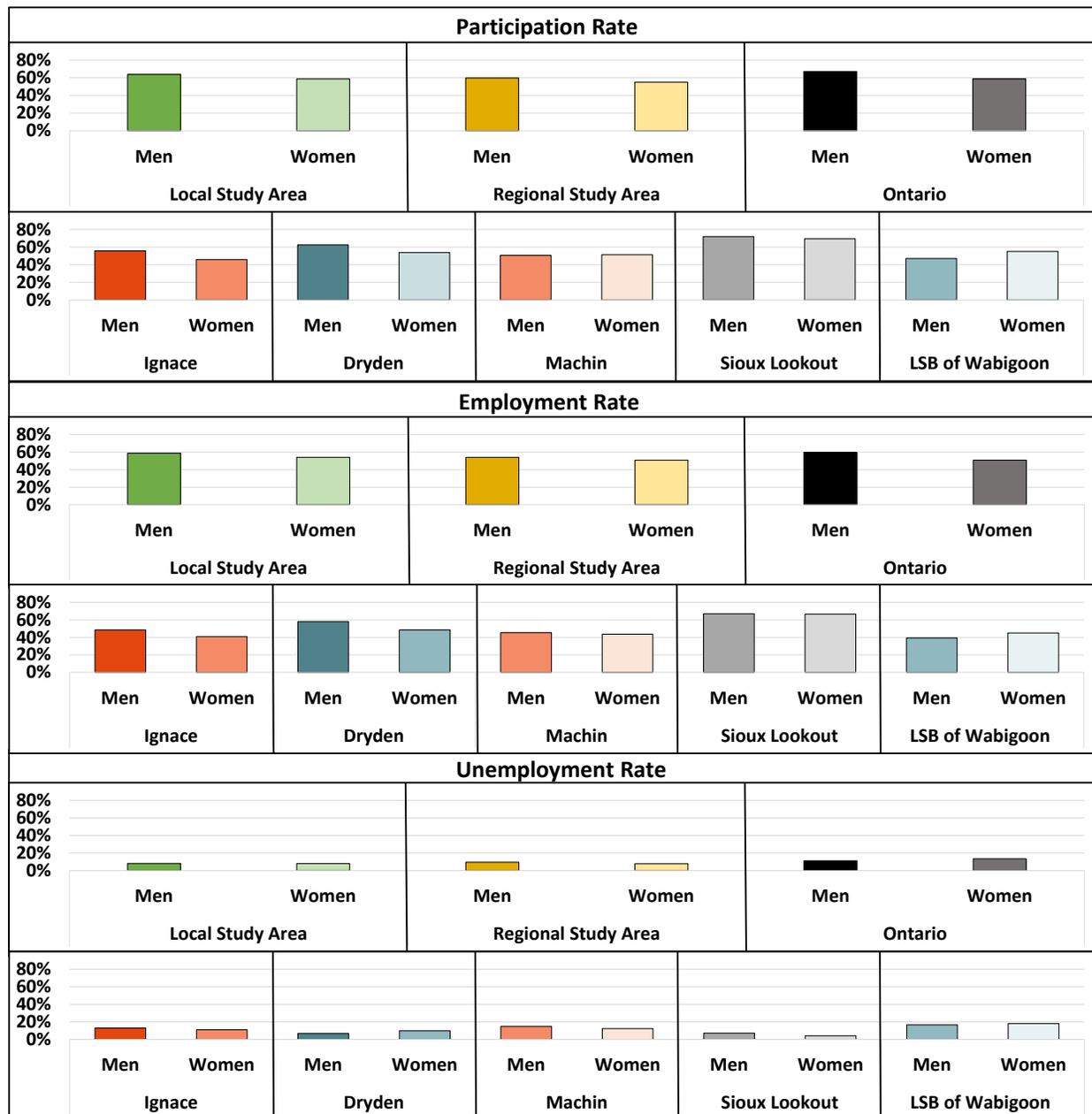
In the Local Study Area, unemployment rates are typically highest for those 15 to 25 years old, followed by those aged 65+. Unemployment rates are lowest for those in the 25 to 54 age group (Statistics Canada 2022a). The Local Study Area labour force has historically been reliant on employment in the mining and forestry industries, which has made the communities susceptible to cyclical downturns in these industries (NWO Community and Baseline Studies Key Person Interview Program 2022).

Barriers to employment may include lack of childcare for parents wishing to work, a need for a variety in the types of jobs offered, and a lack of jobs with career advancement opportunities (NWO Baseline Studies Key Person Interview Program 2022-2023; InterGroup & EPI Research Inc. 2023). Career jobs in the Local Study Area are limited to certain sectors and there are fewer options for those with skills or education in other areas. There is also an issue of some jobs being filled by non-residents who live out of town and commute due to a lack of housing.

3.1.2 Labour Force Status by Gender

Figure 3.1-2 shows participation, employment, and unemployment rates by gender in the Local and Regional Study Areas and Ontario, for 2021.

Figure 3.1-2: Labour Force Status by Gender in the Local and Regional Study Areas and Ontario, 2021



Source: Statistics Canada 2022a.

In 2021, participation rates and employment rates were higher for men than women in the Local and Regional Study Area and Ontario (Statistics Canada 2022a). Participation and employment rates are generally higher for both men and women in Sioux Lookout and Dryden, and lowest in Ignace, Machin, and the LSB of Wabigoon. The trend in participation and employment rates could be attributed to the limited variety of employment opportunities available in Ignace and Machin and the need for transportation to work outside of these communities. The seasonal nature of employment in some industries, such as forest fire suppression and outfitters and camps, may result in different employment rates at different times of the year.

The unemployment rate for men is lower in the Local Study Area than in Ontario and the Regional Study Area. The unemployment rate for women is similar in the Local and Regional Study Area and lower than in Ontario. In 2021, Ontario had the highest unemployment rate for both men and women compared to the Local and Regional Study Areas (Statistics Canada 2022a). Among the Local Study Area communities, men have generally had higher unemployment rates than women, with the exception of Dryden and the LSB of Wabigoon.

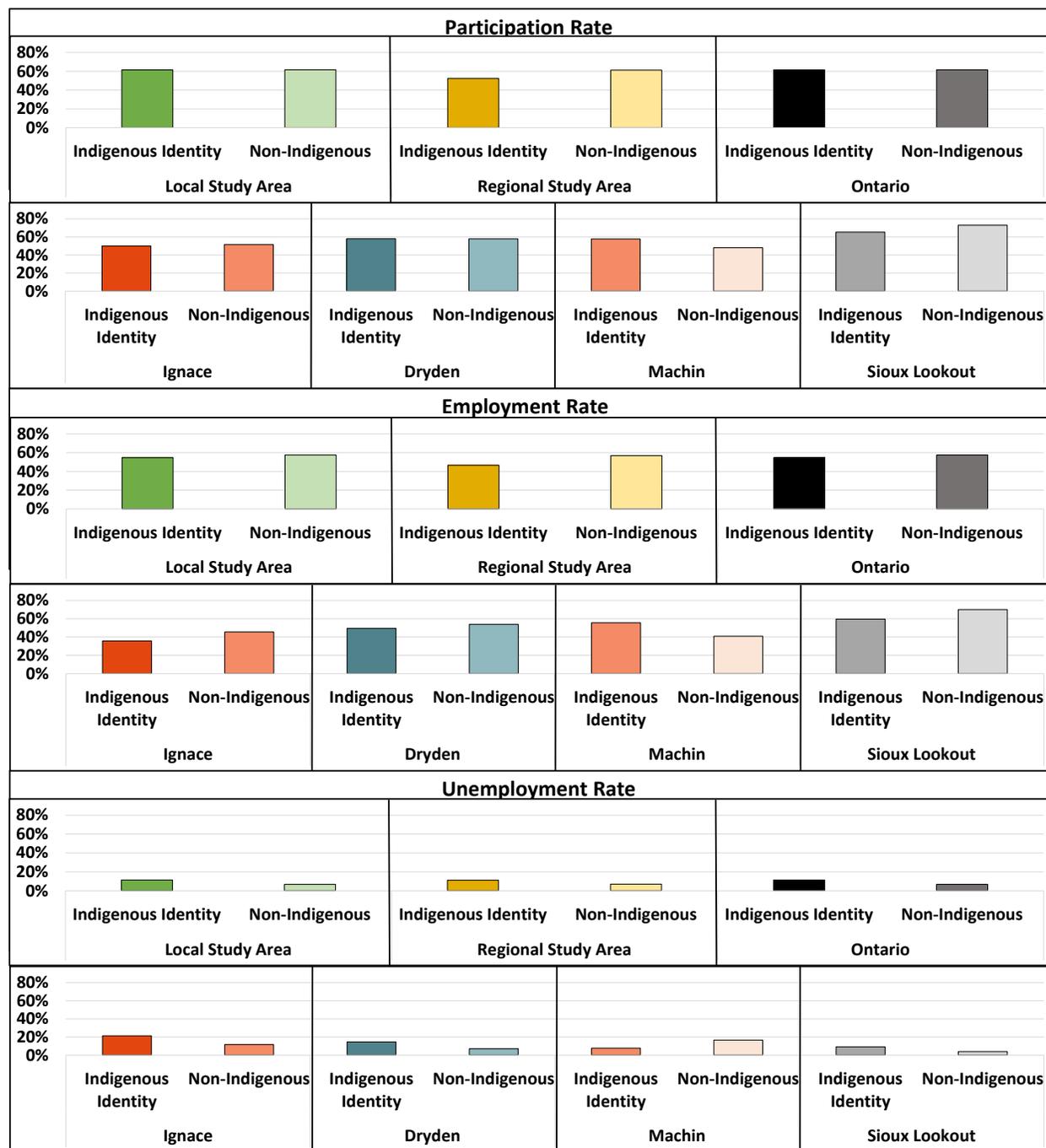
Unemployment can be influenced by a number of factors including access to childcare, the requirement of personal transportation to commute to work, lack of education, cultural influences, mental health and substance dependencies, social anxiety from extended periods of unemployment (Pohlan 2019), seasonal employment variations, and individual wage expectations (NWO Baseline Studies Key Person Interview Program 2022-2023). The COVID-19 pandemic may have contributed to the higher unemployment rate for Ontario due to the inability of certain businesses to transition to remote work or to maintain social distancing in the workplace (Statistics Canada 2023c).

3.1.3 Labour Force Status by Indigenous Identity

Indigenous peoples include those who identify as First Nation (North American Indian), Métis, or Inuit, and/or those who reported as a Treaty Indian or Registered Indian and/or have membership in a First Nation or Indian Band (Statistics Canada 2022a). Over 15% of the population identified as Indigenous in each Local Study Area community in 2021 (see **Section 2.1.2**; Statistics Canada 2022a).

Figure 3.1-3 shows the 2021 participation, employment, and unemployment rate for the Indigenous and non-Indigenous populations in the Local and Regional Study Areas and Ontario.

Figure 3.1-3: Labour Force Status by Indigenous Identity in the Local and Regional Study Areas and Ontario, 2021



Source: Statistics Canada 2023e.

Participation rates are similar for Indigenous peoples and non-Indigenous peoples in the Local Study Area and Ontario. In the Regional Study Area, participation rates for Indigenous peoples

are lower than non-Indigenous peoples and lower than Indigenous peoples in the Local Study Area and Ontario. Among the Local Study Area communities participation rates are similar for Indigenous peoples and non-Indigenous peoples in Ignace and Dryden, lower for Indigenous peoples than non-Indigenous peoples in Sioux Lookout, and higher for Indigenous peoples than non-Indigenous peoples in Machin (Statistics Canada 2023e).

Employments rates were lower for Indigenous peoples than non-Indigenous peoples in the Local and Regional Study Areas and Ontario (Statistics Canada 2023e). Similar trends were observed among the Local Study Area communities in 2021, including in Ignace, Dryden, and Sioux Lookout. In 2021, Machin is the only Local Study Area community where Indigenous peoples had a higher employment rate than non-Indigenous peoples.

The unemployment rates for Indigenous peoples were higher than for non-Indigenous peoples in the Local and Regional Study Areas and Ontario in 2021 (Statistics Canada 2023e). Similar trends were observed in the Local Study Area communities, with the exception of Machin where unemployment rates for non-Indigenous peoples were higher than for Indigenous peoples.

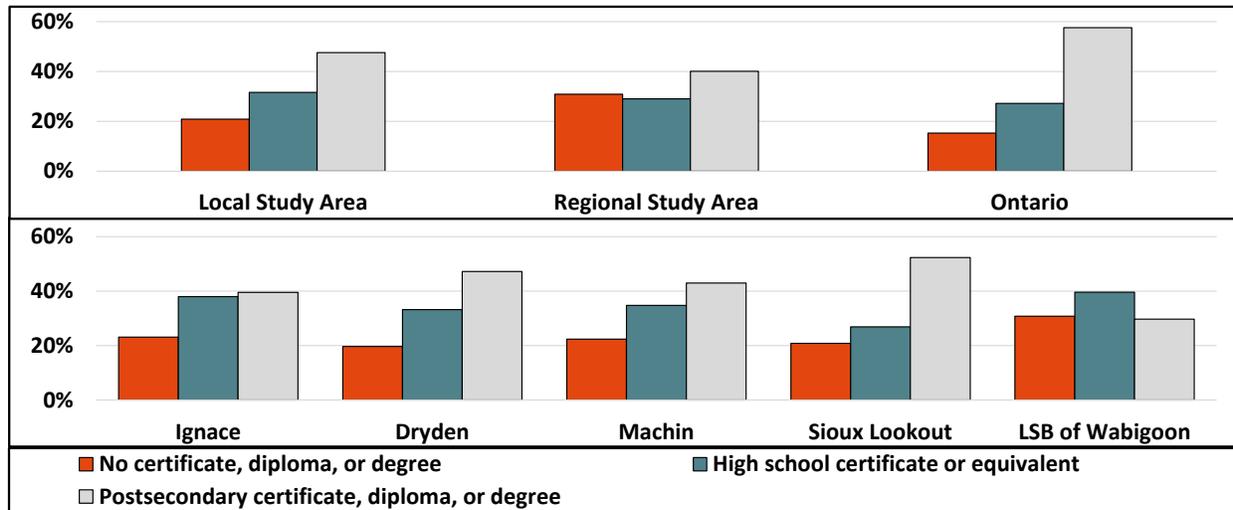
3.2 LABOUR FORCE SKILLS

Labour force skills reflect the degree of education and experience that help qualify a person for employment. Skilled labour is defined as a person having completed a diploma, degree, or higher level of postsecondary education, or a skilled trade that has been designated as compulsory under the Ontario skilled trades and apprenticeship system (Ontario College of Trades 2020). Unskilled labour is defined as a person who has not completed secondary school, only completed secondary school, or trained in a trade for which certification is not legally required to practice in Ontario (Ontario College of Trades 2020). Postsecondary educational attainment refers to the completion of an apprenticeship or trades certificate or diploma, college or other non-university certificate or diploma, and university certificates, diplomas, or degrees (Statistics Canada 2022a). Higher levels of education have a notable impact on wages. People with a postsecondary education tend to have higher wages compared to people with a high school certificate or lower. Labour force skills influence the ability of people to access employment opportunities. Educational programming, including primary, secondary, and postsecondary training opportunities and programming, are described in **Section 2.3.1**.

3.2.1 Educational Attainment

Educational attainment is the highest level of education an individual possesses. Educational attainment is based on the population 15 years and older. As of 2021, the total population 15 years and older was 13,210 for the Local Study Area, with the largest concentrations in Dryden (6,220 people) and Sioux Lookout (4,710 people). In 2021, the Local Study Area represented about 26% of the Regional Study Area population age 15 years and older (50,995) (Statistics Canada 2022a). **Figure 3.2-1** shows the highest level of educational attainment for the population aged 15 years and older for the Local and Regional Study Areas and Ontario in 2021.

Figure 3.2-1: Highest Level of Educational Attainment in the Local and Regional Study Areas and Ontario, 2021



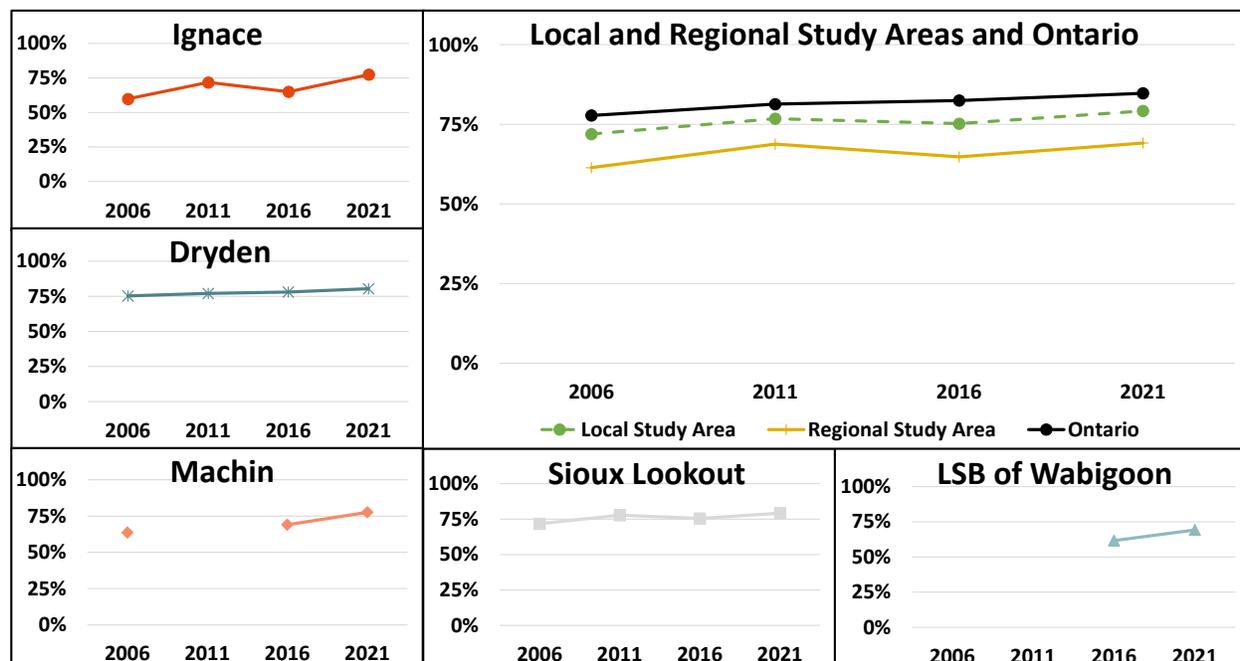
Source: Statistics Canada 2022a.

The largest proportion of the population has a postsecondary education as their highest level of education in the Local and Regional Study Area and Ontario. Similar trends were observed in the Local Study Area communities of Ignace, Dryden, Machin, and Sioux Lookout, with the exception of the LSB of Wabigoon (Statistics Canada 2022a).

3.2.1.1 Secondary Educational Attainment

Figure 3.2-2 shows the high school completion rate (i.e., the proportion of the population 15 years and older who have completed a high school certificate or equivalent) for the Local and Regional Study Area and Ontario for 2006 through 2021.

Figure 3.2-2: High School Completion Rate in the Local and Regional Study Areas and Ontario, 2006 to 2021



Source: Statistics Canada 2007, 2012, 2017, 2022a.

Note: Data were not available for the LSB of Wabigoon for 2006 and 2011 and Machin for 2011.

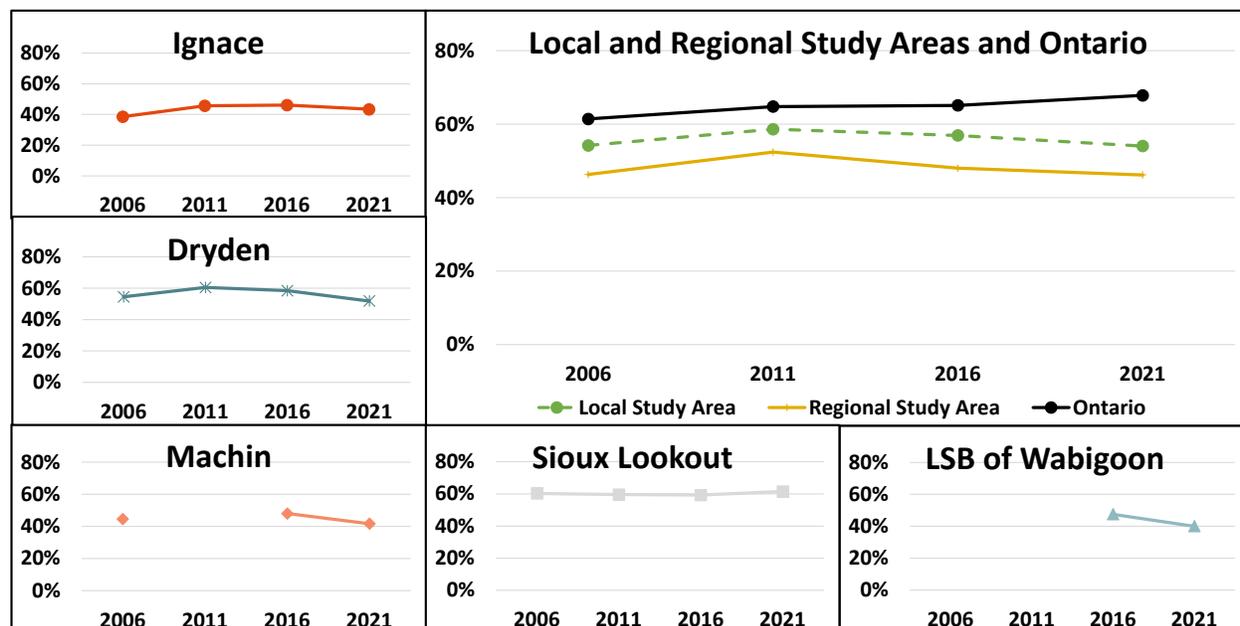
The high school completion rate has increased in the Local and Regional Study Areas, Ontario, and all Local Study Area communities since 2006 (Statistics Canada 2007; 2022a). Both the Local and Regional Study Areas have lower high school completion rates than Ontario.

Key person interviews identified that people without a high school certificate face barriers to obtaining employment (NWO Baseline Studies Key Person Interview Program 2022-2023). In the past, the lack of a high school certificate was not as much of a barrier as it is today. For example, when the Mattabi mine was open in the 1980s, a person could work at the mine without completing high school (IAWG March 22, 2023). In Canada, the gap between unemployment rates for younger Canadians with higher and lower levels of education widened between 1971 and 2005. The growth in unemployment rates for Canadians over that period was notably higher for people without a high school certificate compared to other levels of education (Berger and Parkin 2009).

3.2.1.2 Postsecondary Educational Attainment

Figure 3.2-3 shows the postsecondary completion rate (i.e., the proportion of the population between 25 and 64 years old who have completed postsecondary education) for the Local and Regional Study Area and Ontario for 2006 through 2021.

Figure 3.2-3: Postsecondary Completion Rate in the Local Study and Regional Study Areas and Ontario, 2006 to 2021



Source: Statistics Canada 2007, 2012, 2017, 2022a.

Note: Data were not available for the LSB of Wabigoon for 2006 and 2011 and Machin for 2011.

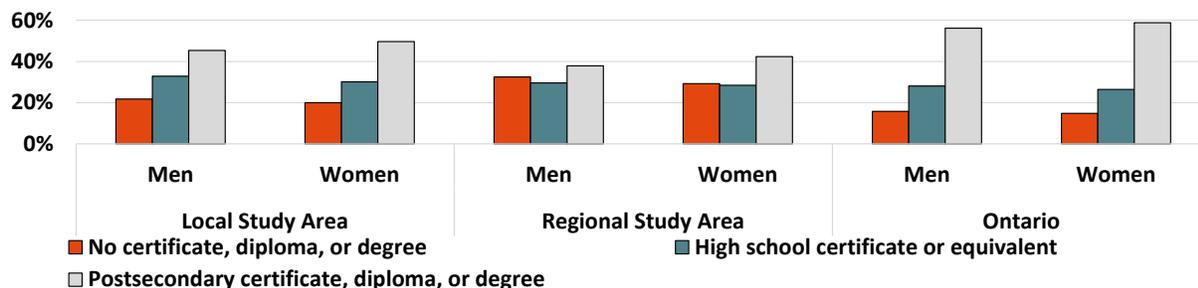
The postsecondary completion rate remained relatively flat between 2006 and 2021 for both the Local and Regional Study Areas, while Ontario increased over the time frame (Statistics Canada 2007; 2022a). As of 2021, the proportion of the Local Study Area population with STEM-related (science, technology, engineering, and math) qualifications was 28%, which is higher than in the Regional Study Area (22%) and lower than Ontario (34%) (Statistics Canada 2022a).

Lower postsecondary completion rates, in comparison to Ontario, can be attributed in part to the lack of educational institutions in the Local and Regional Study Areas, stress from being away from home, limited transportation options, financial constraints from living close to campus, and difficulty retaining youth after the completion of their education (IAWG March 03, 2022; NWO Baseline Studies Key Person Interview Program 2022-2023). Local Study Area residents noted some students return after completing a university degree but leave after they have gained a few years of experience. Key person interviews highlighted that a challenge is maintaining regular contact with youth who leave for postsecondary education or training to attract them back to the community (NWO Community and Baseline Studies Key Person Interview Program 2022).

3.2.1.3 Educational Attainment by Gender

Figure 3.2-4 shows the highest level of educational attainment for the population aged 15 years and older by gender for the Local and Regional Study Areas and Ontario in 2021.

Figure 3.2-4: Highest Level of Educational Attainment by Gender in the Local and Regional Study Areas and Ontario, 2021



Source: Statistics Canada 2022a.

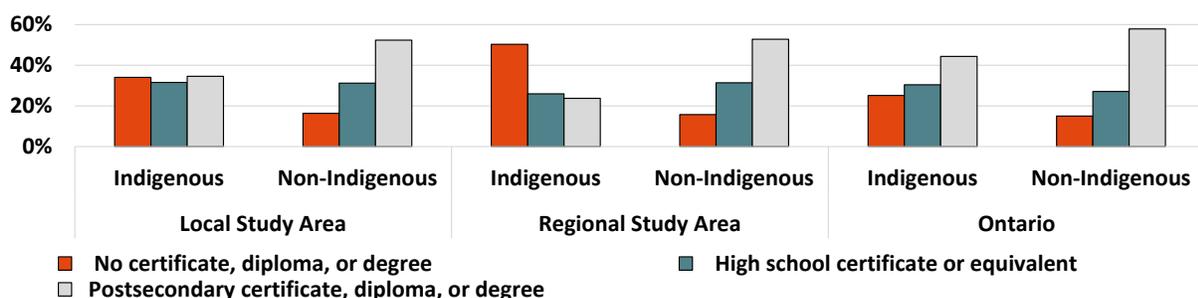
The largest proportion of the population has a postsecondary education as their highest level of education for both men and women in the Local and Regional Study Areas and Ontario (Statistics Canada 2022a). A lower proportion of men and women in the Local and Regional Study Areas have completed postsecondary education compared to Ontario. In all three regions, a higher proportion of women have a postsecondary education compared to men.

Within the Local and Regional Study Areas, a college certificate or diploma is the most common type of postsecondary education completed. By comparison, the most common postsecondary qualification in Ontario as a whole is a university education at or above the bachelor level (Statistics Canada 2022a). In each region, a higher proportion of women have a college or university education compared to men, but a higher proportion of men have an apprenticeship or trades certificate or diploma compared to women.

3.2.1.4 Educational Attainment by Indigenous Identity

Figure 3.2-5 shows the highest level of educational attainment of the population 15 years and older for the Indigenous and the non-Indigenous population for the Local and Regional Study Areas and Ontario in 2021.

Figure 3.2-5: Highest Level of Educational Attainment by Indigenous Identity in the Local and Regional Study Areas and Ontario, 2021



Source: Statistics Canada 2023e.

A larger proportion of the non-Indigenous population has completed a postsecondary education compared to the Indigenous population in the Local and Regional Study Areas and Ontario (Statistics Canada 2023e). Within the Regional Study Area, approximately 50% of the Indigenous population has not completed a high school certificate or equivalent. The reasons behind this are complex. One possible contributing factor is the remoteness of northern Indigenous communities and challenges associated with completing high school for communities which do not have a high school within or near the community. There are also youths who do not return after leaving their community to attend high school or obtain a postsecondary education (GBA+ Workshop 2023). Other challenges include recruiting and retaining teachers, infrastructure and capital needs for First Nation schools, a lack of funding, and off-reserve challenges that Indigenous peoples face including racism and transportation limitations (Social Determinants of Health 2017; Indigenous Corporate Training 2023).

Completion of a high school certificate does not capture the informal education people obtain in everyday life, through on-the-job training, and Indigenous knowledge which may reflect their community culture, language, values, or governance (Government of Canada 2022b). Indigenous land-based education uses an Indigenous and environmentally focused approach that recognizes the importance of the physical, mental, and spiritual connection to the land for Indigenous cultures. Land-based programming may re-engage Indigenous youth in their own education and uses culturally relevant methods for teaching provincially required courses (Cherpako 2019).

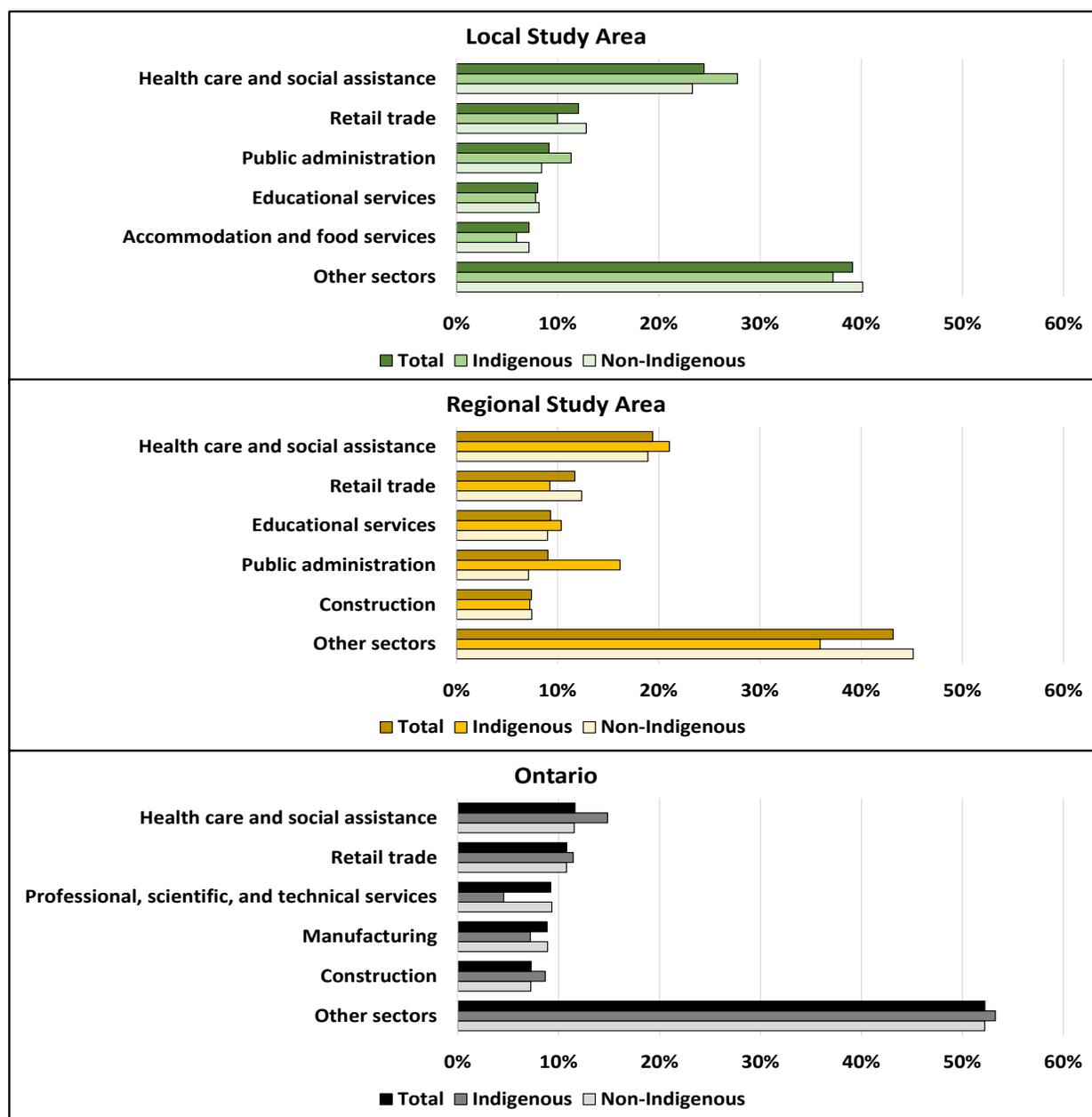
3.3 ECONOMIC BASE

Economic base refers to the key industries and sectors that generate income and jobs in a community or region. A strong and diverse economic base can help provide stability and resiliency. This section describes and quantifies the contribution of major industries to the local and regional economy. Major employers and local businesses that provide goods and services relevant to the Project are also described.

3.3.1 Local Industry

Understanding economic activity by industry can provide insight into the health of different sectors of the economy. Analyzing trends in employment and other economic indicators across industries can identify areas of growth or decline and help inform policy decisions and investments. **Figure 3.3-1** shows the proportion of employment, including by total and Indigenous identity, in the top five industries for the Local and Regional Study Areas and Ontario in 2021.

Figure 3.3-1: Employment by Industry by Total Population and Indigenous Identity for the Local and Regional Study Areas and Ontario, 2021



Source: Statistics Canada 2022a.

Notes: 'Other' is comprised of approximately 15 industries that each represent 5% or less of the total employment by industry. For the Local and Regional Study Area and Ontario "Other" includes agriculture, forestry, fishing, and hunting; mining, quarrying, and oil and gas extraction; utilities; wholesale trade; transportation and warehousing; information and cultural industries; finance and insurance; real estate and rental leasing; management of companies and enterprises; administrative and support, waste management, and remediation services; arts, entertainment, and recreation; and other services (except public

administration). For the Local Study Area "Other" also includes construction; manufacturing; and professional, scientific, and technical services. For the Regional Study Area "Other" also includes manufacturing; professional, scientific, and technical services; and accommodation and food services. For Ontario "Other" also includes educational services; accommodation and food services; and public administration.

The health care and social assistance and retail trade sectors are among the largest employers in the Local and Regional Study Area and Ontario. For the Local and Regional Study Areas, employment in the largest five industries represents around 60% of employment compared to about 50% for Ontario. The share of Indigenous peoples employed in the healthcare and social assistance industry and public administration is larger than the share of non-Indigenous peoples for each region (Statistics Canada 2022a).

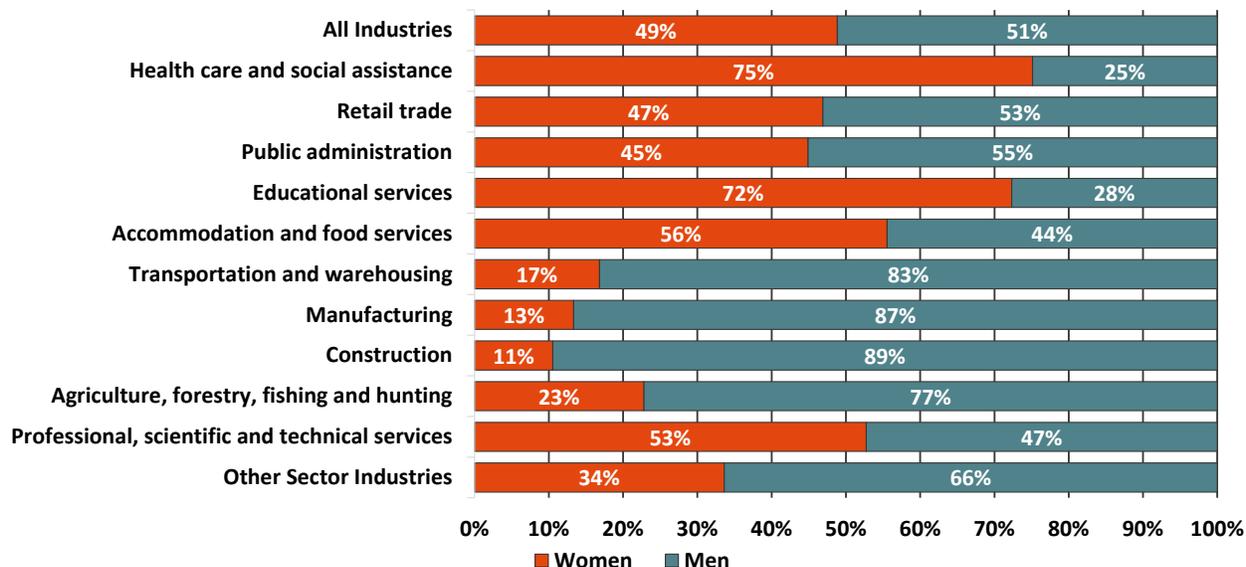
Key person interviews identified the main economic drivers in the Regional Study Area are mining, forestry, pulp and paper sawmills, and healthcare (NWO Community and Baseline Studies Key Person Interview Program 2022). Forestry and mining operations are important employers, although not included in **Figure 3.3-1** in part because employment in these sectors is captured in positions across multiple industries such as transportation or working on a production line.

Many industries in the Local and Regional Study Areas struggle to acquire skilled labour to fill vacancies. Key person interviews noted recruiting for skilled trades positions in mining and forestry is challenging, leading to labourers being brought in from provinces like Manitoba and Quebec (NWO Community and Baseline Studies Key Person Interview Program 2022). There is also difficulty recruiting for non-skilled labour positions, as people are not as willing to engage in physically demanding labour despite the high wages. Additionally, the availability of housing is also a barrier in recruiting labour as there is a housing shortage in the Local Study Area communities (see **Section 2.3.5**). One of the major barriers to employment for Indigenous peoples in the Local and Regional Study Areas is the lack of a high school certificate. The Truth and Reconciliation Commission's final report stated it is the responsibility of employers to ensure Indigenous peoples have equitable access to jobs, training, and educational programs (Truth and Reconciliation Commission of Canada 2015).

3.3.1.1 Local Industry by Gender

Figure 3.3-2 shows the distribution of employment by industry and gender in the Local Study Area in 2021. The figure shows the employment distribution by gender for the top 10 largest industries and for all industries. The top 10 largest industries are provided in descending order by number of employees.

Figure 3.3-2: Employment by Industry and Gender in the Local Study Area, 2021



Source: Statistics Canada 2022a.

Notes: 'Other sector industries' includes mining, quarrying, and oil and gas extraction; utilities; wholesale trade; information and cultural industries; finance and insurance; real estate and rental and leasing; management of companies and enterprises; administrative and support, waste management, and remediation services; arts, entertainment, and recreation; and other services (except for public administration).

In the Local Study Area, women represent the majority of employment in educational services and health care and social assistance. Men represent the majority of employment in transportation and warehousing, manufacturing, construction, and agriculture, forestry, fishing, and hunting industries (Statistics Canada 2022a). There is considerable variation in the representation of men and women in some of the industries within the Local Study Area. Health care and caregiving is sometimes perceived as feminine given the high proportion of women working in the sector (Davidson et al. 2022). Men in nursing sometimes face discrimination from patients and staff due to assumptions that women are better suited for these types of jobs (Davidson et al. 2022). Men in the education sector sometimes experience similar stereotypes.

A number of initiatives have been undertaken to increase the participation of women in these industries. Initiatives in the Local Study Area include women-only welding classes at local high schools and a video series of Indigenous women working in different trades (NWO Community and Baseline Studies Key Person Interview Program 2022).

3.3.2 Local Businesses and Major Employers

This section describes the local businesses and major employers in the Local Study Area communities. Local businesses in Ignace, Dryden, Machin, and Sioux Lookout include food services, accommodations, tourism, and construction. Ignace, Dryden, and Sioux Lookout also include services supporting the mining, forestry, geology, and utility sectors. Although there are

no mining, forestry, geology, or utility companies operating in Machin, a notable proportion of Machin residents work at the mines. A summary of businesses include:

- Ignace includes approximately six food services businesses, four accommodation businesses, ten construction businesses, and five mining, forestry, geology, and utility businesses.
- Dryden includes approximately 38 food services businesses, 10 accommodation businesses, 48 construction businesses, and eight mining, forestry, geology, and utility businesses.
- Machin includes approximately six food services businesses, three accommodation businesses, and three construction businesses.
- Sioux Lookout includes approximately 14 food services businesses, seven accommodation businesses, ten construction businesses, and seven mining, forestry, geology, utility, and transportation businesses.

Major employers in the Local Study Area include hospitals and social service organizations (e.g., Kenora District Services Board), forestry operators, grocery stores, school boards, municipal governments, and the provincial government and related ministries. Sioux Lookout is a unique community among the Local Study Area communities given that its major employers are all in the public sector which results in a stable economy. Sioux Lookout is also a hub for the north, connecting people across 29 northern First Nation communities to their health care and social assistance industries (Municipality of Sioux Lookout n.d.b).

Local businesses play an important role in supporting the economy. A wide variety of goods and services are needed to support and attract people into a community. Without basic services such as food and accommodations, residents must travel to nearby towns or regions to get necessities such as groceries, gas, or larger shopping trips. Dryden has many businesses to support Local Study Area residents and visitors for shopping, food services, accommodations, and construction. Some businesses are located in the fringe area around the City and not within municipal boundaries (NWO Baseline Studies Key Person Interview Program 2022-2023). Many of the local businesses in the Local Study Area are classified as small- (i.e., between 1-99 employees) or medium-sized (i.e., between 100-499 employees) businesses. Small- and medium-sized enterprises are significant contributors to Canada's economy, and, in 2021, small businesses made up 98% of all employer businesses in Canada (Statistics Canada 2022d; CanadianSME 2023).

Challenges described by Local Study Area business owners include a lack of access to capital to start a business, aging business owners, and challenges for young residents to access opportunities to take over a business. For example, vacant commercial buildings sometime require maintenance and repairs to bring buildings up to code, which is a deterrent to potential new business developers who lack the necessary capital (NWO Baseline Studies Key Person Interview Program 2022-2023).

3.4 LABOUR FORCE PROJECTIONS

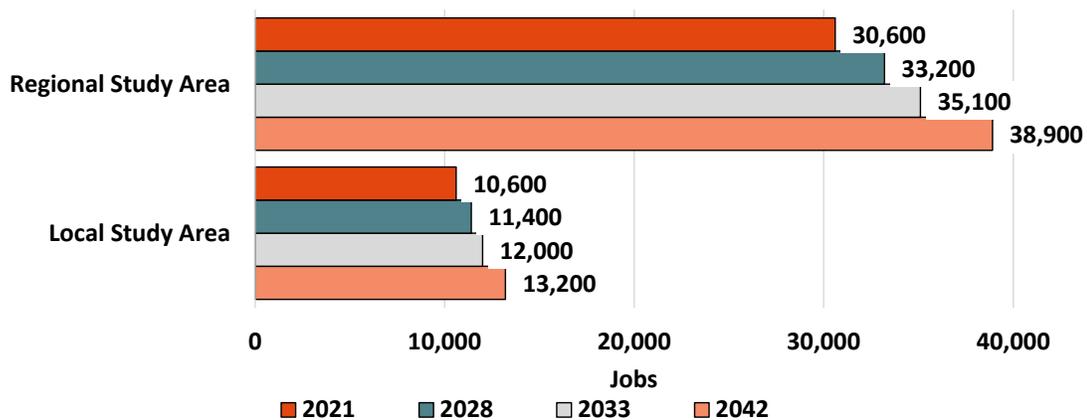
Forward looking temporal boundaries for the labour force projections without the Project were defined for Project stages, including near-term of 2024 to 2032 (site preparation stage), mid-term of 2033 to 2042 (construction phase), and long-term of 2043 and beyond (operations,

monitoring, and decommissioning). Baseline labour force projections are focused on the near- and mid-term time horizons.

3.4.1 Near- and Mid-Term Projected Job Growth

Figure 3.4-1 shows the near- and mid-term job projections for the Local and Regional Study Areas between 2021 and 2042.

Figure 3.4-1: Near- and Mid-Term Projected Job Growth in the Local and Regional Study Areas, 2021 to 2042



Source: Lightcast 2023. Retrieved April 28, 2023; HSAL et al. 2022b; Statistics Canada 2022a.

Note:

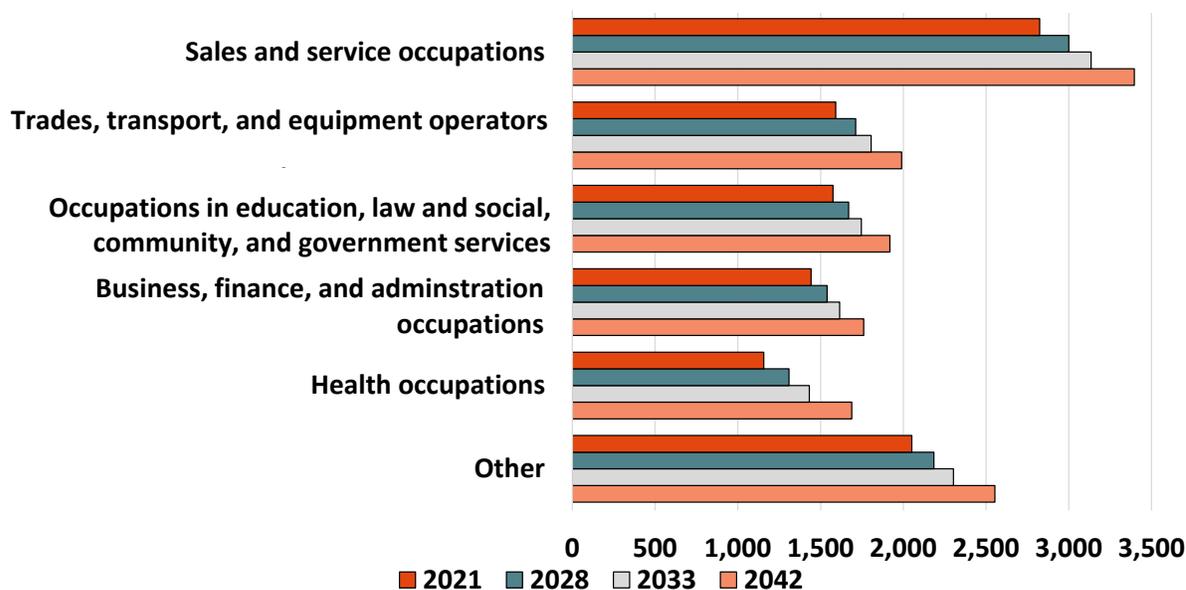
1. Projections for 2033 and 2042 were estimated using a compound annual growth rate between 2021 and 2028 projections.
2. Sample year 2028 aligns with the mid point of the near-term temporal bound, sample year 2033 aligns with the start of the mid-term horizon, and sample year 2042 aligns with the end of the mid-term horizon.
3. Data were not available for the Local Study Area communities for the LSB of Wabigoon, LSB of Melgund, and Dinorwic.

Between 2021 and 2042, jobs in the Regional Study Area are expected to grow by 27%, from approximately 30,600 jobs in 2021 to 38,900 jobs by 2042. In the Local Study Area, jobs are expected to grow by 24%, from approximately 10,600 jobs in 2021 to 13,200 jobs by 2042.

3.4.2 Near- and Mid-Term Projected Jobs by Occupational Category

Figure 3.4-2 sets out the near and mid-term projected jobs by occupational category in the Local Study Area between 2021 and 2042. Occupational categories, as opposed to industry categories, are used for projected jobs as it aligns with an individual’s main activities in their job (occupation), whereas industry categories refer to the general nature of the business carried out in the establishment where a person worked (Statistics Canada 2022a).

Figure 3.4-2: Near- and Mid-Term Projected Jobs by Occupational Category in the Local Study Area, 2021 to 2042



Source: Lightcast 2023. Retrieved April 28, 2023; HSAL et al. 2022b; Statistics Canada 2017.

Note:

1. Projections for 2033 and 2042 were estimated using a compound annual growth rate between 2021 and 2028 projections.
2. Sample year 2028 aligns with the mid point of the near-term temporal bound, sample year 2033 aligns with the start of the mid-term horizon, and sample year 2042 aligns with the end of the mid-term horizon.
3. Data were not available for the Local Study Area communities for LSB of Wabigoon, LSB of Melgund, and Dinorwic.
4. 'Other' occupational categories each represent 6% or less of the total occupational categories. Other includes management occupations; natural and applied sciences and related occupations; natural resources, agriculture, and related production occupations; occupations in art, culture, recreation, and sport; occupations in manufacturing and utilities; and unclassified occupations.

The top occupations in the Local Study Area were similar from 2021 to 2042. The top three occupations include sales and service occupations (2,820 in 2021 and 3,400 in 2042), trades, transport and equipment operators and related occupations (1,590 in 2021 and 1,990 in 2042), and occupations in education, law and social, community and government services (1,580 in 2021 and 1,920 in 2042).

3.5 INCOME

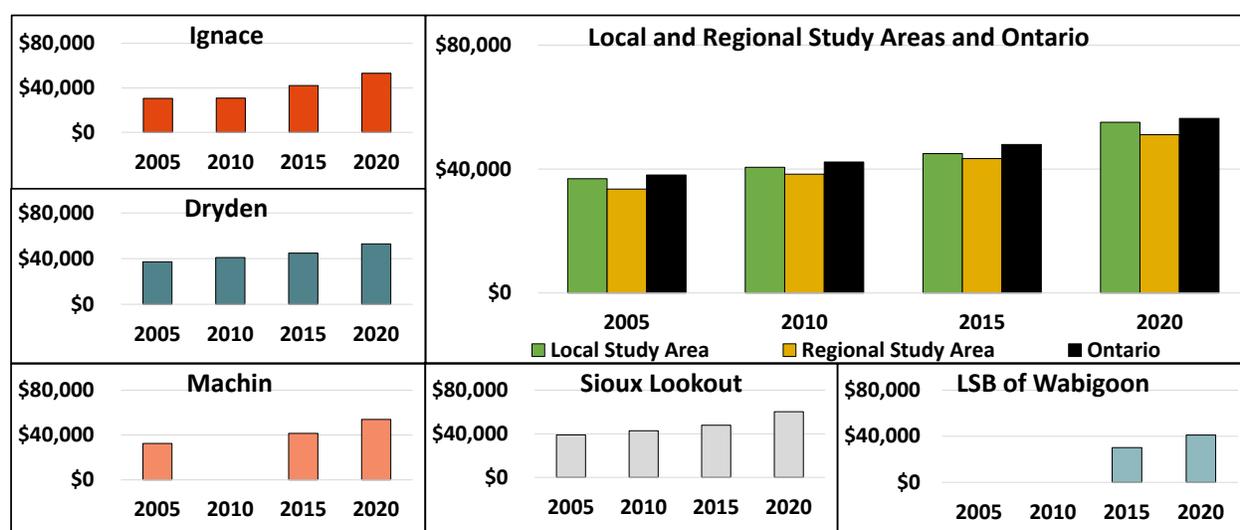
Income is an important indicator of the economic health of people and communities. Income provides economic resources that shape choices about housing, education, childcare, food, and many other aspects of life (Population of Health Institute 2023). Income is a social determinant of health, particularly as Canadians with higher incomes are often healthier than those with lower incomes (Public Health Agency of Canada 2022e). Higher income and financial stability can allow access to better quality materials, such as food and shelter, and better, easier, or faster access to services (e.g., access to health services or education) (Bushnik et al. 2020). Income is also driven by employment.

Statistics Canada reports a number of income statistics including personal income, household income, low-income status, economic family income, average wages by industry, and income inequality. Definitions for income statistics are described within each section.

3.5.1 Personal Income

Personal income refers to the total monetary receipts received during the calendar year prior to the Census year and before income taxes and deductions for the population aged 15 years and over (Statistics Canada 2022a). **Figure 3.5-1** presents the average personal income for the Local and Regional Study Areas and Ontario for 2005 to 2020.

Figure 3.5-1: Average Personal Income for the Local and Regional Study Areas and Ontario, 2005 to 2020



Source: Statistics Canada 2007, 2012, 2017, 2022a.

Notes: Data were not available for the LSB of Wabigoon for 2005 and 2010 and Machin for 2010.

Average personal income increased from 2005 to 2020 for the Local Study Area communities, the Local and Regional Study Areas, and Ontario (Statistics Canada 2007; 2022a). Key person interviews provided that skilled labour is often paid a higher salary, with incomes six figures and over being the norm (NWO Baseline Studies Key Person Interview Program 2022-2023).

The Local and Regional Study Areas and Ontario had a similar trend in the distribution of average personal income by age in 2020. The age range with the highest average personal income tends to be ages 35 to 64 for the Local and Regional Study Areas and Ontario. A notable increase in average personal income is experienced from the 15 to 24 age range to the 25 to 34 age range. The increase in income signifies that career advancement typically occurs during this period and may be bolstered by various factors, including skill development, educational attainment, and work experience (Haan 2023). A notable decrease in average personal income is experienced from the 45 to 54 age range to the 65 and over age range and coincides with the typical start of retirement (Statistics Canada 2023c).

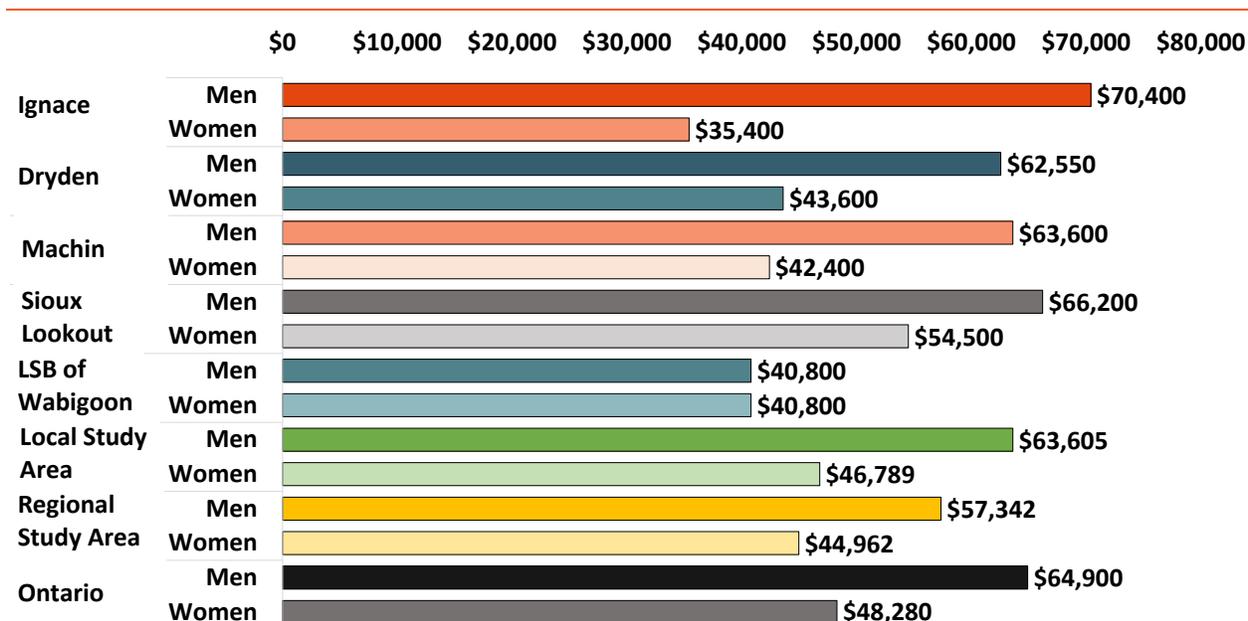
Education (**Section 3.2**) and employment (**Section 3.1**) are drivers of income, as a higher education can result in higher skilled jobs and higher paying jobs. Age is also a factor, as an

individual ages they typically develop and advance their skill set and gain work experience, which can lead to higher average income (Haan 2023; Statistics Canada 2023c).

3.5.1.1 Personal Income by Gender

Figure 3.5-2 presents the average of personal income by gender for the Local and Regional Study Areas and Ontario for 2020.

Figure 3.5-2: Average Personal Income by Gender for the Local and Regional Study Areas and Ontario, 2020



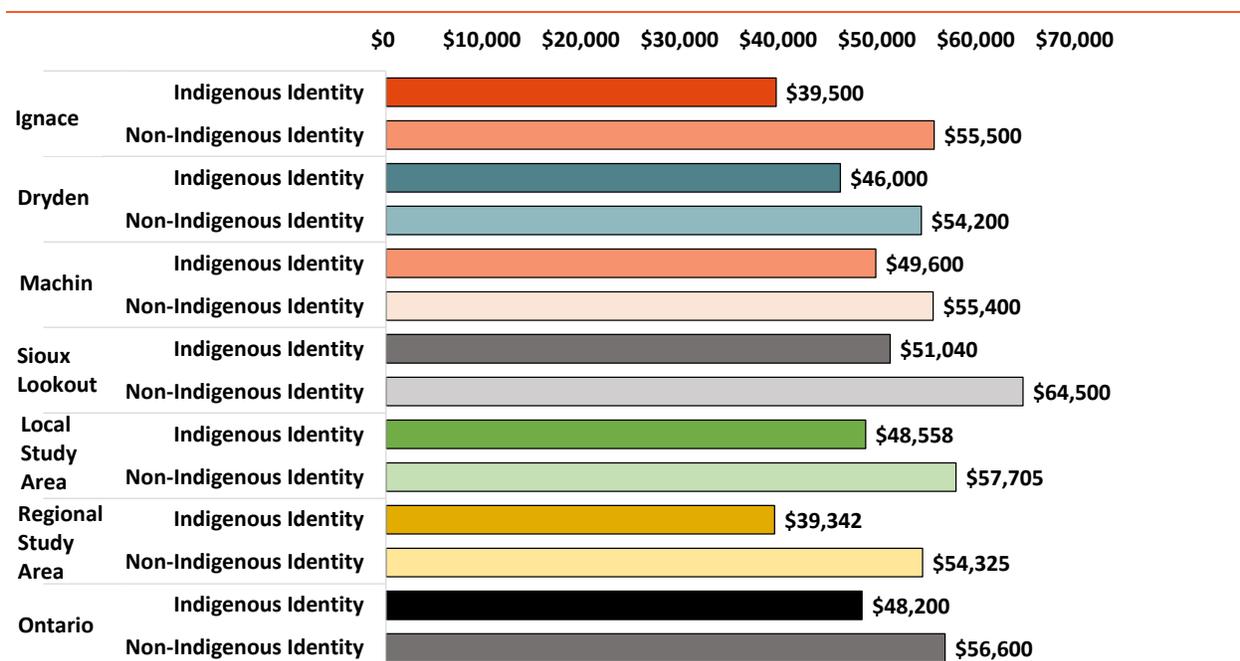
Source: Statistics Canada 2022a.

Men have a higher average personal income than women in the Local and Regional Study Areas and Ontario (Statistics Canada 2022a). Within the Local Study Area communities, men also typically have a higher average personal income than women, with the exception of the LSB of Wabigoon where personal income is similar. Key person interviews confirmed that men tend to make more than women within the Local Study Area (NWO Baseline Studies Key Person Interview Program 2022-2023). These trends are consistent with national findings on the gender pay gap in Canada, including that women make 89 cents for every dollar men make. The gender pay gap is larger for racialized women, Indigenous women, and women with disabilities. The gender pay gap persists throughout employment, from a young age and into senior years (Canadian Women’s Foundation 2022). Pay inequity is important to understand because earnings are a key determinant of economic well-being in Canada.

3.5.1.2 Personal Income by Indigenous Identity

Figure 3.5-3 presents the average personal income by Indigenous identity for the Local and Regional Study Areas and Ontario for 2020.

Figure 3.5-3: Average Personal Income by Indigenous Identity for the Local and Regional Study Areas and Ontario, 2020



Source: Statistics Canada 2023e.

Notes:

1. Data were not available for the LSB of Wabigoon for 2020.
2. 'Indigenous identity' includes persons who are First Nations (North American Indian), Métis, or Inuk (Inuit) and/or those who are Registered or Treaty Indians (that is registered under the Indian Act of Canada) and/or those who have membership in a First Nation or Indian band. Aboriginal peoples of Canada are defined in the Constitution Act 1982 section 35(2) as including the Indian, Inuit, and Métis peoples of Canada.

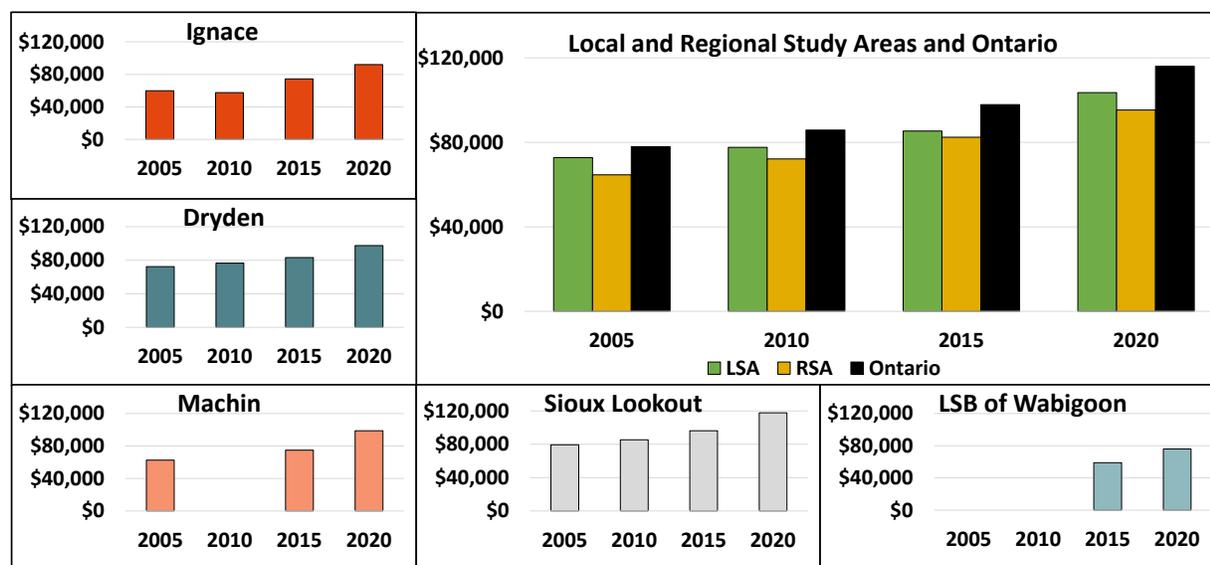
Indigenous peoples in the Local and Regional Study Area and Ontario have lower average personal income than non-Indigenous peoples (Statistics Canada 2023e). The income gap between Indigenous and non-Indigenous peoples is consistent with recent studies, such as Raphael et al. (2020). The same study noted Indigenous peoples living off-reserve typically earned higher incomes than Indigenous peoples living on-reserve. A study completed by the Organization for Economic Cooperation and Development had similar findings and indicated these outcomes are the result of a range of factors including lack of access to markets and capital (OECD 2023a). Statistics Canada reported that barriers to educational and economic opportunities have perpetuated the experiences of poverty and the income gap between Indigenous and non-Indigenous populations in Canada (Statistics Canada 2023c).

3.5.2 Household Income

Household income refers to the total monetary receipts received at the household level during the calendar year prior to the Census year, and before income taxes and deductions. Private household refers to a person or a group of persons who occupy the same dwelling and do not have a usual place of residence elsewhere in Canada. A household may consist of a family group

with or without other persons, of two or more families sharing a dwelling, of a group of unrelated persons, or of one person living alone. For census purposes, every person is a member of one and only one household (Statistics Canada 2022a). **Figure 3.5-4** provides the average household income for the Local and Regional Study Areas and Ontario from 2005 to 2020.

Figure 3.5-4: Average Household Income for the Local and Regional Study Areas and Ontario, 2005 to 2020



Source: Statistics Canada 2007, 2012, 2017, and 2022a.

Notes: Data were not available for the LSB of Wabigoon for 2006 and 2011 and Machin for 2011.

As of 2020, the average household income for the Local Study Area is higher than the Regional Study Area and lower than Ontario as a whole (Statistics Canada 2022a). From 2005 to 2020 household income increased in the Local and Regional Study Area and Ontario.

In 2020, average Indigenous household¹⁴ income in the Local Study Area is \$106,000 which is similar to the total average household income of \$103,500 (including both Indigenous and non-Indigenous households) (Statistics Canada 2023e). In the Regional Study Area, the average Indigenous household income (\$85,300) and the average non-Indigenous household income (\$98,500) are lower than the Local Study Area.

3.5.3 Economic Family Income

Economic family income is the combined income from all sources of all members of an economic family aged 15 years and older. Economic families include couple-only (no children) families, couple-with-children families, one-parent families, and persons not in an economic family. Persons not in economic family refers to those who live with people none of whom are related by

¹⁴ An Indigenous household is either a non-family household in which at least 50% of household members self-identified as Indigenous or a family household where: (i) at least one married spouse, common-law partner, or lone parent self-identified as Indigenous; or (ii) at least 50% of household members self-identified as Indigenous (Statistics Canada 2023e).

blood, marriage, common-law, or adoption or foster; persons living alone are included in this category. Vulnerable populations in the Local Study Area may include one-parent families and persons living alone. As of 2020, couples with children families had the highest average income, followed by couple-only families, one-parent families, and those who are not in an economic family (Statistics Canada 2022a):

- Couple-with-children families in the Local Study Area had an income of \$160,900, which is higher than the Regional Study Area (\$148,500) and lower than Ontario (\$168,800).
- Couple-only families in the Local Study Area had an income of \$111,000, which is higher than the Regional Study Area (\$107,100) and lower than Ontario (\$119,500).
- One-parent families in the Local Study Area had an income of \$85,500, which is higher than the Regional Study Area (\$74,400) and lower than Ontario (\$87,100).
- Those not in an economic family in the Local Study Area had an income of \$51,900, which is higher than the Regional Study Area (\$47,000) and similar to Ontario (\$51,800).

3.5.4 Low-Income Status

Statistics Canada reports low-income status for private households.¹⁵ A household is considered low-income if its income is below 50% of the median after tax household income. Median income varies by community and, as a result, low-income status varies by community. As of 2020, the median income of the Local Study Area communities, the Regional Study Area, and Ontario varied from \$32,400 to \$54,400. As of 2020, approximately 10% to 15% of Local and Regional Study Area and Ontario households were considered low-income (Statistics Canada 2022a).

Socio-economic status, as opposed to an individual's income status, is another term used to help understand differences between people. Socio-economic status encompasses not only income, but educational attainment, financial security, and subjective perceptions of social status and social class (Cutter 1995). Low socio-economic status is a measure of an individual's combined economic and social status. Higher socio-economic status tends to be positively associated with better health (Baker 2014). Within the Local Study Area those who may be affected by low socio-economic status include seniors, youth and children, lone-parents, and Indigenous peoples. Gender differences may also occur among these populations. Employment, education, transportation to access opportunities, availability and access to childcare, family supports, social supports, mental health and addictions, ageism, and racism may have an impact on an individual or households' socio-economic status and income (GBA+ Workshop 2023).

People in the Local Study Area with a low socio-economic status and a lower income spend a larger proportion of their income on shelter costs, food, and clothes compared to those with a higher income (GBA+ Workshop 2023). Further, those with a lower income may have reduced

¹⁵ Statistics Canada reports on the low-income measure after tax (LIM-AT) as a low-income indicator. LIM-AT refers to a fixed percentage (50%) of median-adjusted after-tax income of private households. The household after-tax income is adjusted to take economies of scale into account. This adjustment for different household sizes reflects the fact that a household's needs increase, but at a decreasing rate as the number of members increases. When the unadjusted after-tax income of household pertaining to a person falls below the threshold applicable to the person based on household size, the person is considered to be in low-income (Statistics Canada 2022a).

purchasing power when prices rise (from a growing economy and/or inflation) that can result in shelter costs becoming unaffordable. Reduced purchasing power for those with a lower income can also lead to food insecurity and a lack of means to afford other essential goods.

3.5.5 Income Inequality

Income inequality refers to the uneven distribution of income amongst a population. Income inequality can negatively affect social and community cohesion and cause distrust in institutions meant to serve (Burkinshaw, Terajima, & Wilkins 2022). Understanding the state of income inequality is important where there is potential development and change, as, for example, an increase in population and number of high-paying jobs can increase the income inequality in a community or region and disproportionately affect low-income individuals and vulnerable populations. The Gini coefficient measures how evenly (or unevenly) income is distributed in a given population. The Gini coefficient ranges from 0 to 1; a value of zero indicates perfect income equality in a population, while a value of 1 indicates perfect income inequality where all income is with one unit. **Table 3.5-1** displays the Gini coefficient for the Local and Regional Study Areas and Ontario in 2020.

Table 3.5-1: Gini Coefficient for the Local and Regional Study Areas and Ontario, 2020

	Ignace	Dryden	Machin	Sioux Lookout	LSB of Wabigoon	Local Study Area	Regional Study Area	Ontario
Gini index	0.32	0.30	0.31	0.29	0.31	0.30	0.33	0.36

Source: Statistics Canada 2022a.

Note: Gini coefficients are calculated for three types of adjusted household income, including market income, total income, and after-tax income.

The Local Study Area has less income inequality and a lower Gini coefficient than the Regional Study Area and Ontario (Statistics Canada 2022a). During the 1980s and early 1990s, income inequality increased substantially in Canada and has remained relatively stable over the past 25 years, excluding global crises like the 2007 to 2009 financial crisis and the COVID-19 pandemic. The increase in income inequality during the period from the 1980s to the 1990s was primarily felt by low-income individuals and young people, while older people benefited from higher retirement income. A review of income in Canada from 1976 to 2016 suggests the median incomes of persons 44 years and younger have remained the same or fallen, while having had an increase for those aged 65 years and older (Burkinshaw, Terajima, & Wilkins 2022).

3.5.6 Average Wages by Industry

Table 3.5-2 shows the average annual wages by industry for the Local and Regional Study Areas for 2020. The industries presented are ones which have historically provided a large proportion of jobs in the Local Study Area (see **Section 3.3.1**) and are likely to be impacted by a large influx of people if the Project is sited in the WLON-Ignace area.

Table 3.5-2: Average Annual Wages by Industry in the Local and Regional Study Areas, 2020

Industry	Local Study Area	Regional Study Area
Mining, quarrying, and oil and gas extraction	\$109,140	\$104,440
Manufacturing	\$69,820	\$67,730
Agriculture, forestry, fishing, and hunting	\$68,450	\$64,530
Public administration	\$63,550	\$49,270
Transportation and warehousing	\$54,290	\$52,320
Educational services	\$52,230	\$51,670
Health care and social assistance	\$48,980	\$48,980
Construction	\$48,080	\$45,600
Retail trade	\$26,000	\$25,780
Accommodation and food services	\$22,210	\$23,000
All Industries Average	\$47,120	\$49,940

Source: Estimates prepared by Lightcast 2022.3 based on, Survey of Employment, Payrolls, and Hours for 2020, Input Output Symmetric Tables for and 2020, Census of Population for 2022a, and the Labour Force Survey: for 2020. Lightcast 2023. Retrieved June 12, 2023.

Notes:

1. Lightcast uses an input-output model with several sources to calculate the average annual wages. Data include both full- and part-time jobs. As such, sectors which typically have a larger number of part-time jobs could skew the average annual wages downwards than if they were averages to full-time equivalents.
2. The average annual wage of many Local Study Area industries provided in **Table 3.5-2** are higher than the average annual wage for the corresponding Regional Study Area industry average. However, the all-industry average for the Local Study Area is lower than the Regional Study Area as there are a larger proportion of lower paying jobs in the Local Study Area compared to the Regional Study Area.

In the Local Study Area, the average annual wage among all industries in 2020 is lower than the Regional Study Area. Mining, quarrying, and oil and gas extraction had the highest average annual wage in both the Local and Regional Study Areas (Lightcast 2023).

In 2020 there were a total of 9,700 jobs by industry in the Local Study Area and 30,100 jobs by industry in the Regional Study Area. The three largest industries by average annual job in the Local Study Area in 2020 were health care and social assistance (2,400 jobs), retail trade (1,300 jobs), and public administration (1,200 jobs). Health care and social assistance and public administration had average annual wages above the industry average for the Local Study Area, while retail trade had an average annual wage below the industry average (Lightcast 2023). The three largest industries by average annual job in the Regional Study Area in 2020 were public administration (7,700 jobs), health care and social assistance (5,900 jobs), and retail trade (3,000). Similar to the Local Study Area, health care and social assistance had an average annual wage that is higher than the industry average for the Regional Study Area, public administration had an average annual wage that is similar to the industry average, and retail trade had an average annual wage that is below the industry average (Lightcast 2023).

3.6 COST OF LIVING

Cost of living refers to the cost to maintain a certain standard of living in a certain area and cover basic necessities (Statistics Canada 2023a). Cost of living may be intertwined with increased employment, income, and population, which may increase demand for essential goods and services and housing.

The Consumer Price Index (CPI) measures price changes for the average Canadian consumer by comparing, through time, the cost of a fixed basket of goods and services (Statistics Canada 2023a). The CPI is widely used as an indicator of the change in the general level of consumer prices or the rate of inflation (Statistics Canada 2022a). Consumers can compare movements in the CPI to changes in their personal income to monitor and evaluate changes in their financial situation (Statistics Canada 2023a). Statistics Canada publishes the CPI for Ontario but does not publish the CPI for northwestern Ontario or any of the Local Study Area communities.

The average annual change in the CPI in Ontario and Canada have followed a similar trend since 2006. The average annual change in the CPI in Ontario and Canada from 2006 to 2020 was 3% or less, however both Ontario and Canada saw a large increase in the CPI from 2020 to 2022, including an increase in 2021 of approximately 4% and 2022 of approximately 7% (Statistics Canada 2023a). The change in the CPI in 2021 was largely attributed to the COVID-19 pandemic and associated challenges, including strained global supply chains, shipping bottlenecks, shortages of key goods, and higher prices for many internationally traded goods (Macklem 2022). Global inflationary pressures further stepped up in 2022. The change in the CPI in 2022 was a 40-year high (Statistics Canada 2023a).

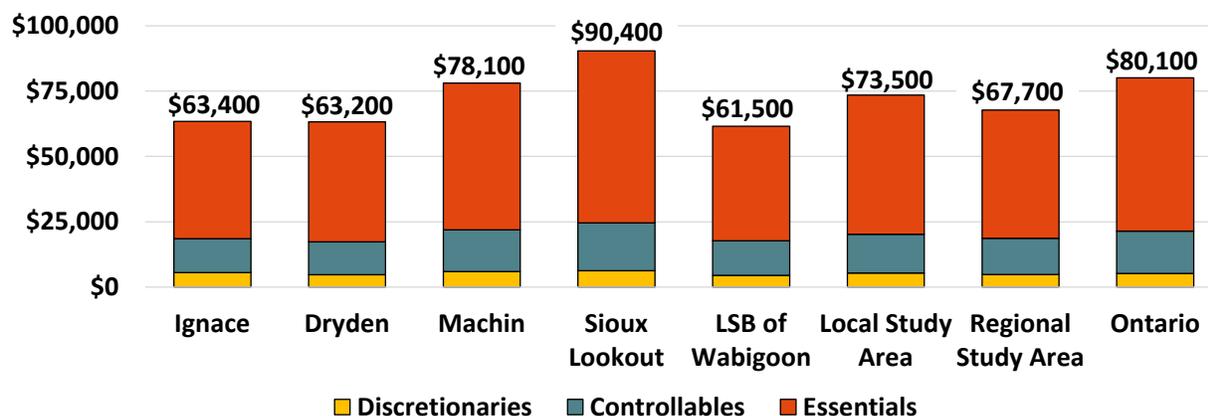
Cost of Living describes spending patterns, shelter costs, utility costs, and property values. The Local Study Area aligns with the spatial boundaries described in **Section 1.3.1**, the Regional Study Area includes the Northwestern Ontario Economy Region (the Kenora, Thunder Bay, and Rainy River District Census Divisions).

3.6.1 Spending Patterns

Figure 3.6-1 provides a summary of average annual household spending patterns for the Local and Regional Study Areas and Ontario in 2021. Understanding household spending patterns is important because it shows what residents are spending their money on and the businesses that may benefit from that spending. Average annual household spending patterns include essential, controllable, and discretionary expenses (Manifold 2023 retrieved May 30, 2023):

- Essential expenses are expenses that are required for basic needs and include food, shelter, home insurance, clothing, transportation, utilities, and healthcare.
- Controllable expenses are expenses that have an ability to be controlled over the short term and are not necessarily a requirement for basic needs, including childcare, personal care, furnishings, telecom, pet expenses, education, recreation, and arts and antiques.
- Discretionary expenses are non-essential expenses that are not mandatory for basic needs and include tobacco, alcohol, gardening supplies, games of chance (i.e., lottery or gambling), and miscellaneous expenses.

Figure 3.6-1: Average Annual Household Spending for the Local and Regional Study Areas and Ontario, 2021



Source: Manifold 2023 retrieved May 30, 2023, Statistics Canada 2022a. Household spending patterns were retrieved from Manifold who used their own models to create a database based on hundreds of inputs from the 2021 Census to create the household spending pattern estimates.

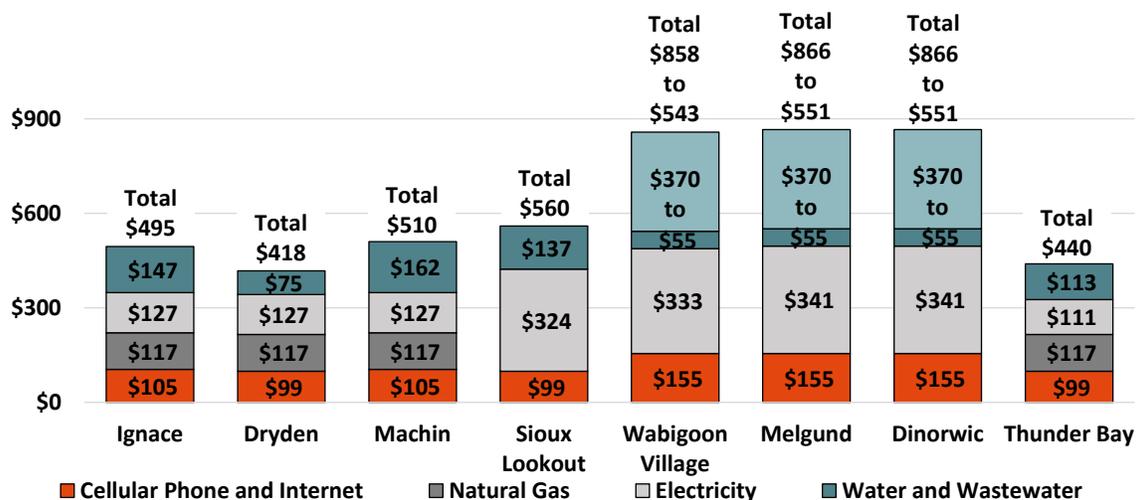
As of 2021, households in the Local Study Area spend more on average, than the Regional Study Area and less than Ontario (Manifold 2023). Essential expenses account for the majority of household spending in the Local and Regional Study Areas and Ontario followed by controllable expenses and discretionary expenses. Household spending consistently increased from 2006 to 2021 for the Local and Regional Study Area and Ontario. Since 2017 household spending across Canada has risen at a faster pace than inflation with the largest share of spending dedicated to shelter, transportation, and food (Statistics Canada 2021c).

Residents of the Local Study Area pair trips to Dryden and/or Thunder Bay to access services with shopping, including big box stores, that are not available in Ignace, Machin, and Sioux Lookout (IAWG October 06, 2021). In particular, Local Study Area residents tend to go to Dryden to buy in bulk as it is often cheaper to drive and buy it elsewhere. Residents of Ignace have commented that food costs at the local grocery store are more expensive than at bigger box stores in regional hubs or other larger centres (NWO Baseline Studies Key Person Interview Program 2022-2023). Similarly, gasoline prices are typically higher in Ignace than in Dryden or Thunder Bay. In March of 2023 gasoline prices in Ignace were 169.9 cents/litre which were higher than gasoline prices in Dryden (154.9 cents/litre) and Thunder Bay (155.9 cents/litre) (Statistics Canada 2023b; Collected by InterGroup Consultants Ltd. in 2023).

3.6.2 Utility Costs

Figure 3.6-2 summarizes the average monthly residential utility costs including HST for the Local Study Area communities and Thunder Bay, as of 2023. Utility costs include electricity, natural gas, water and wastewater, cellphone, and internet.

Figure 3.6-2: Average Monthly Residential Utility Costs After Taxes for the Local Study Area Communities and Thunder Bay, 2023



Source: OEB 2023a; Hydro One Networks 2023; Sioux Lookout Hydro 2023; Thunder Bay 2023; Union Gas 2023; Township of Ignace 2022; City of Dryden 2021; Municipality of Sioux Lookout 2021b; Thunder Bay 2022; Virgin 2023; Koodoo 2023; Bell Canada 2023; Shaw 2023; NWO Baseline Studies Key Person Interview Program 2022-2023.

Notes:

1. Total is inclusive of HST. Monthly electricity bill is inclusive of the Ontario Electricity Rebate.
2. Electricity monthly bill assumes average monthly consumption for residential consumers with natural gas service for home heating in Ontario of 700 kWh. For a customer who uses electricity for home heating, an additional 1,500 kWh/month of electricity is assumed (total monthly consumption of 2,200 kWh). Ignace, Machin, Dryden, and Thunder Bay have natural gas service. Sioux Lookout, Wabigoon Village, Melgund, and Dinorwic do not have natural gas service and may rely on electricity for heating.
3. Natural gas monthly bill assumes an average family in Ontario consumes approximately 183.33m³ of natural gas per month. Applicable to communities with natural gas service, including Ignace, Machin, Dryden, and Thunder Bay.
4. Water and wastewater monthly bill assume an average monthly consumption of 14m³ for Ignace, Dryden, Sioux Lookout, and Thunder Bay. Residents of Machin are billed a flat water rate regardless of water usage (\$118.27/month before taxes) and maintenance costs for a septic system are the responsibility of the homeowner (approximately \$25/month before taxes). For Wabigoon Village, Melgund, and Dinorwic maintenance costs for water and septic service are the responsibility of the homeowner and range from \$55/month to \$370/month.
5. Internet and cellphone monthly bills include the lowest priced plan offered for the community.

Residents of Wabigoon Village, Melgund, and Dinorwic typically have the highest average monthly utility costs followed by Sioux Lookout, Machin, Ignace, Thunder Bay, and Dryden. Average monthly utility costs in rural communities may be higher as they do not have the selection, option of services, and access to services that larger communities have. For example, monthly internet bills are higher in Wabigoon Village, Melgund, and Dinorwic in comparison to Ignace, Dryden, Machin, and Sioux Lookout as they do not have the access to and selection of internet providers. IAWG members provided that internet service may be slower or less reliable in rural areas within the Local Study Area (IAWG December 2, 2021; IAWG May 05, 2022).

Ignace, Dryden, Machin, and Thunder Bay have natural gas service for home heating, while Sioux Lookout, Wabigoon Village, Melgund, and Dinorwic primarily rely on electricity, as well as

fuel oil and propane, to heat homes. Electricity to heat homes is typically higher in cost compared to natural gas service.

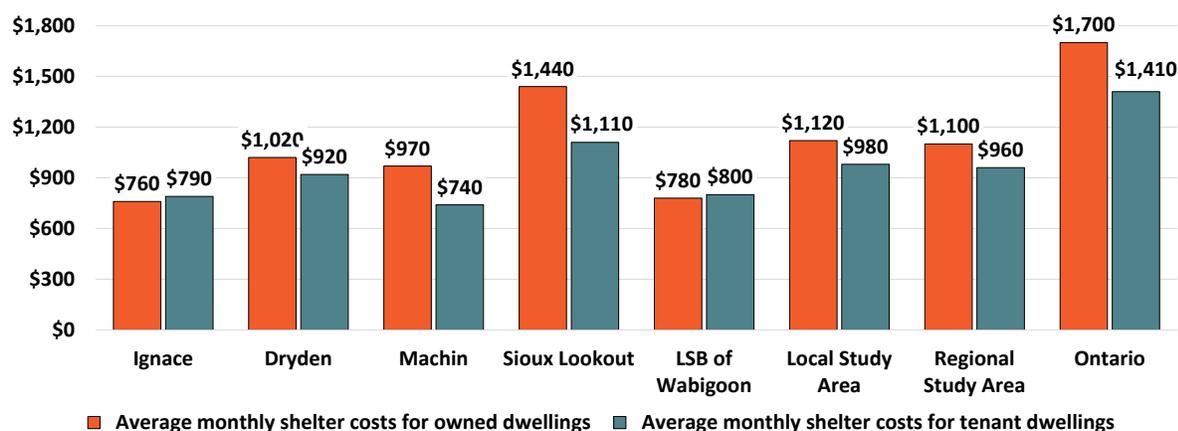
Ignace, Dryden, Sioux Lookout, and Thunder Bay have municipal water and wastewater service. Machin has municipal water service, and wastewater service is the responsibility of the homeowner. In Wabigoon Village, Melgund, and Dinorwic water and wastewater service is the responsibility of the homeowner. Municipal water and wastewater services tend to be lower than water and wastewater services that are the responsibility of the homeowner.

3.6.3 Shelter Costs

Figure 3.6-3 provides the average monthly shelter costs for owned and tenant dwellings in the Local and Regional Study Areas and Ontario for 2021. Shelter cost refers to the average monthly total of all shelter expenses paid for by a dwelling and include (Statistics Canada 2022a):

- For owned dwellings: mortgage payments, property taxes, condominium fees, electricity, heat, water, and other municipal services.
- For tenant dwellings: rent, electricity, heat, water, and other municipal services.

Figure 3.6-3: Average Monthly Shelter Costs for Owned and Tenant Dwellings in the Local and Regional Study Area and Ontario, 2021



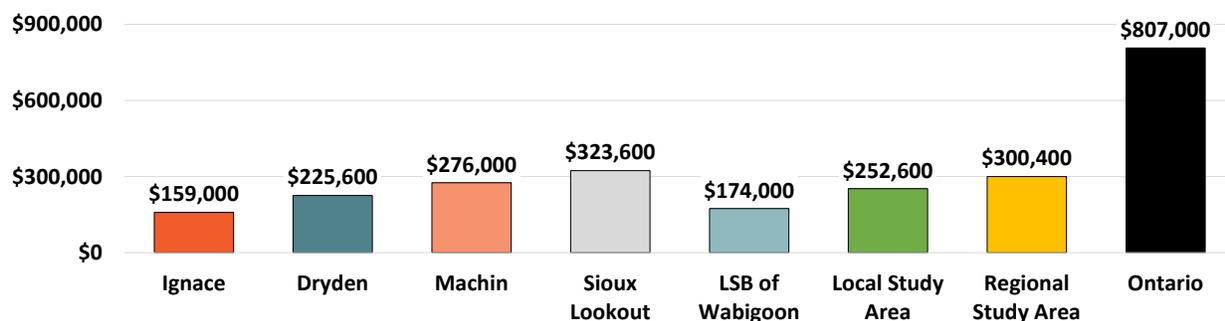
Source: Statistics Canada 2022a.

Shelter costs are typically higher for owned dwellings compared to tenant dwellings. The Local and Regional Study Area typically had similar shelter costs and were lower than Ontario as a whole (Statistics Canada 2022a). The higher shelter costs in Ontario as a whole are largely a result of the higher cost of living in large urban centres (Government of Ontario 2020b).

3.6.4 Property Values

Figure 3.6-4 provides the average value¹⁶ of dwelling for the Local and Regional Study Area and Ontario for 2006 to 2021 (Statistics Canada 2022a).

Figure 3.6-4: Average Value of Dwelling for the Local and Regional Study Area and Ontario, 2021



Source: Statistics Canada 2022a.

The average value of dwelling is lower in the Local Study Area compared to the Regional Study Area and Ontario (Statistics Canada 2022a). In recent years, residents of the Local Study Area have begun to experience an increase in the price of housing as the housing shortage is creating demand and an increase in price (IAWG October 06, 2021; IAWG March 03, 2022; IAWG April 7, 2022). Local Study Area residents have also commented on the need for more housing to support different age groups, including seniors, which is presently lacking (HSAL et al. 2022a; IAWG October 06, 2021; IAWG February 24, 2022; GBA+ Workshop 2023). Housing is generally more expensive in Sioux Lookout compared to other communities in the Local Study Area. Within the Local Study Area communities housing is typically more expensive on the lake than in the community (IAWG October 06, 2021; NWO Baseline Studies Key Person Interview Program 2022-2023). Additional details on housing are described in **Section 2.3.5**.

Ontario’s housing market grew in 2021 and early 2022 due to an environment of low interest rates, higher overall incomes, limited resale listings, and shifting home preferences. Home resale prices reached a peak in February 2022 as the housing market adjusted to higher interest rates (Province of Ontario 2022). Statistics Canada similarly found that an increase in mortgage rates put a downward pressure on house prices since the peak in 2022 (Statistics Canada 2023d).

3.7 LOCAL GOVERNMENT FINANCE

Local government finance examines revenues and expenditures related to operating and maintaining local government services and infrastructure including an understanding of the surplus or deficit and the reserves and accumulated surplus for a local government. This section describes local government finances for municipalities and for local services boards and

¹⁶ Value refers to the dollar amount expected by the owner if the asset were to be sold and the value is estimated as a portion of the market value that applies to the dwelling. In the context of dwelling, it refers to the value of the entire dwelling including the value of the land it is on and of any other structure such as a garage which is on the property (Statistics Canada 2022a).

unincorporated communities. Municipal governments include the Township of Ignace, the City of Dryden, the Municipality of Machin, and the Municipality of Sioux Lookout. Local governments include the LSB of Wabigoon, the LSB of Melgund, and the unincorporated community of Dinorwic. Local services boards and unincorporated communities are not part of an incorporated municipality (Government of Ontario 2020a).

Municipal financial information presented in **Section 3.7** is sourced through publicly available financial information returns from the Ministry of Municipal Affairs and Housing (MMAH 2021).

3.7.1 Municipal Government Finances

3.7.1.1 Municipal Revenues

Municipal revenues for Ignace, Dryden, Machin, and Sioux Lookout include:

- Property taxes
- Payments in lieu of taxation
- Government transfers
- Conditional grants
- Revenue from other municipalities
- User fees and service charges
- Licenses, permits, and rent
- Fines and penalties

Total revenues for municipalities in the Local Study Area include \$5.9 million for Ignace in 2019,¹⁷ \$31.5 million for Dryden in 2020, \$3.2 million for Machin in 2020, and \$29.6 million for Sioux Lookout in 2020 (MMAH 2021). The largest source of revenue for Ignace, Dryden, Machin, and Sioux Lookout is property taxes.

3.7.1.2 Municipal Expenses

Municipal expenses for Ignace, Dryden, Machin, and Sioux Lookout include:

- General government expenses
- Protection services
- Transportation expenses
- Environmental services
- Health services
- Social and family services
- Social housing
- Recreation and cultural services
- Planning and development expenses

Total expenditures for municipalities in the Local Study Area include \$5.9 million for Ignace in 2019, \$26.7 million for Dryden in 2020, \$3.2 million for Machin in 2020, and \$27.6 million for Sioux Lookout in 2020 (MMAH 2021). The largest expenditures for Ignace, Dryden, Machin, and Sioux Lookout varied; however, environmental service expenses and transportation expenses were generally the largest expenses.

3.7.1.3 Municipal Surplus or Deficit

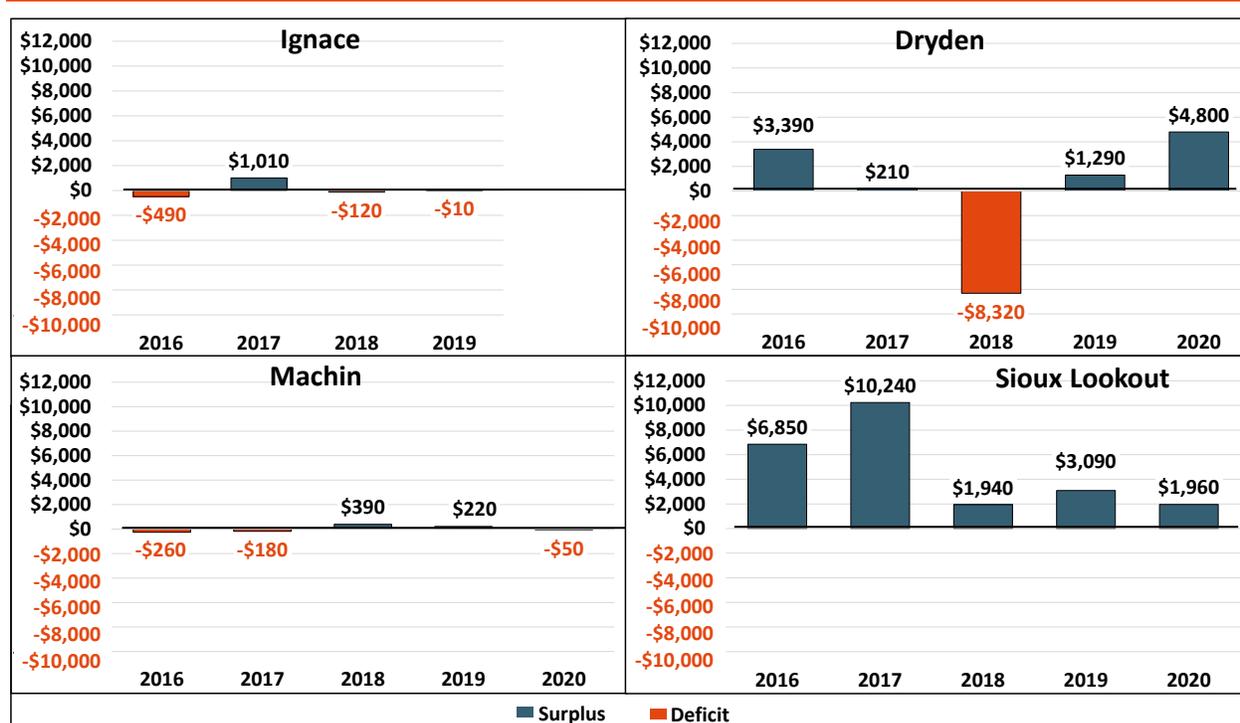
In a local government budget, the annual calculation for the surplus or deficit of the previous year shows whether the planned revenues for the previous year were enough to cover the

¹⁷ Ignace is currently in the process of reconciling its 2020 audited financial statements and were not available at the time of writing this report.

planned expenses. Any differences are carried forward into the budget year period as revenue (surplus) or an expense (deficit) (Government of Ontario 2022a). The surplus or deficit for a local government is an indicator of its financial health. Intergenerational equity is an important consideration in financial sustainability and includes the need for appropriate fiscal planning so that the generation of people who benefit from the local government and its assets are also the ones paying for it. A key principle of financial sustainability is the need to share local government cost burdens equitably between generations (Association of Municipalities of Ontario 2018; Johal et al 2019). An indicator to help understand the financial health of a local government is whether local government revenues are consistently covering planned expenses.

Figure 3.7-1 provides the municipal surplus or deficit (in \$000s) for Ignace, Dryden, Machin, and Sioux Lookout from 2016 to 2020.

Figure 3.7-1: Ignace, Dryden, Machin, and Sioux Lookout Municipal Surplus or Deficit (\$000s), 2016 to 2020



Source: MMAH 2021.

Notes: The surplus or deficit is presented in \$000s.

Sioux Lookout has consistently had a surplus from 2016 to 2020. Ignace (2016 to 2019), Dryden (2016 to 2020), and Machin (2016 to 2020) have had a surplus or deficit that varied over the timeframe, but in aggregate the surpluses have exceeded the deficits (MMAH 2021).

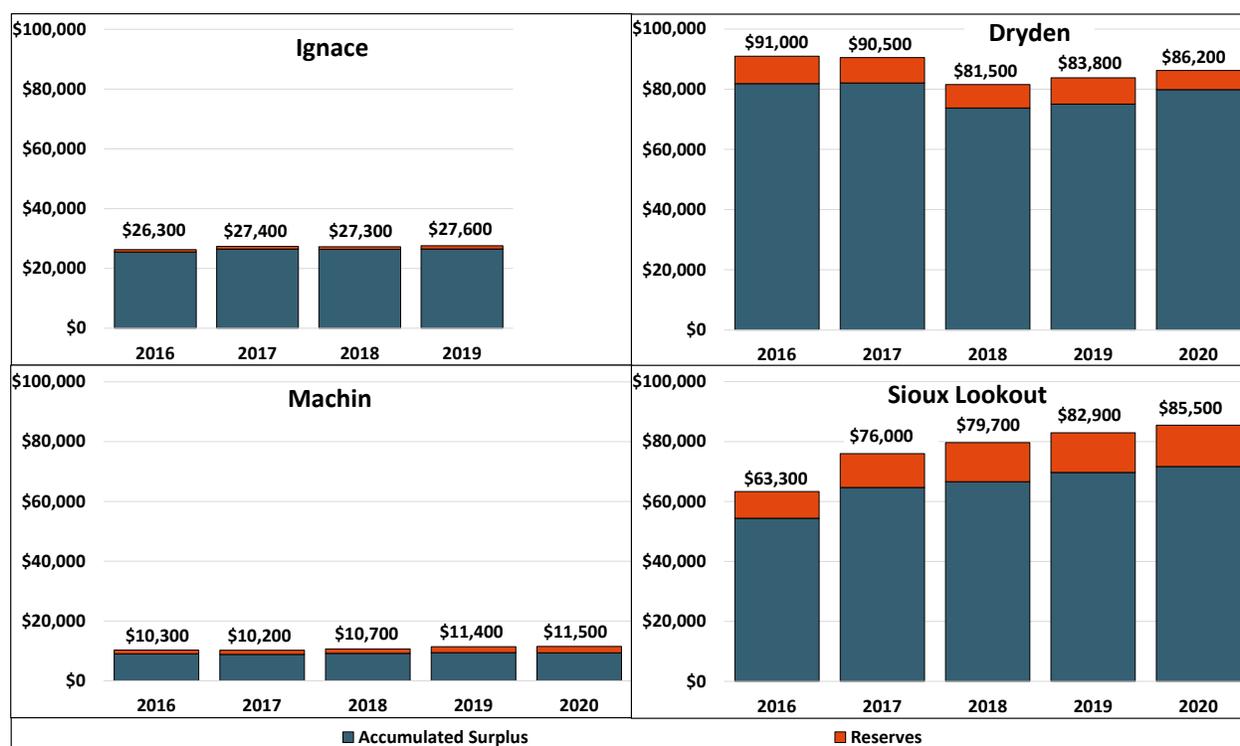
3.7.1.4 Municipal Reserves and Accumulated Surplus

Ignace, Dryden, Machin, and Sioux Lookout have reserve funds and accumulated surpluses that support expected future spending. Reserve funds for a municipality include obligatory reserve funds (funds earmarked for a specific purposes), discretionary reserve funds (funds set aside by

municipalities to fund discretionary services), and reserves (funds available for budget stabilization). A municipality’s accumulated surplus is what remains after the revenues have been used to meet the expenses from prior years (Government of Ontario 2021c). These remaining funds are available to provide services for future expenses (MMAH 2021). If a surplus occurs at the end of a fiscal year, a municipality can transfer the amount to accumulated surplus for future use (Government of Ontario 2001). If a deficit occurs at the end of a fiscal year, a municipality may use the accumulated surplus as a funding source from prior years (Government of Ontario 2001). Accumulated surplus is an indicator of the financial health of a municipality. Accumulated surplus consists of both cash (for example reserves) and non-cash components (for example equity in tangible capital assets such as roads, buildings, vehicles, equipment, etc.) (MMAH 2021).

Figure 3.7-2 provides the municipal reserves and accumulated surplus (in \$000s) for Ignace, Dryden, Machin, and Sioux Lookout through 2020.

Figure 3.7-2: Ignace, Dryden, Machin, and Sioux Lookout Municipal Reserve Funds and Accumulated Surplus (\$000s), through 2020



Source: MMAH 2021.

Notes: The reserve fund and accumulated surplus is presented in \$000s. Reserves include obligatory reserve funds, discretionary reserve funds, and reserves. A municipality’s accumulated surplus is what remains after the municipal revenues have been used to meet the expenses from prior years and includes both cash and non-cash components.

Understanding a municipality’s reserve funds and accumulated surplus helps provide context on the funding available for expected future expenses, its intergenerational equity, and financial sustainability. In consideration of the financial health and sustainability of a municipality, Sioux Lookout had a consistent increase to its collective reserves and accumulated surplus from 2016

to 2020, which coincides with its consistent annual surplus (MMAH 2021). Ignace, Dryden, and Machin have had consistent and stable reserves and accumulated surpluses, which coincide with how the municipality's surpluses or deficits have varied over the time frame, but in aggregate the surpluses have exceeded the deficits.

3.7.2 Local Services Boards and Unincorporated Communities Finances

A LSB is a volunteer organization that has the authority to deliver approved powers or services to residents. A LSB is set up in rural areas where there is no municipal structure to deliver services. Area residents vote to determine an LSB's boundaries. Funding for the LSB of Wabigoon and the LSB of Melgund is sourced from a LSB levy, the provincial land tax (collected on behalf of the LSB by the Ministry of Finance), and other sources of revenue such as fundraising, charity contributions, and donations. Expenses relate to the approved services provided by the LSB. The LSB of Wabigoon is approved to provide fire protection, street and area lighting, recreation, and emergency telecommunications. Fire protection services are shared with Dinorwic. The LSB of Melgund is approved to provide recreation and garbage collection services. Reserve funds are not typical of LSBs, however the LSB of Wabigoon and the LSB of Melgund are allowed to have one. For the LSB of Wabigoon and the LSB of Melgund the reserve fund balance is minimal (NWO Baseline Studies Key Person Interview Program 2022-2023).

Dinorwic is an unincorporated community in the Local Study Area and is not governed by a local municipal corporation or a LSB (Government of Ontario 2022a). Funding received by Dinorwic is collected through the provincial land tax (collected on behalf of Dinorwic by the Ministry of Finance) to help fund important community services. Expenses are minimal and the majority of services are the responsibility of the homeowner (including garbage and recycle, water service, and wastewater service). Fire protection is shared with the LSB of Wabigoon and the Ministry of Transportation of Ontario is responsible for provincial roads, including winter snow clearing. Dinorwic does not have a reserve fund (NWO Baseline Studies Key Person Interview Program 2022-2023).

4.0 HEALTH

The World Health Organization defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (World Health Organization 2023). Changes to the population resulting from in-migration have the potential to affect health services, particularly as local service providers adjust to meet an increasing demand for services, combined with potential changes in demographics (e.g., a younger or more diverse population than currently present). Project related activities also have the potential to affect the social determinants of health, as things like education, employment, and income are all positively correlated with improved health outcomes. The factors that influence health are complex and include the social and economic environment, the physical environment, and a person’s individual characteristics and behaviours (World Health Organization 2017). As such, the description of health considers multiple components including health services and systems, community health outcomes, and social determinants of health.

The study boundaries for health differ from the general study boundaries described in **Section 1.3.1**, in part due to the administrative boundaries used to report supporting data. For health, the Local Study Area is the Township of Ignace, including residents of other communities who access services at the Mary Berglund Community Health Centre Hub (“MBCHCH”). The Regional Study Area for health is the Northwestern Health Unit (“NWHU”), which includes 19 municipalities, 39 First Nations, and other unincorporated territories. The NWHU serves a population of approximately 82,000 people. An additional data point – the Dryden Local Health Hub (“Dryden Hub”) – is in the Regional Study Area and includes the Township of Ignace, City of Dryden, Municipality of Machin, Wabigoon Lake Ojibway Nation, and Eagle Lake First Nation. For the First Nations in the Dryden Hub, this refers only to when residents of those communities access services offered by the province, and not those services offered on-reserve. The Dryden Hub and the NWHU are inclusive of municipalities, unincorporated areas, and Indigenous peoples that access services offered by provincial providers.

Health care in Ontario is currently undergoing transition. In 2019, the Province of Ontario announced the creation of Ontario Health, an agency created to oversee health care planning and delivery across the province. As a part of this transition, the previous Local Health Integration Networks were replaced with Ontario Health and its sub regions. Ontario Health – North serves the northwest Ontario area. The North West Local Health Integration Network, which previously served the Local and Regional Study Areas, has been replaced by Ontario Health – North and four developing Ontario Health Teams (“OHTs”) for Northwestern Ontario: All Nations Health Partners OHT serving Kenora and Sioux-Narrows-Nester-Falls, Noojmawing Sookatagaing OHT serving the City and District of Thunder Bay, Rainy River District OHT, and the Kiiwetinoong Healing Waters OHT serving Ignace, Dryden, Sioux Lookout, and Red Lake (Fleury 2022; Government of Ontario 2023e).

The data presented are still representative of the people residing in and accessing health services in the Local and Regional Study Areas; however, how services are organized and administered is likely to continue to evolve through this transition. For example, the use of health hubs and other higher-level services such as the Regional Specialized Services Network, are expected to continue. Certain data limitations relate to how health indicator data are collected such as rules around confidentiality when dealing with small populations. In addition, no health-related data

are reported specific to Indigenous populations in the study areas due in part as to how the data are collected by data repositories such as IntelliHealth, and in accordance with principles of ownership, control, access and possession of data specific to First Nations (FNIGC n.d.). Details on health data limitations can be found in the Health section of the Social Cultural, Economic, Health, and Indigenous Peoples Baseline Studies.

Access to health services affects health outcomes. Delivery of health care services is complex and coordinated among a variety of partners at both the provincial and federal levels, with the provinces responsible for administering and delivering most health care services. The federal government's role in health care includes financially supporting the provinces and territories, health research and regulation, and other functions, such as funding and/or delivering primary and supplementary health services to certain populations (e.g., First Nations and Inuit).

As with other residents in the NWHU, access to appropriate and continuous health services is influenced by the rural and northern location of communities. For example, the Canadian Institute for Health Information (CIHI) reports the 2021 national physician supply rate at 246 physicians per 100,000 population (Canadian Institute for Health Information 2021); however, the distribution of physicians across the country is uneven, as 92% of Canadian physicians work in urban areas of Canada. The Mary Berglund Community Health Centre Hub is funded for 2.0 full time equivalent physicians which represents funding for a supply of approximately 168 physicians per 100,000 residents (with a low estimate catchment area of 2,000 people). The availability of physicians, combined with the availability of other health related services means that many residents end up travelling within or beyond the NWHU to have their primary, secondary and supplementary health care needs met.

The health system is most effective when it relies on evidence-based and sustainable services that are accessible to residents in terms of location, hours of operation, provision of safe and respectful services, and effective communication and follow-up care. Health systems contribute to the continuum of care, which in turn affect community health outcomes. A range of community health outcomes are explored in the technical baseline report, including maternal and child health, chronic diseases, communicable diseases, mental health, injury, and mortality. Most health indicators, except for crisis events such as the COVID-19 pandemic, do not change dramatically over short time periods, and outcomes are often the result of exposures or lifestyles that occur over decades.

The social conditions that influence health are referred to as the social determinants of health. They include the conditions in which people are born, grow, work, live and age. Although the data to support the characterization of these topics is detailed in other section of the summary and Baseline Studies, how these factors contribute to individual health are also described in this section.

Income is one of the most influential social determinants of health and is closely linked to many other factors such as education, employment, and housing (Canadian Institute of Health Information 2018). Health status improves at each step up the income and social hierarchy. Low-income people are known to face greater challenges with their mental health (Public Health Agency of Canada 2022c). In 2020, a higher proportion of Ignace and Kenora Census Division households were considered low income compared to Ontario as a whole (Statistics Canada 2022e). Low-income people and people living with mental health challenges are key vulnerable

populations in the area. Mental health is a health priority for health services providers locally and in the NWHU (NWO Baseline Studies Key Person Interview Program 2022-2023).

Health outcomes are neither equitable nor equal among a population. Some inequalities are due to unchangeable characteristics, such as age, but others relate to inequities to the determinants of health such as food security, access to services, housing, income, education, and lifestyle among other factors. Some findings from the analysis of health equity indicators included:

- The premature mortality rate is much higher in the NWHU than the rest of Ontario.
- Injury is a leading cause of potential years of life lost (PYLL), with rates significantly higher for males than females.
- Approximately 1 in 4 emergency department visits for intentional injuries were for children or youth aged 10-19.
- Mental health emergency department visits and hospitalizations relate largely to anxiety and stress disorders, or substance related disorders.

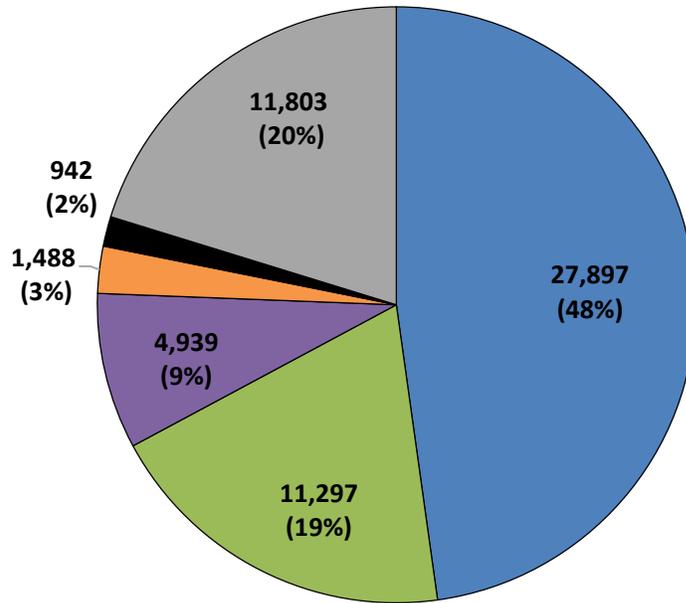
Other health trends that are distinguished from overall Ontario trends include statistically higher rates of certain chronic disease burden, such as for diabetes and chronic obstructive pulmonary disease, and statistically lower rates of burden for diseases like asthma and hypertension. Rates of sexually transmitted infections like gonorrhea and chlamydia are statistically higher in the NWHU than Ontario. Cancer rates are lower in the NWHU than in Ontario, with females having a higher burden of cancer than males.

4.1 HEALTH SERVICES AND SYSTEM

Access to appropriate and continuous health services affects health status and health outcomes. People who live in rural communities experience a disparity in access to services that can materially impact early detection of disease, support for disease management, and early access to treatment (Browne 2010). Health services, including hospitals, emergency departments, and community health centres, are located throughout the NWHU, and it is common for residents to travel to other centres to have all their health needs met. Larger centres tend to have a greater variety of services on offer; however, even then many residents must travel to Thunder Bay or other locations even further afield to receive both primary and secondary care. Similarly, the availability of supplementary services (e.g., dental care, vision care, medical equipment, other health professionals like physiotherapists) varies among communities and sometimes necessitates travel for residents.

For example, residents of Ignace, have access to an array of services offered directly and indirectly at the MBCHCH. This includes physician services, telemedicine, cancer screening, diabetes health, chronic disease management, physiotherapy, mental health, pharmacy, and senior services. However, not all primary and secondary health needs can be met at the centre, and people are sometimes required or opt to access services elsewhere. **Figure 4.1-1** provides a summary of where Ignace residents access general and family physical services beyond the community.

Figure 4.1-1: General and Family Physician Encounters by Billing Location Outside of Ignace, All Ignace Residents, 2000-2020

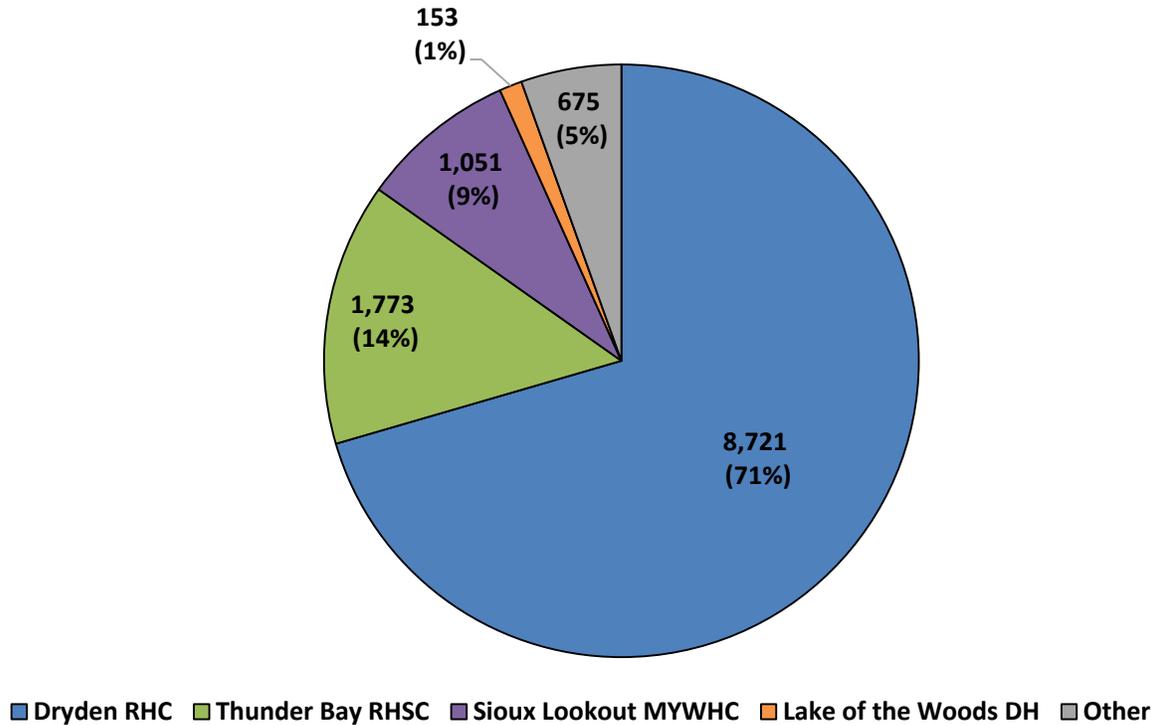


■ Dryden ■ Thunder Bay ■ Sioux Lookout ■ Kenora ■ Machin ■ Other

Source: IntelliHealth Ontario 2022. Retrieved December 4, 2022. Date extracted: March 3, 2022; Updated December 15, 2022.

Similarly, there is no hospital or emergency department in Ignace, meaning residents travel elsewhere for emergency care. **Figure 4.1-2** displays the location of emergency department visits by Ignace residents from 2002 to 2021. The majority (71%) of visits occurred at the Dryden RHA. Following Dryden, 14% were at the Thunder Bay RHSC and 9% were at the Sioux Lookout MHC, with the remainder at the Lake of the Woods District Hospital in Kenora or another facility.

Figure 4.1-2: Emergency Department Location by Ignace Residents, 2002-2021



Source: IntelliHealth Ontario 2023b. Retrieved April 18, 2023. Data extracted March 31, 2022

The largest proportion (38%) of emergency department visits by Ignace residents between 2002 and 2021 were less urgent/semi-urgent, followed by 33% being urgent/potentially serious, 19% requiring resuscitation/life threatening, 9% considered as emergent/potentially life threatening, and less than 1% for all other visits (IntelliHealth Ontario 2023b). There were no notable differences in triage level by sex, but as the age of the patient increases, the proportion of less urgent triage levels decreases, and the proportion of more urgent triage levels increases. Injury and poisoning account for one in five emergency department visits by Ignace residents during the study period, with the ratio being higher among Ignace males (25% of visits) than females (17% of visits) (IntelliHealth Ontario 2023b).

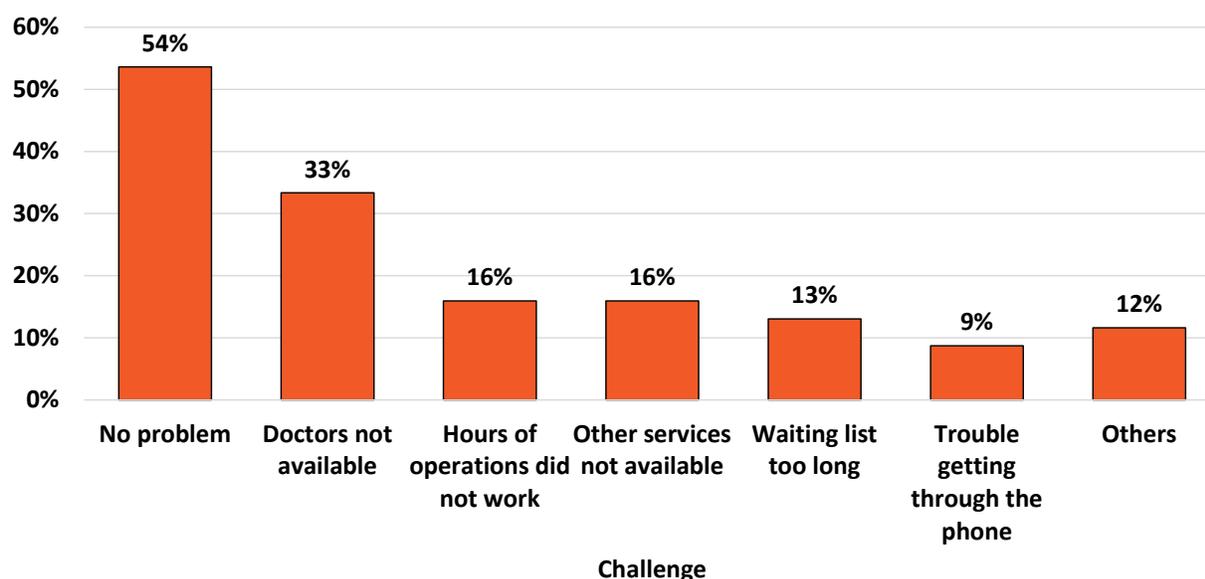
Hospitals are located throughout the NWHU and typically offer a broader range of services. The services offered at these locations and beyond in Thunder Bay are summarized in **Table 4.1-1**.

Table 4.1-1: Hospitals in the Northwestern Health Unit and Thunder Bay

Hospitals	Services Offered
Lake of the Woods District Hospital (Kenora)	Emergency and ambulatory care, chronic care, mental health, maternal and child health, and acute care services. Lake of the Woods District Hospital also provides dialysis, chemotherapy, diagnostic imaging, mammography, ultrasound, addiction counseling and detoxification, a sexual assault centre, physiotherapy and rehabilitation services, ambulance (land and dedicated air), palliative care and various education programs (Lake of the Woods District Hospital n.d.).
Dryden Regional Health Centre	41-bed hospital offering family physicians, anesthetists, ear-nose-throat specialist, emergency physicians, general surgeons, mental health and addictions services, nurse practitioners, orthopedic surgery, pediatrics, plastic surgery, psychotherapy, registered dietitians, registered nurses and registered practical nurses, rehabilitation, and rheumatology (Dryden Regional Health Centre n.d.a; Dryden Regional Health Centre n.d.b; Dryden Regional Health Centre n.d.c).
Sioux Lookout Meno Ya Win Health Centre	A 60-bed hospital and 20-bed extended care facility that follows a holistic approach to health care, recognizing the relationships between the physical, mental, emotional, and spiritual aspects of an individual in healing and wellness. Offers integrated traditional and modern medicine practices. Services include emergency department, assault care and treatment, diabetes care, cancer care, diagnostic imaging, dialysis and renal care, heart and stroke, laboratory, mental health and addictions counselling, prenatal and maternity care, rehabilitation, surgery, and telemedicine (Sioux Lookout Meno Ya Win Health Centre n.d.a; Sioux Lookout Meno Ya Win Health Centre n.d.b).
Atikokan General Hospital	A 41-bed hospital providing acute, long-term, emergency, and outpatient services are complemented by community-based initiatives, including mental health and addictions counselling (Atikokan General Hospital n.d.).
Red Lake Margaret Cochenour Memorial Hospital	Telemedicine, chemotherapy, laboratory, diagnostic imaging, ultrasound, physiotherapy, occupational therapy, nutrition counselling, diabetes counselling, and mental health and addictions treatment (Red Lake hospital n.d.).
La Verendrye General Hospital (Fort Frances)	A 55-bed hospital offering a range of services including visiting specialists like orthopedic surgeons, oncologists, pediatricians, nephrologists, and geriatricians (Riverside Health Care n.d.).
Thunder Bay Regional Health Sciences Centre	A 375-bed facility serving Thunder Bay and Northwestern Ontario providing a range of specialist services, and acting as an academic health sciences center affiliated with Lakehead University and Confederation College (Thunder Bay Regional Health Sciences Centre n.d.).
St. Joseph's Care Group (Thunder Bay)	Facility employs more than 2,400 staff and offers a range of programs and services in addictions and mental health, rehabilitative care, and seniors' health across eight sites in Thunder Bay (St. Joseph's Care Group n.d).

The Ignace Health and Wellness Survey (2023) generally reported positive experiences with the MBCHCH with 54% reporting no challenges to accessing services; however, a lack of consistency in doctors, lack of availability of certain services, location of the MBCHCH (i.e., at the intersection of two highways at the edge of the Township), and hours of operation were problematic for some (Figure 4.1-3). The supply of physicians in Ignace is lower than the national average (168 per 100,000 vs. 246 per 100,000).

Figure 4.1-3: Ignace Survey Respondents Challenges Experienced Accessing MBCHCH During the Last Year



Source: InterGroup & EPI Research Inc. 2023. EPI Research Inc. 2023.

Notes:

1. "Last Year" is the previous 12 months before March-April 2023.
2. Answered: 69, did not answer: 33.

Services and specialties that are unavailable in Ignace include:

- Diagnostic radiology: diagnosis and treatment of disease and injury through medical imaging including x-rays, CT scans, MRIs, PET scans, fusion imaging, and ultrasound);
- Internal medicine specialist (internists): diagnosis and management of diseases involving any organ system (e.g., diabetes, chronic obstructive pulmonary disease);
- Paediatricians: physicians who specialize in infant, child, and youth health;
- Obstetrics and gynaecology: specialists training the care of patients during pregnancy and child birth;
- Psychiatric: diagnosis and treatment of mental health including the role of prescribing medications (other specialists may provide mental health supports but do not have the ability to prescribe medication as treatment); and

- Optometrist: providing services related to eye health including examinations, diagnoses and treatment of diseases related to the eye.

All such services require residents to travel to other locations or access services by telemedicine appointments, as summarized in **Table 4.1-2**.

Table 4.1-2: Common Locations of Visits for Specialists and Other Services for Residents of Ignace

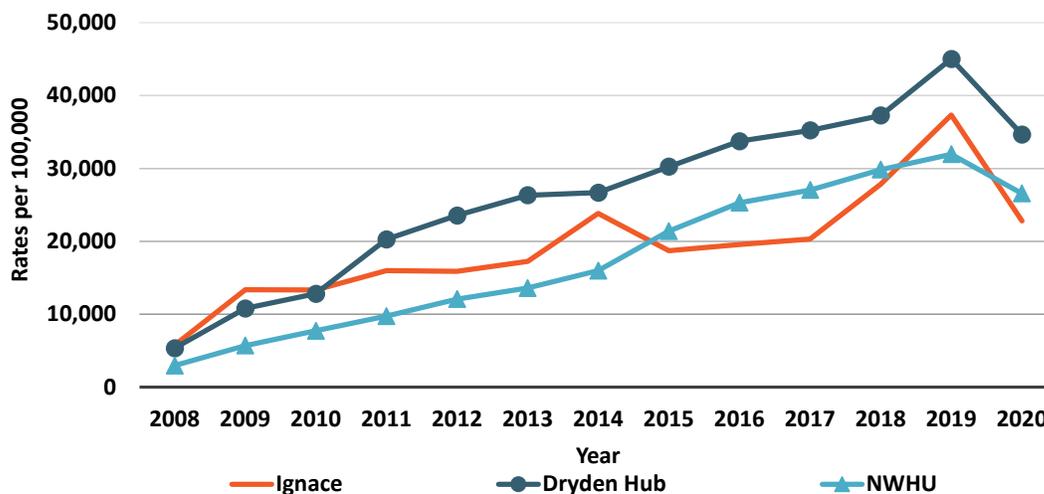
	Diagnostic Radiology	Internal Medicine	Paediatricians	Obstetrics and Gynaecology	Psychiatry	Optometry
Thunder Bay	49%	83%	62%	75%	36%	45%
Toronto	4%	3%	16%	17%	14%	4%
Kenora	0%	2%	4%	0%	34%	0%
Sioux Lookout	2%	0%	2%	0%	2%	5%
Other	45%	12%	16%	8%	14%	47%

Source: IntelliHealth Ontario 2022. Retrieved December 4, 2022. Data extracted March 3, 2022, updated December 15, 2022.

Notes: Totals may not sum to 100% due to rounding.

Between 2008 and 2020 3,100 of the 87,900 (4%) physician encounters for Ignace residents occurred using telemedicine, with an overall increasing trend of telemedicine encounters over the same time period (**Figure 4.1-4**). Similarly, there had been an increase in telemedicine encounters in the Dryden Hub and in the NWHU. Rates peaked in 2019 for Ignace residents and encounters in the Dryden Hub and in the NWHU. The decline after 2020 may be attributed to the onset of the COVID-19 pandemic, which interrupted access to health services.

Figure 4.1-4: Physician Telemedicine Encounters by Area, 2008 to 2020



Source: IntelliHealth Ontario 2022. Retrieved December 4, 2022. Date extracted: March 1, 2022; Updated December 12, 2022.

Notes: Ignace physicians do not bill to the Ontario Health Insurance Plan.

4.2 HEALTH OUTCOMES

Health outcomes refer to a range of indicators that represent experiences from the start to end of life along the continuum care. Health outcomes are often influenced by risk factors that occur over a period of decades. Understanding health outcomes is important to understanding whether health care services and procedures are meeting the needs of patients, affecting health status and quality of life (Canadian Institute for Health Information 2024).

4.2.1 Mortality

An understanding of primary causes of deaths in a population, especially premature deaths, contributes to identifying health inequities and developing policies and interventions to reduce avoidable mortality.

Life expectancy at birth is the number of years a person would be expected to live, starting at birth, if the age- and sex-specific mortality rates were held constant over their life span (Canadian Institute for Health Information 2020b). A higher life expectancy is an indicator of better overall health in a population. Life expectancy at birth is influenced by mortality throughout the lifespan, including infant and child mortality and mortality in later years. As such, it is broadly indicative of health outcomes throughout life (Canadian Institute for Health Information 2020b). In the NWHU, life expectancy at birth was consistently and significantly lower than Ontario. The three-year average from 2015-2017 was 76.6 years for NWHU compared to 82.6 years for Ontario (Statistics Canada 2019).

Table 4.2-1 describes the causes of death for Ignace residents from 1986 to 2018. The average age of death due to cancer and diseases of the circulatory system were similar at 67 and 69

years, while external causes (injury) accounted for approximately 1 in 8 deaths but with a much lower average age (42).

Table 4.2-1: Mortality by Disease Classification, Ignace Residents, 1986 to 2018

Disease Classification	Total Number	Percentage of Deaths	Mortality rate per 100,000	Average Age at Death
Neoplasms (Malignant Cancer Only)	105	34%	191.9	67
Diseases of Circulatory System	90	29%	164.5	69
External Causes (Injury)	38	12%	69.5	42
Diseases of Respiratory System	20	6%	36.6	69
Diseases of Digestive System	15	5%	27.4	68
Symptoms, Signs, Abnormal Findings	13	4%	23.8	64
Endocrine, Nutritional, Metabolic Disease	11	4%	20.1	72
Other	8	3%	14.6	58
Mental Health Disorders	6	2%	11.0	81
Diseases of Nervous System	6	2%	11.0	62
All Deaths	312	100%	570.2	70

Source: IntelliHealth Ontario 2023c. Retrieved April 28, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes: Neoplasms include malignant cancers only.

The main reasons for death varied for males and females. Between 1986 and 2018 the main cause of death for females was cancer (34%), followed by diseases of the circulatory systems (27%) with all other causes of death comprising less than 10% (IntelliHealth Ontario 2023c). For males, between 1986 and 2018 the leading causes of death were cancer (30%), diseases of the circulatory system (30%), external causes (injury) (16%), and all other causes comprising less than 10%.

External injury for males resulted in a significant change to the average age at death, at 37 years. For females, the rate of external injury resulting in death was 6% and resulted in an average age at death of 69 (IntelliHealth Ontario 2023c).

Preventing avoidable and premature deaths, along with improving quality of life, are cornerstones of public health. Premature mortality measures the annual number of deaths occurring before the age of 75 per 100,000 residents. The premature mortality rate is considered by many health researchers to be the single best indicator of a population’s health status and

acts as a key equity indicator for a population. The NWHU has a much higher premature mortality rate compared to the province (For 2014-2016 NWHU had an average premature mortality rate of 447 per 100,000 population compared to 281 per 100,000 population for Ontario) (IntelliHealth Ontario 2023c).

Table 4.2-2 shows that females are less likely than males to experience premature death. Leading causes of premature death were largely the same as overall mortality. The most common cause of premature death was cancer (80 premature deaths) with an average age at death of 62 (average among only those who died prematurely).

Table 4.2-2: Percentage of Premature Deaths by Sex and Area, 1986 to 2018

Sex	Ignace	Dryden Hub	NWHU
Female	68 (30%)	586 (39%)	4,116 (39%)
Male	159 (70%)	927 (61%)	6,546 (61%)
Total	227	1,513	10,662

Source: IntelliHealth Ontario 2023c. Retrieved April 28, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes:

1. Includes all causes of mortality.
2. Premature Deaths include all deaths before the age of 75 years.

Potential years of life lost ("PYLL") is the number of years of life "lost" when a person dies "prematurely" before age 75 and is another way of considering premature mortality. A person dying at age 25, for example, has lost 50 years of life.

As displayed in **Table 4.2-3** there were 4,030 PYLL among Ignace residents from 1986 to 2018. Males accounted for nearly 80% of PYLL. Causes of PYLL are similar to causes of premature mortality and overall mortality (e.g., cancer, circulatory system diseases, injuries) but injuries as cause of PYLL stand out due to their impacts on young people, resulting in a higher number of years lost. The leading cause for PYLL among Ignace residents was external causes (injury), accounting for 1,290 PYLL (but only 70 PYLL were among females, and 1,220 were among males) (IntelliHealth Ontario 2023c).

Table 4.2-3: Potential Years of Life Lost, by Disease Classification and Sex, Ignace Residents, 1986 to 2018

	Female PYLL		Male PYLL		Total PYLL	
	Total Number	Percentage	Total Number	Percentage	Total Number	Percentage
External Causes (Injury)	66	7%	1,225	39%	1,291	32%
Neoplasms (Malignant Cancer Only)	313	35%	735	23%	1,048	26%
Disease of Circulatory System	154	17%	656	21%	810	20%
Symptoms, Signs, Abnormal Findings	92	10%	137	4%	229	6%
Diseases of Respiratory System	30	3%	154	5%	184	5%
Other	126	14%	23	1%	149	4%
Diseases of Digestive System	79	9%	67	2%	146	4%
Diseases of Nervous System		0%	96	3%	96	2%
Endocrine, Nutritional, Metabolic Disease	28	3%	47	2%	75	2%
Total	888	100%	3,140	100%	4,028	100%

Source: IntelliHealth Ontario 2023c. Retrieved April 28, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes:

1. PYLL is calculated for deaths before age 75 only; calculated as 75-actual age at death.
2. Missing cause of death for 10 Ignace residents.

Males accounted for nearly 80% of PYLL in Ignace; much higher than the percentages found in the Dryden Hub and NWHU, as shown in **Table 4.2-4**.

Table 4.2-4: Comparison of Potential Years of Life Lost by Sex and Area, 1986 to 2018

Sex	Ignace	Dryden Hub	NWHU
Female	962 (22%)	8,507 (35%)	80,763 (37%)
Male	3,464 (78%)	15,951 (65%)	135,171 (63%)
Total	4,426	24,458	215,934

Source: IntelliHealth Ontario 2023c. Retrieved April 28, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes:

1. PYLL is calculated for deaths before age 75 only; calculated as 75-actual age at death.
2. All causes of death included.

4.2.2 Injury

Injuries include accidents, poisoning, and unintentional and intentional self-harm. Injuries are frequent causes for hospitalization, disability, and death. Mortality due to injury is often sudden, usually not related to other health conditions (except for mental health).

The NWHU shows some of the highest age-standardized rates of emergency department visits for injury among all health units in Ontario. This is particularly true for intentional injury where the NWHU has the highest rates. The age-standardized intentional injury rates among residents of the NWHU are more than 6 times the Ontario rate. Approximately one in five emergency department visits by Ignace residents is related to injury. These rates are lower among Ignace residents compared to rates in the entire NWHU population. Between 2002 and 2021, females accounted for 40% of emergency department visits for injury, while males accounted for 60% of visits (IntelliHealth Ontario 2023f). **Table 4.2-5** shows the comparison of emergency department visits to hospital admissions. The high number of emergency department visits in comparison to hospitalizations for injury, suggest that most injuries seen at the emergency department can be treated without inpatient care.

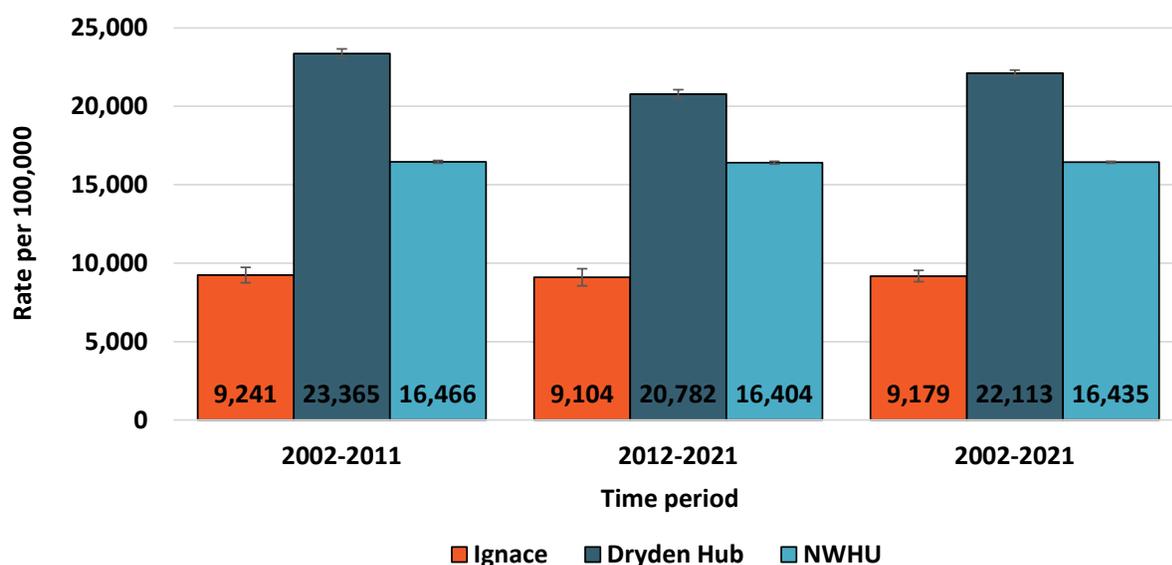
Table 4.2-5: Comparison of Injury Emergency Department Visits and Injury Hospitalization by Category and Sex, Ignace Residents, 2002 to 2021

Injury Category	Female	Male	Total
<i>Injury Emergency Department Visits</i>			
Intentional	72 (7%)	78 (6%)	150 (6%)
Unintentional	896 (93%)	1,404 (93%)	2,300 (94%)
Total Injury Emergency Department Visits	968 (40%)	1,482 (61%)	2,450
<i>Injury Hospitalization</i>			
Intentional	18 (18%)	13 (10%)	31 (14%)
Unintentional	84 (82%)	112 (90%)	196 (86%)
Total Injury Hospitalization	102 (45%)	125 (55%)	227

Source: IntelliHealth Ontario 2023f. Retrieved April 19, 2023; IntelliHealth Ontario 2023e. Retrieved April 18, 2023.

The rate of emergency department visits for injury per 100,000 population is consistently lower for Ignace residents than the Dryden Hub and NWHU (IntelliHealth Ontario 2023b). Dryden Hub residents have the highest rate per 100,000 population of emergency department utilization for all injury, as shown in **Figure 4.2-1**. The higher rates experienced in the Dryden Hub may be reflective of the presence of the Dryden Regional Health Centre which offers an emergency department that serves a number of communities and surrounding populations.

Figure 4.2-1: All Injury Emergency Department Visit Comparison Rate by Area, 2002 to 2011, 2012 to 2021, and 2002 to 2021

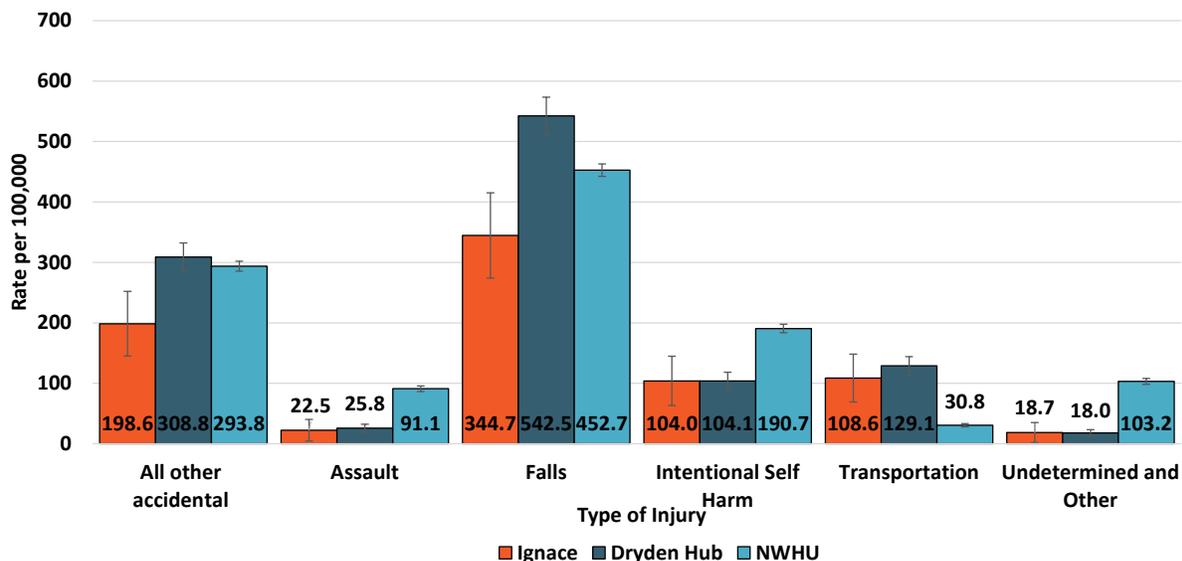


Source: IntelliHealth Ontario 2023b. Retrieved April 18, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes: 2021 emergency department visit data for Ignace was too small to be presented for the single year.

Figure 4.2-2 provides a comparison of injury hospitalization by type of injury. Understanding the reasons for serious injury is useful in understanding the extent to which injuries are contributing to hospital resources, both in terms of visits and lengths of stay. The leading causes for hospitalization due to injury in Ignace, the Dryden Hub, and the NWHU relate to falls, transportation injury, and intentional self-harm.

Figure 4.2-2: Comparison of Injury Hospitalization Rates by Type of Injury and Area and 2002 to 2021



Source: IntelliHealth Ontario 2023b. Retrieved April 18, 2023. Date extracted: March 22, 2022; updated December 23, 2022; February 3, 2023.

Notes: Rates of intentional self-harm are per 100,000 residents age 10 and older; all other rates include entire population.

Falls are the leading cause of injury among older adults in Canada and cause 85% of injury-related hospitalizations for seniors. Over one-third of seniors admitted to a hospital for a fall are later admitted to a long-term care facility (Public Health Agency of Canada 2014). Falls can lead to mortality and loss of mobility, particularly among older adults, but falls cause hospitalizations and disability across ages. Falls accounted for 92 of the 196 (47%) unintentional injury hospitalizations among Ignace residents from 2002 to 2021 (IntelliHealth Ontario 2023f).

Hospitalizations due to falls also had a high percentage of inpatient days spent in alternate level of care compared to all unintentional injuries. Alternative level of care days describes patients who occupy a hospital bed but do not require the intensity of services offered in that care setting, which may be indicative of a lack of alternative community resources to address patient needs. 46% of inpatient days due to falls among Ignace residents were spent in alternative level of care compared to only 28% and 33% among residents of the Dryden Hub and NWHU, respectively. This suggests potentially greater difficulties in securing appropriate outpatient rehabilitation, home care and/or long-term care for Ignace residents requiring ongoing care due to fall injuries.

Transport-related injuries include motor vehicle crashes, other road users (e.g., pedestrians, cyclists) being struck by vehicles and non-road travel transport (e.g., boating incidents). There were 29 hospitalizations due to transportation injuries among Ignace residents from 2002 to 2021 (IntelliHealth Ontario 2023f). 24 individuals were hospitalized, suggesting that most were

hospitalized only once. Inpatients from Ignace hospitalized due to transport incidents were disproportionately male (63%), a pattern that is similar for Dryden Hub and NWHU. Alternate levels of care were used much less among Ignace residents (6%) for transport injuries compared to the Dryden Hub and NWHU (IntelliHealth Ontario 2023f).

Intentional injuries include intentional self-harm and assault (i.e., harm inflicted by others). Self-harm hospitalization rates have been shown to increase as neighbourhood income decreases making it an important equity indicator (Canadian Institute for Health Information 2020a). While not all hospitalizations for self-harm can be attributed to a suicide attempt, it indicates a need for mental health support and burden of intentional self-harm injury regardless. Severe assault injuries are more commonly experienced by men, with violence towards males seen at higher rates in rural areas in Canada (Sutton 2023).

Intentional injury emergency department visits were primarily composed of females (63%) while most emergency visits for assault were for males (83%). It is notable that approximately 1 in 4 emergency department visits for intentional injuries were by children or youth (aged 10-19). This is a key health equity indicator (IntelliHealth Ontario 2023e)

Table 4.2-6 indicated that between 2002 and 2021 63% of intentional injury inpatients among Ignace residents were female, while 38% were male. All hospitalizations for intentional injury among Ignace females were for intentional self-harm (i.e., none were for assaults), while among Ignace males, there were 13 hospitalizations for intentional injury; six were due to assault (all in the ages 20 to 44) and the remaining 7 are due to intentional self-harm injury (IntelliHealth Ontario 2023f). These rates are similar to those for males and females in Dryden Hub, but differ somewhat from the NWHU where rates for females are 56% for in-patient and hospitalizations, and 44% respectively for males.

Table 4.2-6: Intentional Injury Hospitalization Summary by Area and Sex, 2002 to 2021

Area	Sex	Number of Inpatients	Number of Hospitalizations	Inpatient Average Age
Ignace	Female	15 (63%)	18 (58%)	42
	Male	9 (38%)	13 (42%)	40
	Total	24	31	41
Dryden Hub	Female	125 (62%)	162 (63%)	34
	Male	77 (38%)	95 (37%)	37
	Total	201	257	35
NWHU	Female	1,658 (56%)	2,335 (56%)	28
	Male	1,324 (44%)	1,850 (44%)	32
	Total	2,984	4,185	29

Source: IntelliHealth Ontario 2023f. Retrieved April 19, 2023. Data Extraction and Analysis by EPI Research Inc.

4.2.3 Mental Health

People with poor mental health often have multifaceted healthcare and community care needs. Access to primary care, counselling, support from community, and medication may be required for improved mental health. In their absence, more acute mental health crises arise and perpetuate a need for emergency care or hospitalization. Mental health, along with alcohol and drug use are current health priorities for the MBCHCH along with other regional health service providers as demand often exceeds the availability of services (NWO Baseline Studies Key Person Interview Program 2022-2023).

Between 2002 and 2021, there were 6,400 physician visits by 805 Ignace community members (ages 10 and older) with a main diagnosis related to mental health (**Table 4.2-7**). While females account for just over one half of the 805 Ignace residents seen by a physician for mental health needs, they account for just under one half of the visits. On average in the 20-year period, males had 9 physician visits compared to 7 for females for mental health needs.

Table 4.2-7: Individual Patients and Total Physician Visits for Mental Health, Ignace Residents age 10+, 2002 to 2021

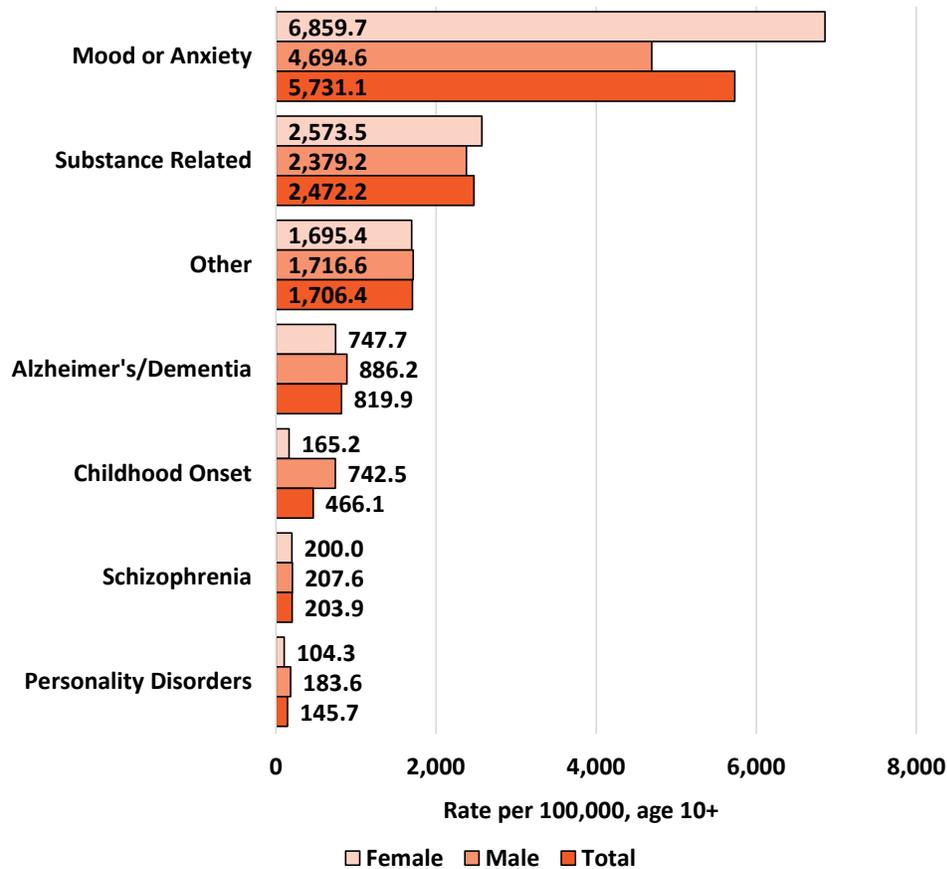
	Female	Male	Total
Patients	437 (54%)	368 (46%)	805
Physician Visits	3,185 (50%)	3,208 (50%)	6,393
Average # Visits	7.3	8.7	7.9

Source: IntelliHealth Ontario 2023d. Retrieved March 10, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes: Ages 10 and older.

Of the 6,720 physician visits between 2002 and 2021, more than two-thirds were related to substance use and mood or anxiety disorders (**Figure 4.2-3**). While mood or anxiety were the top reasons for physician mental health visits among both males (4,700 per 100,000) and females (6,860 per 100,000), females had a significantly higher rate of visits for these reasons (IntelliHealth Ontario 2023d).

Figure 4.2-3: Ignace Residents Physician Visit Rate for Mental Health Reason by Sex, 2002 to 2021



Source: IntelliHealth Ontario 2023d. Retrieved March 10, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes: Ages 10 and older.

Emergency department use for mental health conditions often signifies a lack of access to preventative mental health care and support. Repeat visits by the same person are common. Based on 2017 data, nearly 1 in 10 Canadians who visit an emergency department for mental health reasons had four or more visits in a year, and two-thirds of those frequent visitors ended up as hospital inpatients in a year (Canadian Institute for Health Information 2023).

Table 4.2-8 presents a comparison of acute care utilization related to mental health emergency department visits and inpatient care among Ignace residents. For both females and males in Ignace, anxiety/stress disorders and substance-related disorders account for more than half of all, mental health-related emergency department visits; however, these rates remain lower compared to the Dryden Hub and NWHU. **Figure 4.2-4** provides a comparison of mental health hospitalizations for Ignace, the Dryden Hub, and the NWHU.

Table 4.2-8: Comparison of Mental Health Emergency Department Visits and Mental Health Hospitalization by Category and Sex, Ignace Residents, 2002 to 2021

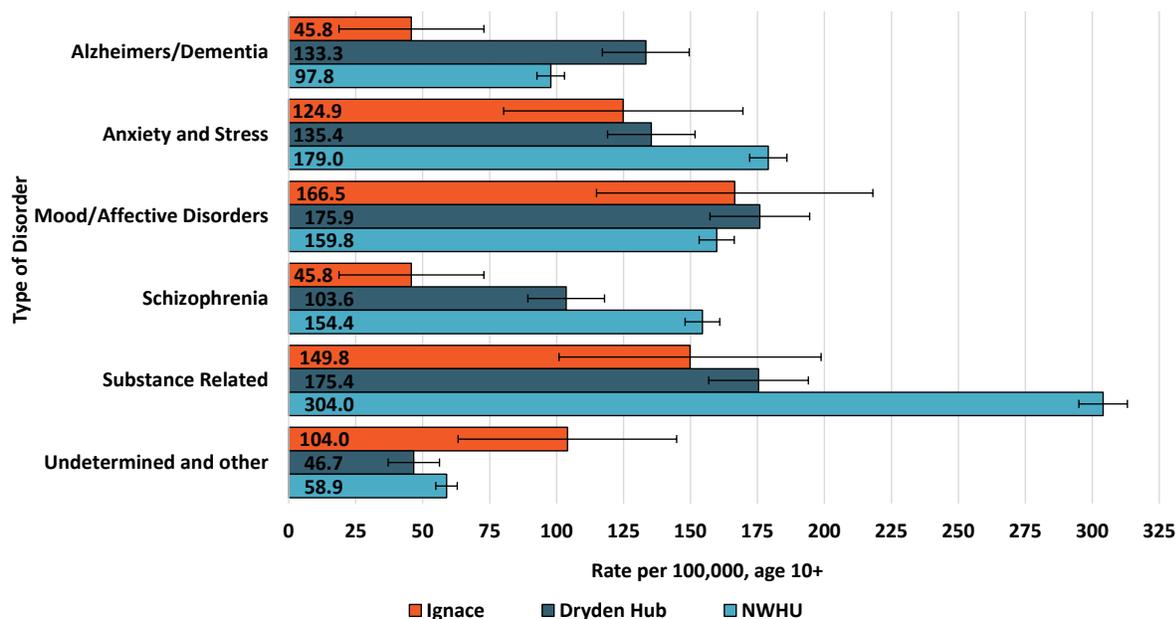
Mental Health Emergency Department Visits (all diagnosis block)			
Category	Female	Male	Total
Anxiety and Stress Disorders	81 (37%)	68 (24%)	149 (36%)
Substance Related Disorders	73 (34%)	71 (36%)	144 (34%)
Mood Disorders	35 (16%)	27 (14%)	62 (15%)
Schizophrenia	21 (10%)	17 (9%)	38 (9%)
Alzheimer’s / Dementia	Suppressed	Suppressed	16 (4%)
Total Mental Health Emergency Department Visits	218	200	418

Source: IntelliHealth Ontario 2023f. Retrieved April 19, 2023; IntelliHealth Ontario 2023b. Retrieved April 18, 2023; IntelliHealth Ontario 2023e. Retrieved February 26, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes:

1. All ages 10 and older only.
2. Suppressed means data has been suppressed for confidentiality.

Figure 4.2-4: All Mental Health Hospitalization by Reason, and Area, 2002-2021



Source: IntelliHealth Ontario 2023a. Retrieved April 19, 2023; IntelliHealth Ontario 2023f. Retrieved February 26, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes: Ages 10 and older only.

As there is no emergency department or hospital in Ignace, residents must be admitted to hospital in other locations for mental health reasons. **Table 4.2-9** indicates that residents are admitted most commonly to the Thunder Bay Regional Health Sciences Centre, the Lake of the Woods District Hospital, and the Dryden Regional Health Centre, although this could not always be accommodated by beds designated for mental health purposes.

Table 4.2-9: Mental Health Hospitalizations by Bed Type and Facility, Ignace Only, 2002 to 2021

Facility	Non-Designated Mental Health Bed Hospitalizations	Designated Mental Health Bed Hospitalizations	Total Facility Admissions for Mental Health
Thunder Bay Regional Health Sciences Centre	18 (29%)	35 (39%)	53 (35%)
Lake of the Woods District Hospital	11 (18%)	49 (54%)	60 (39%)
Dryden Regional Health Centre	30 (48%)	0 (0%)	30 (20%)
Other	Suppressed	7 (8%)	10 (7%)
Total	62	91	153

Source: IntelliHealth Ontario 2023f. Retrieved April 19, 2023; IntelliHealth Ontario 2023g. Retrieved February 27, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes:

1. Ages 10 and older only.
2. Other includes Homewood Health Centre Inc., St. Joseph’s Care Group – Lakehead Site, and Timmins & District General Hospital.
3. Suppressed means data has been suppressed for confidentiality.

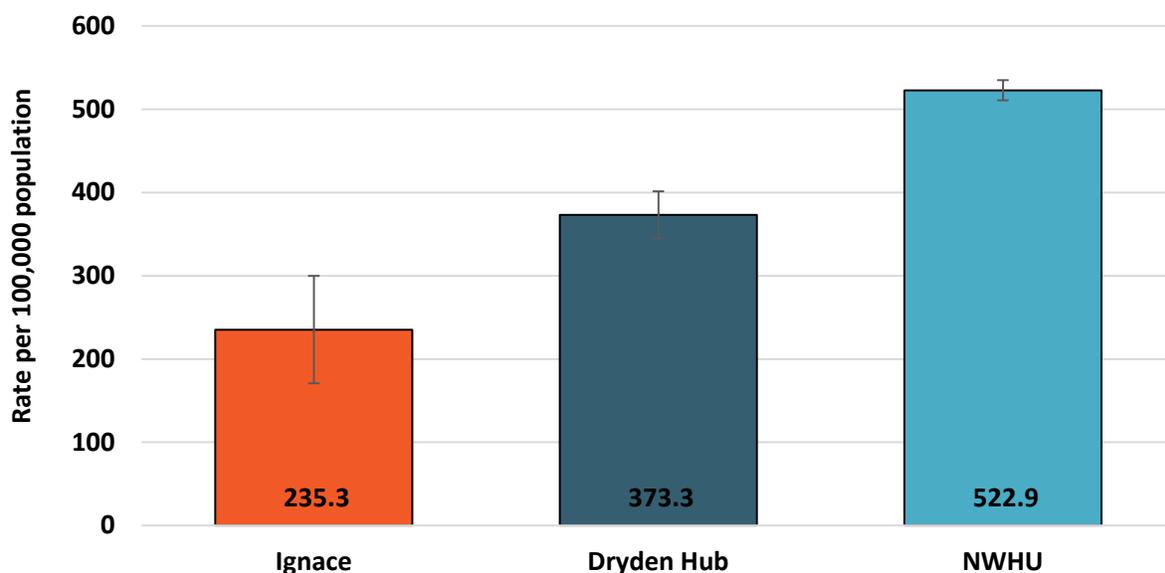
4.2.4 Sexually Transmitted Infections

In Canada, chlamydia and gonorrhoea are the most commonly diagnosed sexually transmitted infections (“STIs”). Prior to the COVID-19 pandemic, STI rates in Canada were increasing (for example, chlamydia and syphilis rates increased by 33% and 39% respectively between 2010 and 2019). Given the potential long-term health impacts of STIs, it is important to monitor STI rates to gauge how effective public health prevention messages related to safe sexual practices are in reaching Canadians (Public Health Agency of Canada 2022b). The effective prevention and management of STIs also involves eliminating barriers, such as stigma, to accessing testing and treatment.

Chlamydia is the most common sexually transmitted bacterial infection in Canada. Chlamydia can lead to Pelvic Inflammatory Disease in many females if left untreated, and in some cases, infertility. Public Health Ontario data (2021) show that in 2021, there were 35,400 cases of chlamydia (239 cases per 100,000 population) in Ontario as compared to 513 cases per 100,000 in the NWHU. From 2005 to 2021 rates of confirmed chlamydia infections were lower for Ignace residents (235 per 100,000), while higher for the Dryden Hub (373 per 100,000) and NWHU

(523 per 100,000) (**Figure 4.2-5**). Rates in the NWHU population were generally declining over time.

Figure 4.2-5: Rate of Confirmed Chlamydia Infections by area, 2005 to 2021



Source: Integrated Public Health Information Service 2022. Retrieved May 30, 2022. Data extraction by NWHU; analysis by EPI Research Inc.

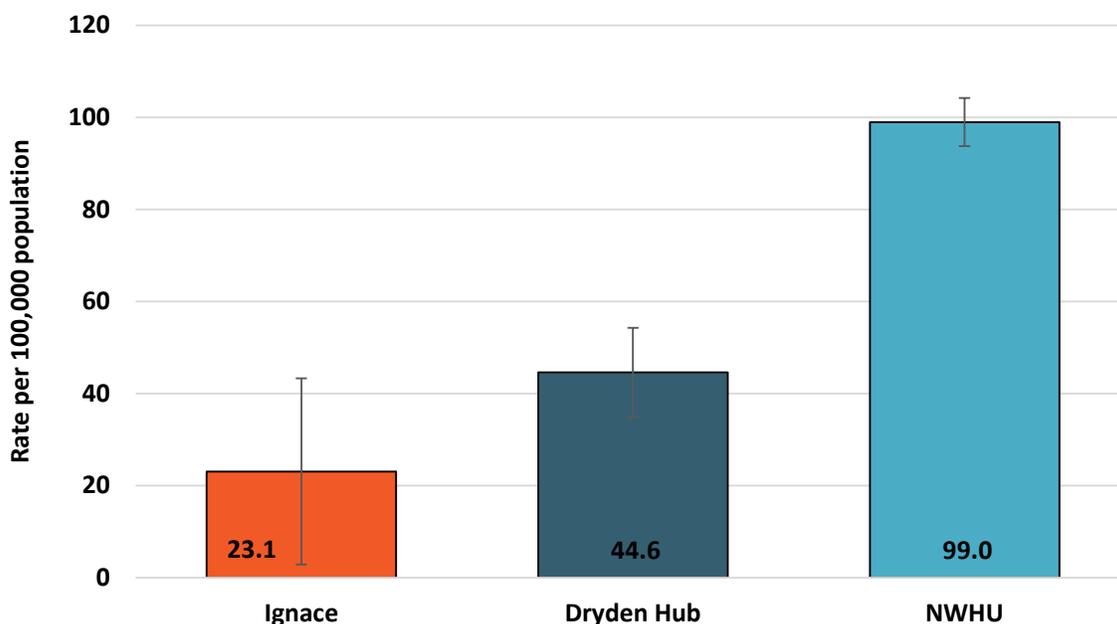
Chlamydia rates are higher in the NWHU compared to Ontario for all age groups except 50+ (in which group rates are very small in both populations). Those aged 15-24 are most affected in the NWHU (Integrated Public Health Information Service 2022). Ontario-wide, the rate is higher for those aged 20-24 compared to those aged 15-19, but rates in these two groups are similar in the NWHU. This suggests a greater need for education and resources on safer sex practices for NWHU youth.

Gonorrhoea is an STI that can result in infertility, and lead to pelvic inflammatory diseases in females among other risks if untreated. In 2019, the reported rate of gonorrhoea in Canada was 94.3 cases per 100,000 population, an increase of 182% from 10 years prior (Public Health Agency of Canada 2022b). This may be due both to inconsistent use of safer sex methods and better use of screening methods. Gonorrhoea is particularly prevalent in young people, especially young men under the age of twenty-four (Public Health Agency of Canada 2022a).

Residents of the NWHU had significantly higher rates of gonorrhoea than Ontario in all age groups under 40 years. The age groups most affected are similar province-wide and in the NWHU, namely younger adult age groups. Although Ontario did not see the same trend, there was a marked drop in overall rates from 2019 to 2021 among residents of the NWHU, presumably attributable to pandemic restrictions with respect to socialization and challenges with access to health services. However, there was a steep increase in rates of gonorrhoea among residents of the NWHU prior to this (Integrated Public Health Information Service 2022).

The rate of gonorrhoea among Ignace residents between 2005 and 2021 was 23.1 per 100,000 population, which was lower, although not statistically lower, to the rate among Dryden Hub residents, but was significantly lower than the NWHU rate (99.0 per 100,000 population), as shown in **Figure 4.2-6**.

Figure 4.2-6: Rate of Confirmed Gonorrhoea Infections by Area, 2005 to 2021



Source: Integrated Public Health Information Service 2022. Retrieved May 30, 2022. Data extraction by NWHU; analysis by EPI Research Inc.

4.2.5 Chronic Disease

Chronic diseases such as cancer, heart disease, diabetes, chronic lung disease, and arthritis not only impact life expectancy and premature death rates, but also affect the ability to live independently and free of illness and disability. It is estimated that 44% of adults aged over 20 in Canada have at least 1 of the 10 most diagnosed chronic conditions (Government of Canada 2019a). The true burden of chronic disease is difficult to measure. It can include self-reported, physician visit and hospitalization data. Data that could be extracted for chronic disease for Ignace residents was limited to hospitalization, which may underrepresent the burden of chronic disease.

Prevalence estimates summarized in **Table 4.2-10** show a comparatively high burden of chronic disease in the NWHU population, notably females with diabetes or chronic obstructive pulmonary disease compared to Ontario. Age standardized rates are used to make meaningful comparisons across age groups over time and between geographies. Age-standardized rates are used to account for differences in the age structure of comparison populations (Statistics Canada 2023f).

Table 4.2-10: Age-Standardized Prevalence Rates per 100,000 Population by Chronic Disease and Sex, Ontario and NWHU, 2020

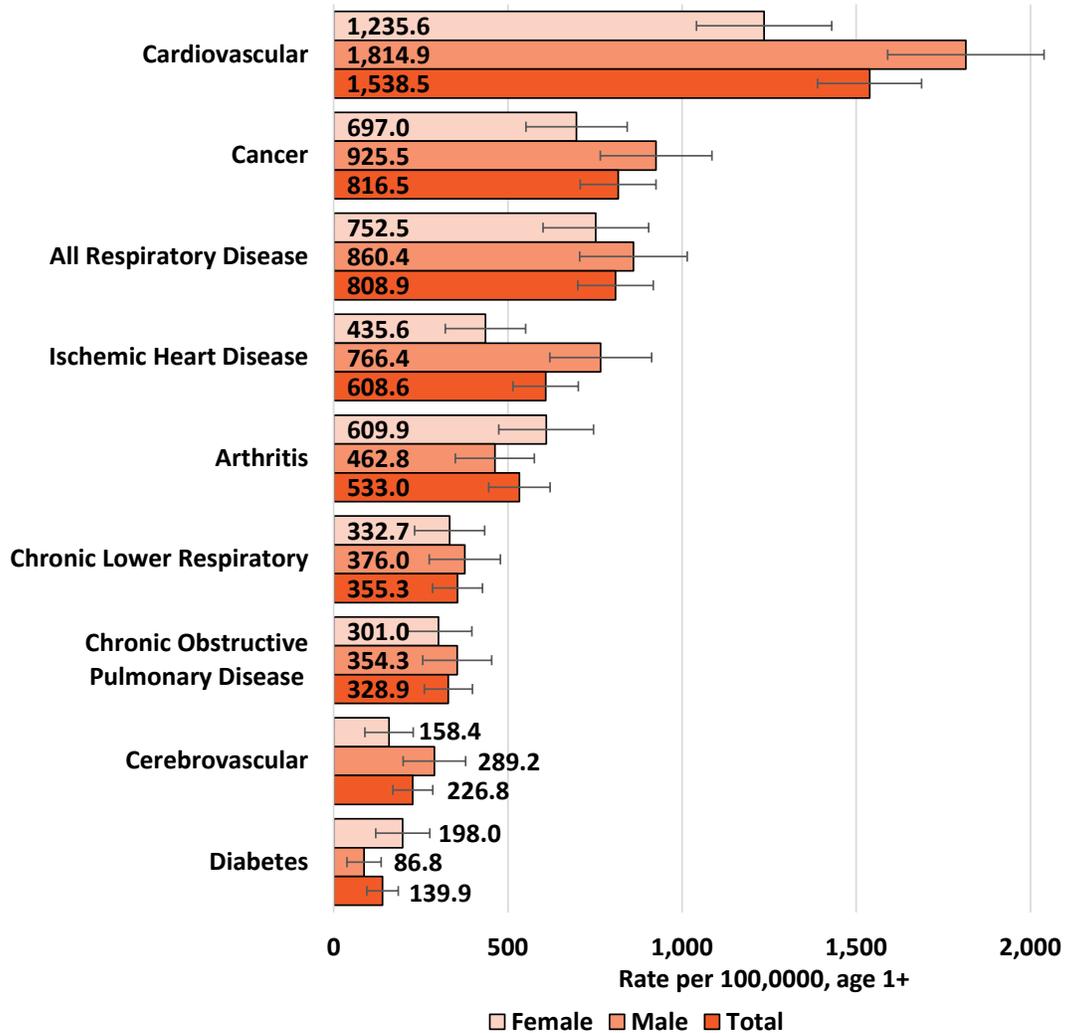
Chronic Disease	NWHU Age Standardized Rate	Ontario Age Standardized Rate	Significant compared to Ontario (Higher, Lower, Similar)
Asthma			
Asthma Prevalence – All	10,142.4	14,975.1	Lower
Asthma Prevalence – Female	10,715.1	15,264.3	Lower
Asthma Prevalence – Male	9,541.5	14,569.7	Lower
Chronic Obstructive Pulmonary Disease			
Chronic Obstructive Pulmonary Disease Prevalence – All	8,188.1	7,453.7	Higher
Chronic Obstructive Pulmonary Disease Prevalence – Female	8,482.5	7,059.5	Higher
Chronic Obstructive Pulmonary Disease Prevalence – Male	7,922.9	7,919.3	Similar
Diabetes			
Diabetes Prevalence – All	13,282.7	12,273.2	Higher
Diabetes Prevalence – Female	13,112.9	11,171.3	Higher
Diabetes Prevalence – Male	13,490.3	13,510.0	Similar
Hypertension			
Hypertension Prevalence – All	22,164.7	25,165.9	Lower
Hypertension Prevalence – Female	21,693.7	23,748.3	Lower
Hypertension Prevalence – Male	22,565.5	26,620.4	Lower

Source: Public Health Ontario 2023a. Retrieved May 2, 2022.

Notes: Age-standardized rates adjusted to the 2011 Canadian population.

Figure 4.2-7 provides a summary of hospitalizations for various chronic diseases. Among Ignace residents, hospitalization for all cardiovascular conditions was about 47% higher among males than females (IntelliHealth Ontario 2023f). This was mirrored in rates for ischemic heart disease. No other diseases showed significant differences by sex, but males generally had higher rates, except for arthritis and diabetes. Although diabetes represented the smallest proportion of hospitalizations among the chronic conditions reviewed and the low numbers make the difference not statistically significant, the rate of hospitalization among Ignace females was more than twice as high as it was for males. The average age at hospitalization was similar between males and females for all diseases.

Figure 4.2-7: Chronic Disease Hospitalization Comparison Rates by Sex, Ignace Residents, 2002 to 2021

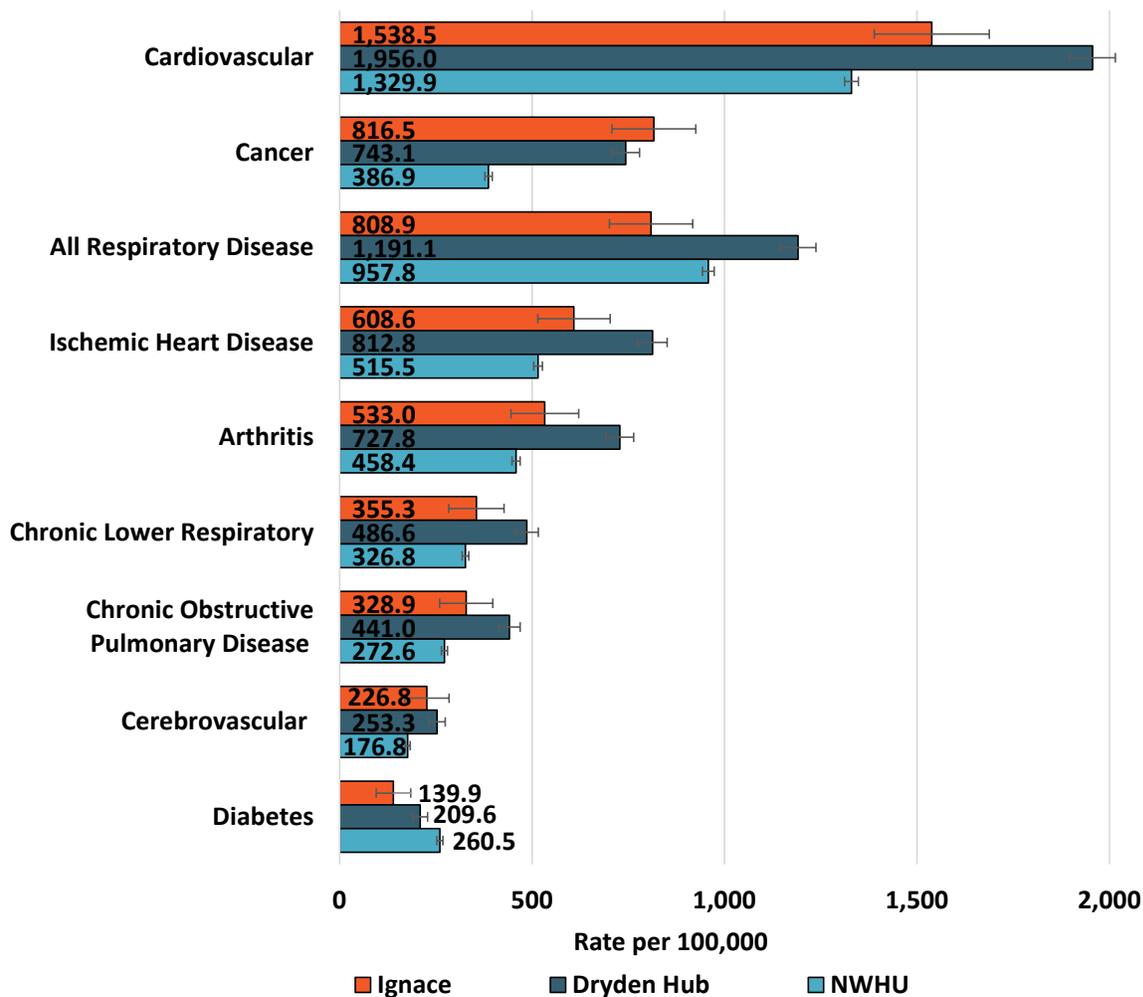


Source: IntelliHealth Ontario 2023f. Retrieved April 19, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes: Cancer includes malignant neoplasms only.

Figure 4.2-8 shows that, overall, chronic disease hospitalization rates among Ignace residents were lower than Dryden Hub, and similar to NWHU, for most chronic diseases presented. An exception was cancer for which Ignace had higher rates than both populations (significantly higher than NWHU, but only slightly higher than Dryden Hub).

Figure 4.2-8: Chronic Disease Hospitalization Rates Summary by Area, 2002 to 2021



Source: IntelliHealth Ontario 2023f. Retrieved April 19, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes: Cancer includes malignant neoplasms only.

4.2.5.1 Cardiovascular Disease

Cardiovascular diseases are the second leading cause of death among Canadians and caused by a combination of factors including poor diet, excessive alcohol consumption, and smoking (Government of Canada 2017). Death due to cardiovascular diseases account for about one in three residents of Ignace and has a substantial impact on premature mortality (see **Section 4.2.1**).

As **Table 4.2-11** shows, between 2002 and 2021, 226 Ignace residents accounted for 407 hospitalizations for cardiovascular disease. Females accounted for just under 40% of patients and hospitalizations but were more likely to be in hospital longer, with an average length of stay at 9 days compared to 8 days for males. Cardiovascular disease hospitalization rates remained relatively constant in Ignace, Dryden Hub, and NWHU between 2002 and 2021.

Table 4.2-11: Cardiovascular Disease Hospitalization Summary by Sex and Area, 2002 to 2021

Area	Sex	Number of Inpatients	Number of Hospitalizations	Average Hospitalizations per Patient	Average Days per Stay
Ignace	Female	90 (40%)	156 (38%)	1.7	9.2
	Male	136 (60%)	251 (62%)	1.8	8.1
	Total	226 (100%)	407 (100%)	1.8	8.5
Dryden Hub	Female	950 (43%)	1,760 (42%)	1.9	8.6
	Male	1,245 (57%)	2,449 (57%)	2.0	7.5
	Total	2,193 (100%)	4,209 (100%)	1.9	8.0
NWHU	Female	4,902 (44%)	9,481 (44%)	1.9	7.8
	Male	6,183 (56%)	12,029 (56%)	1.9	6.7
	Total	11,085 (100%)	21,538 (100%)	1.9	7.2

Source: IntelliHealth Ontario 2023f. Retrieved April 19, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes: Includes ages 1 and older.

4.2.5.2 Cancer

People with cancer require complex combinations of physician care that are dependent on the stage of the disease, cancer type, and treatment plan. Those with cancer may require care from a combination of physician types. Canadian Cancer Society statistics suggest that 43% of women and 45% of men in Canada will develop cancer in their lifetime (Canadian Cancer Society 2022). In 2018, the prevalence of cancer was the third lowest in the NWHU among the 35 health units in Ontario (Cancer Care Ontario 2021). The prevalence rate of cancer in Ontario was 4,650 cases per 100,000 population compared to 4,070 cases per 100,000 population in the NWHU (Cancer Care Ontario 2021). Prevalence estimates show that females face a higher burden of cancer in both the NWHU (4,500 cases per 100,000 population) and Ontario (4,940 cases per 100,000 population) compared to males (3,650 cases per 100,000 population in the NWHU and 4,350 cases per 100,000 population in Ontario).

Between 2001 and 2020, Ignace residents visited a physician for cancer (malignant neoplasms only) a total of just over 7,200 times with an average of 12 visits per patient (IntelliHealth Ontario 2023d). Ignace residents aged 45 to 64 accounted for the highest percentage of cancer patients (48%) followed by 65-74 (34%) and then 75+ (14%). In all age groups, females had a statistically significantly higher visit rate than males, and this difference was particularly pronounced in the 65-74 age range. Lung, female breast, and colon cancers had the highest

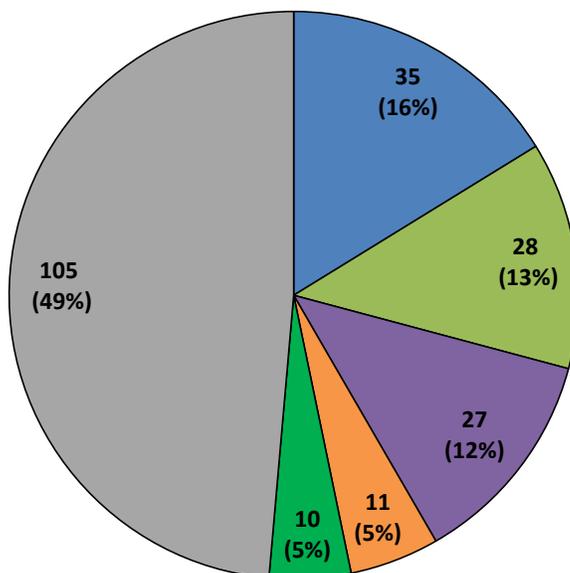
number of physician visits. Other cancers not included in the three leading types still accounted for 22% of physician visits. General/family practice physicians had the most visits by cancer patients of all physician specialties, accounting for 30% of visits, and the highest number of visits per patient at 14. Medical oncology and therapeutic radiology¹⁸ followed as the most frequent specialties (14%) (IntelliHealth Ontario 2023d). Ignace residents had higher physician visit rates for cancer than the Dryden Hub or NWHU between 2011 and 2020, at a rate of 38,500 per 100,000 compared to 35,300 and 19,900 respectively (IntelliHealth Ontario 2023d).

Hospitalizations for cancer show the incidence of cancer patients requiring more intensive care for their disease, due to, for example, the advanced stage of their condition or debilitating side effects from their treatment. There were 216 hospitalizations for cancer, comprised of 119 unique patients, among Ignace residents from 2002 to 2021. The top three cancers requiring hospitalization for females from Ignace were lung, colon, and breast cancer, while males were hospitalized for prostate, lung and colon cancer (IntelliHealth Ontario 2023f). Ignace residents had higher hospitalization rates for cancer than the Dryden Hub or NWHU between 2011 and 2020, at a rate of 1,030 per 100,000 compared to 846 and 401 respectively (IntelliHealth Ontario 2023a).

From 2002 to 2021, most Ignace residents were hospitalized for cancer at the Thunder Bay Regional Health Sciences Centre (137 hospitalizations for 86 individual patients), followed by the Dryden Regional Health Centre (59 hospitalizations for 47 individual patients), the Toronto University Health Network (6 hospitalizations for 6 individual patients), Sioux Lookout Meno Ya Win Health Centre (7 hospitalizations for 7 individual patients), and other hospitals (7 hospitalizations for 5 individual patients) (IntelliHealth Ontario 2023f). Lung, prostate, and colon cancers accounted for the highest percentage of cancer related hospitalizations as shown in **Figure 4.2-9**.

¹⁸ Therapeutic radiology may represent review of images only, and not a direct encounter with the patient.

Figure 4.2-9: Cancer Hospitalization by Leading Cause, Ignace Residents, 2002 to 2021



■ Malignant Neoplasms of Trachea, Bronchus and Lung
 ■ Malignant Neoplasm of Prostate
■ Malignant Neoplasm of Colon, Rectum and Anus
 ■ Malignant Neoplasm of Bladder
■ Malignant Neoplasm of Breast
 ■ Other

Source: IntelliHealth Ontario 2023f. Retrieved April 19, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes:

1. Includes ages 1 and older.
2. Includes Malignant Neoplasms only.

4.2.5.3 Diabetes

More than 200,000 Canadians are diagnosed with diabetes every year (Public Health Agency of Canada 2022d). Diabetes has a significant health and economic burden on Canada in efforts to manage the disease and its symptoms. In Canada, the age-adjusted prevalence of diabetes is increasing at an average rate of 3% per year. Prevalence of diabetes has been found to be higher among racialized and marginalized communities (Public Health Agency of Canada 2022d). Those with diabetes require ongoing primary care and in some cases emergency care.

Table 4.2-12 summarizes data on diabetes hospitalizations. There were 17 inpatients from Ignace and 37 total hospitalizations for diabetes between 2002 and 2021. The average length of stay for Ignace residents was only 4 days, compared to around 10 days for the comparison areas. There were 2.8 hospitalizations on average for female patients from Ignace and only 1.5 on average for male patients.

Table 4.2-12: Diabetes Hospitalization Summary by Sex and Area, 2002 to 2021

Area	Sex	Number of Inpatients	Number of Hospitalizations	Average Hospitalizations per Patient	Average Days per Stay	Inpatient Average Age
Ignace	Female	9 (53%)	25 (68%)	2.8	4.0	55
	Male	8 (47%)	12 (32%)	1.5	4.0	55
	Total	17	37	2.2	4.0	55
Dryden Hub	Female	103 (41%)	191 (42%)	1.9	11.4	56
	Male	147 (59%)	260 (58%)	1.8	9.4	53
	Total	249	451	1.8	10.3	54
NWHU	Female	890 (45%)	1,835 (44%)	2.1	10.5	54
	Male	1,086 (55%)	2,379 (57%)	2.2	11.4	54
	Total	1,980	4,214	2.1	11.0	54

Source: IntelliHealth Ontario 2023f. Retrieved April 19, 2023. Data Extraction and Analysis by EPI Research Inc.

Notes: Includes ages 1 and older.

4.2.5.4 Respiratory Disease

Chronic respiratory diseases include asthma and chronic obstructive pulmonary disease. They do not include short-term respiratory conditions like influenza.

Asthma is a chronic health disorder affecting a substantial number of children and adults worldwide. Symptoms include coughing, shortness of breath, chest tightness and wheezing. Asthma symptoms and attacks (episodes of more severe shortness of breath) usually occur after exercise or exposure to allergens, viral respiratory infections, irritant fumes, or gases. Common risk factors include a family history of asthma, exposure to high antigen levels and exposure to smoke or chemicals in the workplace. Asthma requires ongoing health care interventions to manage the symptoms.

Between 2002 and 2021 there were only 5 patients from Ignace hospitalized with a total of 7 total hospitalizations (IntelliHealth Ontario 2023f). Average length of stay for asthma for Ignace residents was short (2.7 days) which was similar to the comparison areas (1.6 for the Dryden Hub and 1.5 for the NWHU). The average inpatient age is much younger than for most other chronic diseases, particularly among Ignace residents where the average age was 18. The average ages for Dryden Hub and NWHU were mid-20s. In all three areas, the average age was higher for males than for females (IntelliHealth Ontario 2023f).

Chronic obstructive pulmonary disease is a progressive respiratory disease characterized by lung damage and airway blockage causing breathlessness, coughing, mucus, and chest congestion. It is the fourth leading cause of death in Canada and often causes secondary effects such as weight

loss and malnutrition (Health Quality Ontario 2012). Between 2002 and 2021, 20 female patients and 30 male patients from Ignace were hospitalized for Chronic obstructive pulmonary disease. Average length of stay for Ignace residents (6 days) was somewhat lower than the comparison areas (9 days for the Dryden Hub and 8 days for the NWHU). The average age of people with Chronic obstructive pulmonary disease was similar among all three populations (i.e., between 63 and 69 years) (IntelliHealth Ontario 2023f).

4.2.6 Maternal and Child Health

Maternal and child health are important priorities, as inequities can develop along the continuum from before birth, throughout pregnancy and in the early years of life that can affect health status into adulthood (Ontario Ministry of Children and Youth Service 2018). The Healthy Babies Healthy Children screening program is used to identify “with-risk families”¹⁹ so they receive supports and services as soon as possible (Ontario Ministry of Children and Youth Service 2018).

Between 2014 and 2021, a higher proportion of Ignace families (88%) screened in both the prenatal and postnatal periods were identified “with risk” in comparison to the Dryden Hub (64%) and NWHU (60%), meaning that they answered “yes” to two or more of the 27 screening questions (ISCIS 2022). Over 1 in 10 Ignace mothers screened were single parents, while between 20-25% had not completed high school. A very small proportion of women screened did not have a primary care provider indicating a strong connection between mothers and children and health care providers in the community (ISCIS 2022).

4.2.6.1 Alcohol, Drug and Tobacco Use During Pregnancy

Fetal alcohol exposure may lead to Fetal Alcohol Spectrum Disorder, which can involve a range of birth defects and neurobehavioral disabilities (Public Health Ontario 2016). Between 2014 and 2021 about one in ten Ignace women screened reported drinking alcohol during pregnancy (10%) (ISCIS 2022). The reported rate of alcohol use during pregnancy appears to be higher among Ignace residents than in the comparison areas (6% for the Dryden Hub and 7% for the NWHU) (ISCIS 2022). It is important to note that amount of alcohol consumed and whether alcohol use stopped upon knowledge of pregnancy are also important factors in maternal and infant for which data are not available.

Drug use includes illegal drugs used during pregnancy and prescription drugs that have an impact on activities of daily living or are teratogenic (i.e. harmful to the fetus). Between 2014 to 2017 and 2018 to 2021, reported drug use during pregnancy increased for all in Ignace, the Dryden Hub and the NWHU (ISCIS 2022). The overall reported drug use over the entire time period was 24% for Ignace residents, compared to 15% for the Dryden Hub and 15% for the NWHU.

¹⁹ A family is determined to be with risk, if the Healthy Babies Healthy Children Screen (confirmed by an assessment and nursing judgment) identifies that there is a serious likelihood that a child may not reach his or her potential and the family may benefit from more intensive Healthy Babies Healthy Children Program services (e.g., blended home visiting services, service coordination, etc.) (Ontario Ministry of Children and Youth Services 2018).

Smoking during pregnancy is a risk factor for complications in pregnancy and adverse fetal outcomes. Self-reported smoking during pregnancy decreased from almost half (48%) between 2014 and 2017 to just over one in three (38%) between 2018 and 2021 for Ignace mothers (ISCIS 2022). These rates appear to be higher in comparison to both Dryden Hub (28% from 2014 to 2021) and NWHU (24% from 2014 to 2021).

4.2.6.2 Mental Health Concerns During Pregnancy

Maternal mental health concerns, such as maternal depression, during and following pregnancy can impact the socio-emotional and cognitive development of children (Bernard-Bonnin et al. 2004). Mental health concern during the current or a previous pregnancy include things such as anxiety, depression, history of postpartum depression, addiction, bipolar disorder, schizophrenia, or other concerns. Between 2013 and 2022, about 1 in 3 (32%) Ignace mothers reported having at least one mental health concern during pregnancy, which is similar to rates reported for the Dryden Hub (27%) and the NWHU (31%) (BORN Ontario 2023).

4.2.6.3 Maternal Feeding Intentions and Outcomes

High breastfeeding rates are desirable as breastfeeding is linked to better health of the baby and lessens the financial burden of providing for a new baby. Almost 9 out of 10 expectant mothers in Ignace (88%) indicated an intention to breastfeed and nearly all (87%) were breastfeeding at discharge (BORN Ontario 2023). These high rates of both intention and follow-through are positive signs regarding the level of support and education for new mothers in the area. This typically indicates a high level of health care provider support at the community level (which may range from nurse, to feeding coaches, programs, support groups, or other). Rates were similar for the Dryden Hub (87% intended to breastfeed and 82% were breastfeeding at discharge), and slightly lower for the NWHU (81% intended to breastfeed and 80% were breastfeeding at discharge) (BORN Ontario 2023).

4.2.6.4 Pregnancy

Pregnancy rates indicate the potential for population growth (among other factors) and help indicate resource needs for mothers and infants. From 2002 to 2021 pregnancy rates in Ignace have been lower than in the Dryden Hub and the NWHU, at a rate of 42.7 per 1,000 females compared to 48.3 and 52.9 respectively (IntelliHealth Ontario 2023h). The most common age group of Ignace mothers between 1996 and 2018 was 25–29 (34%). Just over 3% of births to Ignace residents were to mothers under age 18, which is similar to the Dryden Hub but lower than NWHU (IntelliHealth Ontario 2023h).

Between 1996 and 2021, the majority of infant deliveries (61%) to Ignace mothers took place at the Dryden Regional Health Centre, with the second most common location being the Thunder Bay Regional Health Sciences Centre (25%). A smaller number of women gave birth in Sioux Lookout (13%) and the remaining 1% at other locations (IntelliHealth Ontario 2023h).

4.3 SOCIAL DETERMINANTS OF HEALTH

Determinants of health describe the many conditions that interact to influence risks to health and well-being (National Collaborating Centre for Determinants of Health 2022). Most determinants are regarded as social determinants of health, meaning the social conditions that influence health, such as education and income, which are key in highlighting disparities in living conditions and health outcomes.

According to the World Health Organization (n.d.), the social determinants of health are the non-medical factors that influence health outcomes. They include the conditions in which people are born, grow, work, live, and age. They are the wider set of forces and systems shaping the conditions of daily life. These include economic policies and systems, development agendas, social norms, social policies, and political systems.

4.3.1 Demographics as a Social Determinant of Health

This section describes how demographic characteristics including gender, culture, and race and racism affect health outcomes.

4.3.1.1 Gender

Sex and gender are often used interchangeably, but have different meanings:

- “Sex refers to a set of biological attributes in humans and animals. It is primarily associated with physical and physiological features including chromosomes, gene expression, hormone levels and function, and reproductive/sexual anatomy” (Canadian Institute of Health Research 2023).
- “Gender refers to the socially constructed roles, behaviours, expressions and identities of girls, women, boys, men, and gender diverse people. It influences how people perceive themselves and each other, how they act and interact, and the distribution of power and resources in society. Gender identity is not confined to a binary (girl/woman, boy/man) nor is it static; it exists along a continuum and can change over time.” (Canadian Institute of Health Research 2023).

Many health statistics, particularly those that relate to health outcomes (**Section 4.2**), are collected based on sex (i.e., males, females), however gender (men, women, both, neither)²⁰ in and of itself is a social determinant of health. “Many health issues are a function of gender-based social status or roles” (Public Health Agency of Canada 2013).

In Canada, research supports that there are clear differences in health outcomes related to gender including (Public Health Agency of Canada 2013):

- Men are more likely to die prematurely than women (see **Section 4.2.1**);

²⁰ This report generally uses the terms men and women in describing gender identity as data for small populations often does not get disaggregated to include categories such as both or neither, which is not to say that there are no people with those identity characteristics present.

- Rates of potential years of life lost ("PYLL"), an indicator of premature mortality, are almost twice as high for men than women (see **Section 4.2.1**);
- While women live longer than men, they are more likely to suffer depression and stress overload (often due to efforts to balance work and family life) (see **Section 4.2.3**); and
- Women are more likely to experience injuries and death from family violence than men (see **Section 4.2.1** and **Section 4.2.2**).

These observations on gender are consistent with findings in Ignace, the Dryden Hub and the NWHU, as summarized in **Section 4.2**.

4.3.1.2 Culture, Race and Racism

Some people or groups may face additional health risks due to conditions such as marginalization, stigmatization, loss or devaluation of language and culture, and lack of access to culturally appropriate health care (Public Health Agency of Canada 2013). As of 2021, 18% of the Ignace population identify as Indigenous (Statistics Canada 2022a). Indigenous peoples in Canada experience social, economic, and political disadvantages compared to non-Indigenous peoples in Canada (Kim 2019). The impacts of colonization and forced assimilation have negatively affected key social determinants of health for Indigenous peoples, including access to culturally appropriate health care, cultural continuity, and food security, causing Indigenous peoples to experience health inequities including higher rates of diabetes, hypertension, and mental health challenges (Kim 2019).

Further, racialized populations experience greater stressors, including interpersonal and systemic discrimination throughout their life, as compared to "white" or non-racialized social groups (Public Health Agency of Canada 2022c).

Disparities in health outcomes exist for Indigenous peoples when compared to non-Indigenous peoples in Canada. According to the First Nations Information Governance Centre (2018), the social determinants of health of First Nations peoples in Canada are further exacerbated by their exposure to the Indian Residential School system and other factors that reflect the unique history and experience of First Nations peoples and the legacy of colonialism. Factors such as the Indian Residential School system and institutionalized racism have meant that Indigenous peoples often have different health outcomes associated with the social determinants of health.

Culture and race play a large role in how Indigenous and other racialized peoples in Canada access and experience health care services. However, culturally appropriate health care services are a gap in the Local Study Area and are limited in the Regional Study Area, which affects health outcomes. Indigenous patients who receive culturally appropriate and culturally safe health care may be more receptive to treatments and to follow advice given by healthcare professionals, in turn improving health outcomes (NCCIH 2013).

4.3.2 Education, Employment, and Income

People of low socio-economic status often experience inequities in access to health care and poorer health outcomes (Canadian Institute for Health Information 2018). Measures of socio-economic inequity are typically linked to educational attainment, employment, and income.

4.3.2.1 Education

There are clear links between education and health, with higher levels of education associated with both a longer lifespan and more years of life spent in good health (Statistics Canada 2020b). Education increases opportunities for job and income security and job satisfaction. It also improves a person's ability to access and understand information to help keep them healthy (Public Health Agency of Canada 2013).

As of 2021 the proportion of people who have no certificate, diploma, or degree in Ignace is higher than the provincial average but lower than in the Kenora Census Division. (Statistics Canada 2022a). Generally, a larger proportion of men in Ignace, the Kenora Census Division, and Ontario have an apprenticeship or trades certificate or diploma compared to women, but a larger proportion of women have a university education at or above the bachelor level compared to men. (Statistics Canada 2022a).

Ignace Community Health and Wellness Survey (2023) respondents who have completed postsecondary education were more likely to rate both their physical and mental health "very good" or "excellent" (29%) compared to those who have completed high school or equivalent (15%).

4.3.2.2 Employment

Unemployment, underemployment, and stressful or unsafe work are associated with poorer health (Public Health Agency of Canada 2013). Unemployment can have negative health consequences including depression, anxiety, low self-esteem, demoralization, and stress-related illnesses (e.g., high blood pressure, stroke, heart disease). Further, employment experiences such as perceived job insecurity, downsizing or workplace closure, and underemployment also have implications for physical and mental health (U.S. Department of Health and Human Services 2023). People who have more control over their work circumstances and fewer stress related demands in their job are healthier and often live longer than those in more stressful or risky work environments (Public Health Agency of Canada 2013). Thus, the influence of the status of employment on an individual's health outcomes is further determined by the type of work an individual is involved in and whether it adds additional health risk factors, such as physical danger or high levels of stress.

In 2021, the employment rate in Ignace was 45% while the unemployment rate was 13%. From 2016 to 2021, there was a slight decrease in the employment rate in Ignace and other local communities like Dryden, Machin and Sioux Lookout, along with the Kenora Census Division (Statistics Canada 2017; 2022a). This is likely influenced by the COVID-19 pandemic and the resulting transition to working remotely and social distancing in workplaces (Statistics Canada 2023g; NWO Community and Baseline Studies Key Person Interview Program 2022). In particular, industries that could not make the transition to working remotely or had to reduce their workforce likely contribute to the lower employment rate in 2021 compared to 2016.

Working conditions are also a contributing factor to health outcomes (Government of Canada 2023b). Men are more likely to work in industries with higher risk for injury. Rates for serious injury "are higher for men across high-risk occupations except in health, where women had three

times the rate of men” (Canadian Centre for Occupational Health and Safety 2024). In the Kenora Census Division (Statistics Canada 2022a), men are more likely to be employed in industries such as mining, quarrying and gas extraction (84%), manufacturing (82%), and transportation and warehousing (79%). Women dominate industries such as health care and social assistance (75%), and educational services (70%). This is similar to trends in Ignace, where the top three sectors of employment for women were accommodation and food services (24%), health care and social assistance (16%), and educational services (16%). The top three sectors of employment for men in Ignace were agriculture, forestry, fishing, and hunting (20%), construction (11%), and transportation and warehousing (11%) (Statistics Canada 2022a; Government of Canada 2023b).

The relationship between self-reported mental and physical health relative to employment status did not vary considerably among Ignace Community Health and Wellness Survey (2023) respondents. Although almost one in three survey participants that work full time indicated that their physical health was “very good” or “excellent” compared to just under 15% of those who do not work and are not looking for work, this difference was not statistically significant. These results are not expected given the age distribution of survey respondents and that almost all respondents not looking for work are retired. Further, almost the same proportion of respondents working and respondents not working and not looking for work, reported “very good” or “excellent” mental health.

4.3.2.3 Income

Income is one of the most influential social determinants of health and is closely linked to other social determinants of health such as education, occupation, and housing (Canadian Institute of Health Information 2018). Health status improves at each step up the income and social hierarchy. High income is associated with better living conditions, such as the ability to acquire safe housing and healthy foods (Public Health Agency of Canada 2013; Albern Clayoquot Health Network n.d.).

Some key linkages between income and health outcomes include (Canadian Institute for Health Information 2016):

- Those in the lowest income level are hospitalized for mental illness or alcohol-related reasons at a rate twice or more the rate of those in the highest income level;
- Hospitalizations for heart attacks occur at greater rates among the lowest income level compared to the highest income level; and
- Diabetes prevalence is highest at the lowest income level. Between 2003 and 2013, diabetes prevalence increased more in the lowest income level than in the highest income level.

Further, low-income individuals are known to face greater challenges with their mental health. The rate of mental illness, such as depression, is higher among the poorest people in Ontario compared to the wealthiest (CMHA Ontario 2014).

A household is considered low income if its income is below 50% of the median after tax household income (Statistics Canada 2022a). In 2020, approximately 13% of Ignace households, 15% of households in the Kenora Census Division, and 10% of Ontario households were

considered low income. In Ignace, 24% of 0- to 17-year-olds were in a low-income household, 12% of 18- to 64-year-olds, and 10% of 65 years and olds. This is comparable to proportions in Ontario, where 12% of 0- to 17-year-olds were in a low-income household, 9% of 18- to 64-year-olds, and 12% of 65 years and older (Statistics Canada 2022a).

Gender income inequality, also referred to as the gender pay gap, is the difference in average earnings of people based on their gender (Canadian Women's Foundation 2022). The gender pay gap is exacerbated for those who face multiple barriers, such as racialized women and women living with disabilities, and thus has disproportionate effects (Canadian Women's Foundation 2022). Women in the Ignace and other communities in the Kenora Census Division experience income disparity (see **Section 5.1.2**) placing them at greater risk for adverse health outcomes.

4.3.3 Social Environment

Social stability, recognition of diversity, safety, good working relationships, and cohesive communities provide a supportive society that reduces or avoids many potential risks to good health (Public Health Agency of Canada 2013). Social environment factors discussed in this section include the affordability of where one lives (i.e., cost of living), housing conditions and status of housing, community safety, and social cohesion.

4.3.3.1 Affordability

Average household spending has increased in Ignace and the Kenora Census Division since 2006, similar to trends in Ontario. Household spending in Ignace increased on average 3% annually between 2006 and 2021 while spending in the Kenora Census Division increased on average 34% annually over the same time period. On average, households in Ignace spend \$44,900 on essential expenses²¹, \$13,000 on controllable expenses²², and \$5,500 on discretionary expenses²³ in 2021. This is lower than expenses in the Kenora Census Division (\$49,800 on essentials, \$14,100 on controllables, and \$5,000 on discretionary expenses annually), and for Ontario (\$58,700 on essentials, \$16,200 on controllables, and \$5,200 on discretionary expenses annually). (Manifold 2023c).

Over 1 in 5 respondents to the Ignace Community Health and Wellness Survey (2023) reported having challenges paying for the things they need. The most common expenses respondents reported having trouble affording included communication services (cell phone or internet)

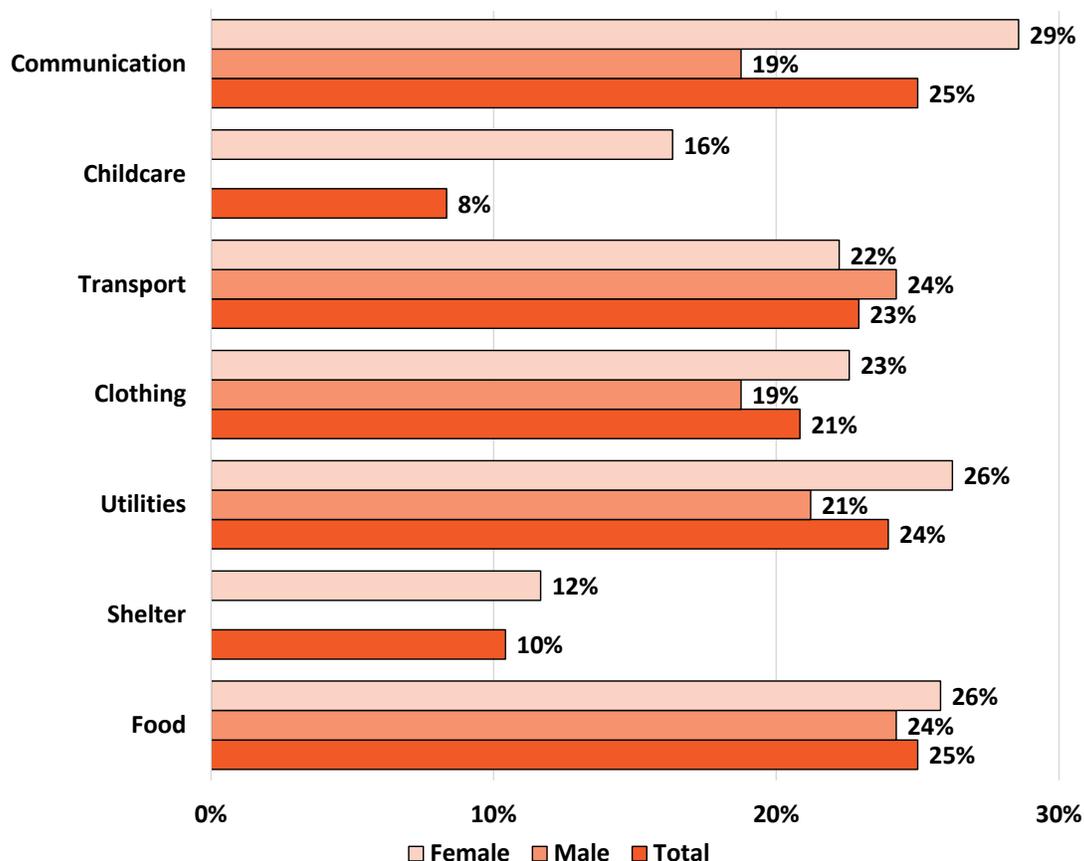
²¹ Essential expenses are required for basic needs and include food, principal shelter, home insurance, clothing, transportation, utilities, healthcare (including prescription drugs and health insurance premiums), and others (Manifold 2023c).

²² Controllable expenses are expenses that have an ability to be controlled or altered over the short term, are not necessarily a minimum requirement for basic needs, and include childcare, personal care, furnishings and equipment, telecom, pet expenses, education, reading materials, recreation, arts and antiques, and others (Manifold 2023c).

²³ Discretionary expenses are non-essential expenses that are not mandatory for basic needs and include tobacco, alcohol, gardening supplies, games of chance (for example the lottery or gambling), miscellaneous expenses, and other expenses (Manifold 2023c).

(25%), food (25%), and utilities (24%) (**Figure 4.3-1**). Females were more likely than males to identify challenges paying for their basic needs, with notable differences in particular in paying for childcare, (reported by 16% of females, but insufficient data for males) and shelter (reported by 12% of females, but insufficient data for males) (**Figure 4.3-1**).

Figure 4.3-1: Ignace Survey Respondents Reporting Challenges with Basic Living Expenses



Source: InterGroup & EPI Research Inc. 2023.

Notes:

1. Answered: 99, did not answer: 5.
2. Insufficient data to present Childcare and Shelter for male respondents.

4.3.3.2 Housing

Adequate housing contributes to mental well-being by increasing feelings of safety, improving sleep, and reducing stress (Harris 2021). Housing standards used to understand whether a household is not meeting its core housing needs include the adequacy of housing (e.g., in need of major repairs), the affordability of housing (i.e., costing more than 30% of the household’s total before-tax income), and the suitability of housing relative to National Occupancy Standards (e.g., not enough bedrooms for number of household members) (CMHC 2022a). Inadequacy

(21%) and unaffordability (18%) are the primary issues with housing standards in the Kenora District. In comparison, Ontario has a lower proportion of households living in inadequate housing (6%) but a greater proportion of households living in unaffordable housing (28%) (KDSB 2023c).

Most Community Health and Wellness Survey (2023) respondents (65%) reported only regular maintenance was needed on their home, 28% reported needing minor repairs, and 7% needing major repairs, with no notable differences between responses by males and females. In comparison to housing suitability data for Ontario (Statistics Canada 2022c), a slightly higher proportion of Ignace respondents reported their homes need minor repairs (28% compared to 22%) but the proportion of homes needing major repairs was almost identical. It is difficult to source housing materials locally and affordably, and the lack of a hardware store in the Ignace area often requires driving to Dryden even for minor materials such as paint (Social Cultural and Health Workshop 2021).

4.3.3.3 Homelessness

Homelessness is a major risk factor for negative health outcomes. Homeless populations are at greater risk of contracting communicable diseases, having nutritional deficiencies, sustaining injuries, and having mental health or substance use challenges (Public Health Ontario 2019). Unhoused individuals face compromised physical safety, have few resources to attend to basic needs, and may face additional barriers to accessing services and support (Brown 2021).

The Kenora District Services Board 2021 Homelessness Enumeration report found a total of 221 people were unhoused across the Kenora District, including four people in Ignace, 31 people in Dryden, and 26 in Sioux Lookout, with most (76%) homeless people being between the ages of 25 to 55 (KDSB 2021b). Respondents to the 2021 Homelessness Enumeration shared that low income, high rent, addiction, discrimination, and mental health issues were the main challenges preventing them from attaining suitable housing (KDSB 2021b).

4.3.3.4 Social Cohesion

A social support network of family, friends, and community is associated with better health. Those with good social supports have more resources to draw on, have lower stress levels, and are more resilient. Social isolation greatly increases a person's risk of premature death, risk of dementia, heart disease, stroke, and mental illness (National Academies of Sciences, Engineering, and Medicine 2020).

A high percentage of residents of the NWHU (living off-reserve) report a strong sense of social belonging in their community. Canadian Community Health Survey data suggests that nearly 80% of residents in the NWHU feel a somewhat strong or very strong sense of belonging in their community. In Ontario, this is closer to 70% (Statistics Canada 2022a).

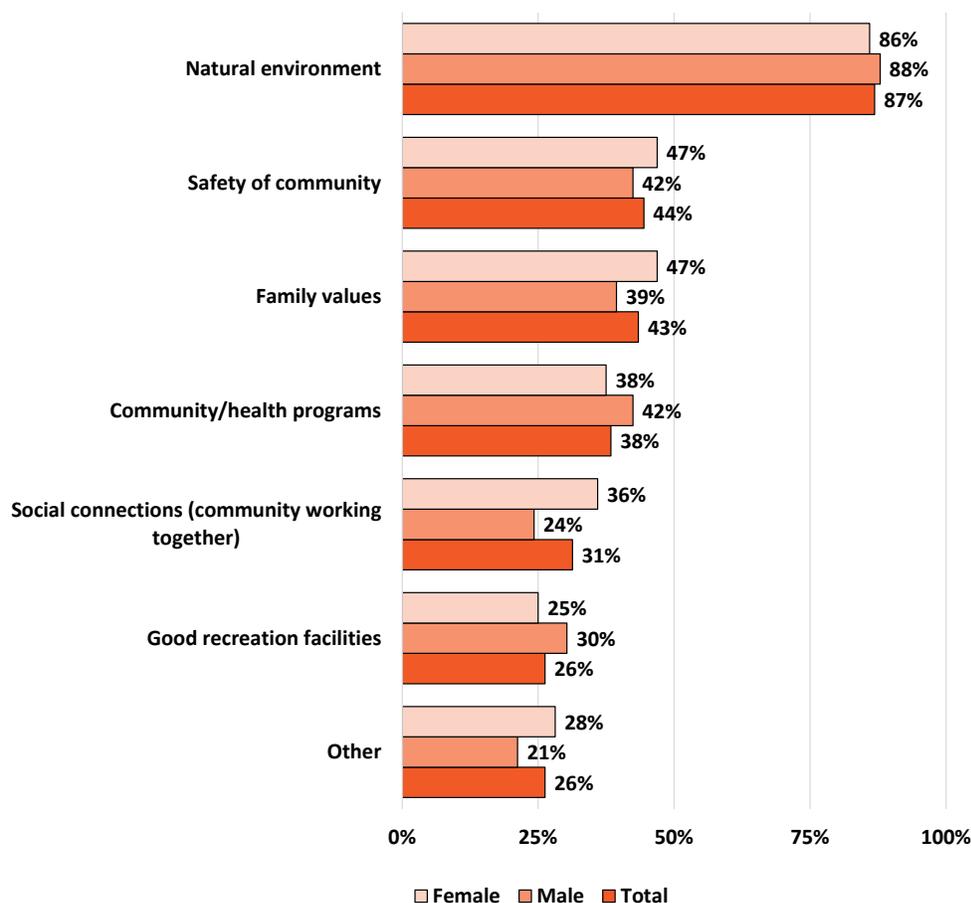
Community Health and Wellness Survey (2023) responses showed that:

- 64% of respondents feel they have someone to talk to when they need it;

- Most respondents (69%) felt they had someone to do something enjoyable with at least sometimes, while 15% reported never or almost never having someone to do something enjoyable with; and
- 57% said they had someone to help with their home and 52% said they had someone to help with transportation.

Figure 4.3-2 displays community strengths most commonly identified by Community Health and Wellness Survey (2023) respondents. Respondents could select more than one response. The most reported strengths were the natural environment (87% of respondents), safety of community (44% of respondents), and family values (43% of respondents).

Figure 4.3-2: Community Strengths Identified by Ignace Survey Respondents by Sex



Source: InterGroup & EPI Research Inc. 2023.

Notes:

1. Answered: 99, did not answer: 5.
2. "Other" includes education and training, strong economy and jobs, strong leadership, awareness of first nations, traditional ceremonial activities.

4.3.4 Health Behaviours

Health behaviors refer to actions people can take to help prevent diseases and support good health. There is a growing recognition that personal life “choices” are greatly influenced by the socio-economic environments in which people live, learn, work, and play. These influences impact lifestyle choice through at least five areas: personal life skills, stress, culture, social relationships and belonging, and a sense of control (Public Health Agency of Canada 2013).

Table 4.3-1 presents key risk factors associated with chronic disease in the NWHU and Ontario for the 2019/2020 fiscal year. Generally, risk factor rates, including rates of obesity, smoking, and heavy drinking, are higher among residents of the NWHU, although rates have been declining (Statistics Canada 2022e). Participation in physical activity and consumption of fruits and vegetables were similar among NWHU and Ontario residents.

Table 4.3-1: Chronic Disease Self-Reported Risk Factors, NWHU and Ontario, 2019/2020

Indicator (percent of respondents)	NWHU	Ontario
	2019 / 2020	2019 / 2020
Adjusted self-reported body mass index (age 18+; overweight)	32%	35%
Adjusted self-reported body mass index (age 18+; obese)	41% H	28%
Current smoker (daily or occasional; (age 12+)	18% H	13%
Heavy drinking (age 12+)	20% H	16%
Physical activity (150 minutes per week; age 18+)	N/A	N/A
Fruit and vegetable consumption (5 times or more per day; age 12+)	N/A	N/A

Source: Statistics Canada 2022e.

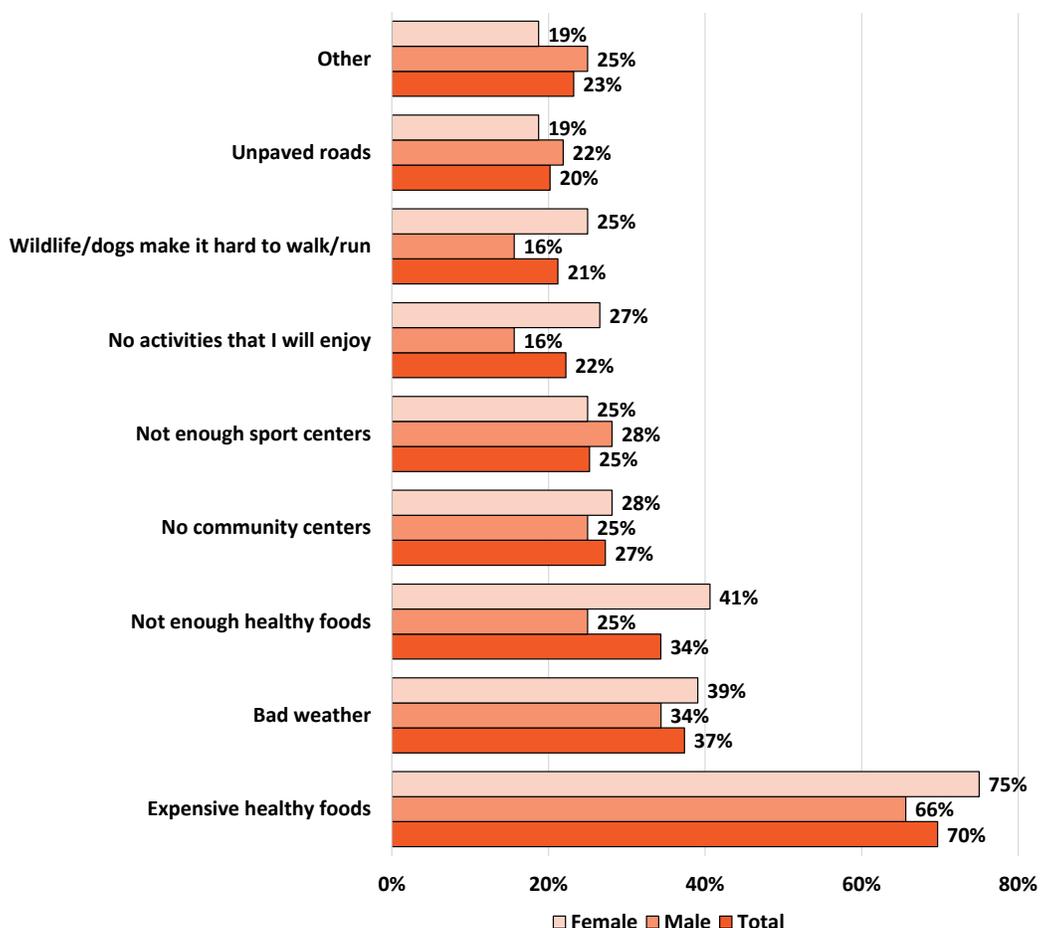
Notes:

1. Off Reserve only.
2. **H** = Statistically higher than provincial rate.

The Community Health and Wellness Survey (2023) indicated that most respondents in Ignace (86%) did not currently smoke, while 9% smoked daily and 5% smoked occasionally. Just over half (56%) of respondents reported that they drink alcohol, with 20% reporting they consume more than five drinks in a day less than once a month, 24% reporting they consume more than five drinks in a day at least once a month, and 56% reporting they never or rarely consume more than 5 drinks. Community Health and Wellness Survey (2023) respondents were also asked if they had used cannabis, inhalants, or prescription drugs not prescribed to them within the past year. While most reported not using cannabis in the past year (77%), 17% reported using cannabis once in a while, and 6% reported using cannabis at least once a week.

The Community Health and Wellness Survey (2023) identified barriers to a healthy lifestyle, including physical activity (see **Figure 4.3-3**). Some survey respondents were positive about opportunities for physical activities, noting the presence of a gym and paved roads for walking or running, although there were concerns around winter maintenance.

Figure 4.3-3: Factors Affecting Healthy Lifestyle in the Community, Ignace Survey Respondents 2023



Source: InterGroup & EPI Research Inc. 2023.

Notes:

1. Answered: 99, did not answer: 5.
2. "Other" includes education and training, strong economy and jobs, strong leadership, awareness of First Nations, traditional ceremonial activities.

4.3.5 Youth

Social supports, educational opportunities, recreational opportunities, mental health supports, and healthy behaviours are important for the well-being of youth and to provide the foundation for lifelong health. Youth who are supported socially, educationally, and have access to resources and information for healthy behaviours are better equipped to stay well, reduce their risk of

chronic disease, and develop into healthy community members. Youth data specific to Ignace were not available, and as such data for the NWHU are presented.

Most youth in the NWHU catchment area report that good grades and postsecondary education are important goals for them, according to the 2021-22 COMPASS survey. However, more than half of youth reported worrying about falling behind due to COVID-19 (University of Waterloo 2022). Many NWO Baseline Studies Key Person Interview Program 2022-2023 participants shared concerns about opportunities for youth. Realities of a small population and school size mean that there are limitations in course options in high school, potentially limiting the possibilities for exploring further educational and career options. Other NWO Baseline Studies Key Person Interview Program 2022-2023 participants noted that once youth finish high school there are limited postsecondary education options locally.

Among NWHU youth respondents to the 2021-22 COMPASS survey (University of Waterloo 2022), 63% reported supportive and rewarding social relationships, although COVID-19 increased the number of youth reporting loneliness. Of participants in the 2021-22 COMPASS survey, 21% reported having experienced bullying, and a much larger percentage (61%) reported feeling unwelcome and uncomfortable at school. The most common reasons were because of an emotional challenge, their race, or their sexual orientation, suggesting that youth struggle with belonging or acceptance in school due to aspects of their identity.

During the Youth Focus Group (2023), Ignace youth shared that they like the small-town feeling of knowing their neighbours and felt their community provided a feeling of safety. Youth also shared that they felt there is not as much opportunity for social activities in the community. Sports and recreational physical activities can benefit youth through supporting self-esteem as youth challenge themselves to learn and improve new skills. Physical activity often declines throughout adolescence. In the NWHU, 71% of youth participating in the 2021-2022 COMPASS survey reported meeting the national guideline of 60 minutes of daily physical activity compared to the Ontario average of 42%. However, 34% reported that their physical activity had decreased because of the COVID-19 pandemic. Female youth were less active than male youth, with 68% reporting meeting the physical activity guideline compared to 75% of male youth (University of Waterloo 2022).

Participants in the NWO Baseline Studies Key Person Interview Program 2022-2023 expressed concerns about youth substance use, with some noting concerns related to ease of access for youth and lack of healthy alternatives. During the Youth Focus Group (2023), Ignace youth shared that the COVID-19 pandemic had an effect on substance use in the community, and that substance use was being seen at younger ages. The 2021-2022 COMPASS survey report showed a reduction in NWHU students binge drinking²⁴ from 2012-13 (34%) to 2021-22 (26%). However, the recent rate of 26% is much higher than the Ontario average of 14%. Further, 13% of youth reported riding in a vehicle with a driver who had been drinking, and 22% reported their drinking had increased because of COVID-19 (University of Waterloo 2022). Cannabis use by youth remained stable between 2012-2013 and 2021-2022 at approximately one in four students reporting use in the previous month (compared to the Ontario average of 12%) (University of Waterloo 2022). The 2021-2022 COMPASS survey suggests that a much higher proportion of

²⁴ Binge drinking had occurred within the last month from the time the survey was administered.

NWHU youth are current smokers (17%) compared to the Ontario average (6%). The proportion is also higher for vaping; 31% of NWHU youth, with 34% of girls and 27% of boys vaping compared to the Ontario average of 19% (University of Waterloo 2022).

5.0 ANALYSIS OF FINDINGS RELEVANT TO THE IMPACT ASSESSMENT ACT

The Baseline Studies were designed to satisfy the requirements of the *Impact Assessment Act* (2020a) and associated guidance materials. The guidance materials include recommendations on topics to consider, along with guidance on presenting the supporting data (e.g., include detail sufficient to understand any relevant baseline trends). Two topics in particular are relevant to the overall analysis of baseline conditions: GBA+ and sustainability. Each of these are a requirement of the *Impact Assessment Act* and additional analysis of the overall findings is summarized in this section.

5.1 GENDER BASED ANALYSIS PLUS

Gender based analysis plus is an analytical lens to help understand how a project may impact diverse segments of the population differently. For example, identity characteristics such as gender, race, ethnicity, religion, age, sexual orientation, people who identify as 2SLGBTQQIA+, and mental and physical disabilities may contribute to different experiences. The GBA+ analysis provides a summary of the key identity baseline conditions characteristics of the Local and Regional Study Areas and goes on to describe how these characteristics are reflected relative to key themes of education, employment and income; affordability; and mental health and addictions. Baseline studies disaggregated data from publicly available sources (e.g., Statistics Canada), and focused on key trends relative to gender, age, and Indigenous identity as central to characterizing the population in the Local and Regional Study Areas. Details on the framework for GBA+ are described in **Section 1.3.4**.

5.1.1 Key Identity Characteristics

The non-Indigenous population of the Local Study Area has been fairly stable over the past two decades, although in the past has experienced changes associated with the boom-bust cycle of the natural resources industries that support its economic base. The population is aging, with a greater proportion of people over the age of 55 (37%), and fewer people below the age of 25 (26%) The median age in the Local Study Area is 45 years old (**Section 2.1.2.1**) (Statistics Canada 2022a).

Population growth scenarios in the Local Study Area were projected from a base population of 15,600 in 2016 (Statistics Canada 2017). Scenarios considered included conservative growth average of 16,100 to an optimistic growth average of 20,450 by 2046. To achieve growth beyond the conservative growth scenario (i.e., modest increase from 15,600 to 16,100), a combination of net in-migration supported by the availability of housing would be necessary.

While this describes the historic and potential future trends for the total population, segments of the population may have experienced these overall changes differently.

Seniors, women, and youth were identified as populations who were underserved by existing infrastructure and services (e.g., health care, appropriate housing, education, or childcare services). Seniors and youth are at the greatest risk of leaving the community to access other opportunities. Seniors may not be able to age in place as there are health care constraints and a

lack of long-term care and seniors housing. Youth may leave to pursue employment, training, and education and may not return due to limited opportunities. A lack of childcare services is a barrier that particularly impacts women who may need or want to work but may be unable to due to limited childcare options in their community (Havens 2023).

The population who self-identify as Indigenous demonstrate different characteristics than the population of the Local Study Area as a whole. The Indigenous population has steadily increased since 1996 (12% of the population), representing a total of 27% of the Local Study Area population in 2021. The Indigenous population is also younger, with 43% of the Indigenous population under the age of 25, and only 8% of the population over the age of 55. The median age of the Indigenous population is 30 (**Section 2.1.2.3**) (Statistics Canada 1998; Statistics Canada 2022a; Statistics Canada 2023e). The Indigenous population in Local Study Area communities was described as having higher rates of mobility – sometimes moving into centres such as Dryden to access services or education on a temporary basis. Indigenous populations were also considered as over-represented in the groups of people using social and certain health services in the Local Study Area and being at greater risk of not necessarily having access to all the appropriate services to support well-being.

The Indigenous population is anticipated to grow at a rate faster than the non-Indigenous population, resulting from a younger age structure, higher birth rates, changes in self-reporting, and legislative changes (See **Section 2.1.2.3** for further detail).

Additional identity characteristics in the Local Study Area to consider include:

- Visible minorities, which are a small but growing population (approximately 1% of the population in 1996 and 5% of the population in 2021) (**Section 2.1.2.4**) (Statistics Canada 2022a); and
- The 2SLGBTQQIA+ community had little data to characterize the total population, but was described as being larger than people think and at risk for isolation within the Local Study Area communities. Approximately 99.7% of the population of Ontario identify as cisgender, and approximately 1 in 300 people identifying as transgender or non-binary (**Section 2.1.2.1.1**) (Statistics Canada 2022a). Statistics Canada data on gender were suppressed for the Local Study Area due to the small size of the population; however, Ontario rates can be considered as representative of potential local trends.

Specific services for visible minorities were not identified in the key person interview program. Programming or services specific to 2SLGBTQQIA+ populations were limited, with the Rainbow Alliance Dryden (Youthline n.d.) and a parent support group in Sioux Lookout (Bonello 2020) identified as the groups available to support, educate, and increase awareness of the 2SLGBTQQIA+ communities.

5.1.2 Education, Employment, and Income

Studies have demonstrated that “people with higher levels of education are more likely to find employment, remain employed, learn new skills on the job, and earn more over their working life relative to those with lower levels of education” (OECD 2023b). This relationship is not always directly linear, and in some instances relies on whether an individual’s skills meet the requirements of the labour market (OECD 2023c). For example, men in the Local Study Area

typically have lower levels of educational attainment than women, but are more likely to have completed apprenticeship or trades certificates and diplomas. As of 2020, men in the Local Study Area earned approximately \$63,600 or 36% more personal income than women (\$46,800), which is similar to trends Ontario-wide. A notable difference among the Local Study Area communities was the personal income for men in Ignace (\$70,400) is approximately twice the personal income for women (\$35,400).

Employment and income are important indicators of the economic health of people and communities. Income provides economic resources that shape choices about housing, education, childcare, food, and many other aspects of life (Population of Health Institute 2023). Higher income and financial stability create access to better quality materials, such as food and shelter, and better, easier, or faster access to services (e.g., access to health services or education) (Bushnik et al. 2020). Women, youth, seniors, and Indigenous people are more likely to have lower than average incomes than the population as a whole.

Table 5.1-1, Table 5.1-2, and Table 5.1-3 summarize some of the key differences in education, employment, and income trends, relative to gender, age, and Indigenous identity in the Local Study Area, with further details offered in **Section 3.2.1, Section 3.1, and Section 3.5** respectively. Many of the trends identified in the below tables reflect trends in Ontario, although several factors contribute to the disparities identified.

Table 5.1-1: Educational Attainment, Employment, and Income Differences Among Men and Women in the Local Study Area

	Observations Relative to Gender in the Local Study Area
Educational Attainment	Men and women have similar rates of high school completion. Women are more likely than men to have a postsecondary certificate, diploma, or degree. Men are more likely than women to have completed an apprenticeship, trades certificate or diploma.
Employment	Men have higher participation rates and employment rates than women, and similar unemployment rates.
Income	Men have higher average personal income than women (36% difference).

Source: Statistics Canada 2022a.

Table 5.1-2: Educational Attainment, Employment, and Income Differences Among Different Age Groups in the Local Study Area

	Observations Relative to Age in the Local Study Area
Educational Attainment	A large proportion of the population aged 65 and older do not have a high school certificate or degree. The population between the ages of 15 and 24 have lower levels of educational attainment, however this changes over time as people complete associated secondary and postsecondary programs.
Employment	Participation rates are generally higher for those aged 25-54, and are the lowest among those aged 65+ (reflective of retirement). Youth have lower participation rates than those aged 25-54, which is reflective of people completing their education and training prior to entering the labour force. Unemployment rates are typically highest for those aged 15 to 24 compared to other age categories.
Income	People aged 25 to 64 years of age tend to have higher average income. Youth aged 15 to 24 and those over the age of 65 have lower than average income.

Source: Statistics Canada 2022a.

Table 5.1-3: Educational Attainment, Employment, and Income Differences Among Indigenous and Non-Indigenous Peoples in the Local Study Area

	Observations Relative to Indigenous Identity in the Local Study Area
Educational Attainment	For the highest level of educational attainment in the Local Study Area, Indigenous peoples in comparison to the non-Indigenous population have lower rates of postsecondary completion; similar rates of having completed high school or equivalent; and higher rates of having no certificate, diploma, or degree. Overall, Indigenous men have slightly lower highest levels of education attainment than Indigenous women, with women more likely to have a university certificate, diploma or degree, and Indigenous men more likely to have completed an apprenticeship or trades certificate or diploma (similar patterns as the overall population).
Employment	Indigenous participation rates are similar to the non-Indigenous population and are higher for Indigenous men than Indigenous women. Indigenous employment rates are slightly lower than for the non-Indigenous population and were marginally higher for Indigenous men than Indigenous women. Indigenous unemployment rates are higher than for the non-Indigenous population, with the rate for Indigenous men slightly higher than that of Indigenous women.
Income	Indigenous peoples have lower personal income than the non-Indigenous population (19% difference).

Source: Statistics Canada 2022a.

Barriers to education contribute to differences among different demographics of the population. People without a high school certificate face barriers to obtaining employment. In the past, this presented less of a barrier, but today high school completion is necessary for youth to successfully transition into the workforce. Completing postsecondary training also contributes to higher future income outcomes. The lack of postsecondary institutions in many Local and Regional Study Area communities contributes to the ability to attain higher levels of education. The stress from being away from home, limited transportation options, and financial constraints from having to relocate all influence the ability to succeed in postsecondary programs away from home (IAWG March 03, 2022; NWO Community and Baseline Studies Key Person Interview Program 2022; NWO Baseline Studies Key Person Interview Program 2022-2023).

Challenges to Indigenous youth in attaining postsecondary education are similar to those experienced by the overall population but are exacerbated by the intergenerational trauma of the residential school system resulting in overall lower rates of educational attainment. The reasons behind these disparities are complex and a full understanding requires engagement and discussion with Indigenous communities.

In addition to requiring the appropriate level of education, other factors that contribute to or exacerbate barriers to employment include (GBA+ Workshop 2023):

- Lack of transportation;
- Life circumstance (e.g., poverty, lack of family support, mental health, substance dependence);
- Quality of education received;
- Criminal record;
- Lack of culturally sensitive human resources policies;
- Challenges with understanding technology;
- Lack of cultural supports;
- Housing; and
- Affordability of postsecondary education.

Barriers to employment and income can affect all demographics but sub-groups which are more likely to face barriers include: youth, seniors, Indigenous people, newcomers, and people with disabilities. These factors also contribute to low socio-economic status, a measure of an individual's combined economic and social status (Cutter 1995). Groups who have been identified as more likely to have low socio-economic status include seniors, youth, single parents, and Indigenous people (GBA+ Workshop 2023). Further information on barriers to employment and barriers to income as a social determinant of health are provided in **Section 4.3.2**.

5.1.3 Affordability

Affordability refers to cost of living and the ability of an individual or household to afford basic necessities (Statistics Canada 2023a). High cost of living and the inability of an individual or

household to afford basic necessities can have negative effects on their health outcomes. Not only does a high cost of living affect the ability to purchase healthy foods and obtain adequate housing, but it can also influence health behaviours, such as smoking and substance use, and mental health, such as causing psychosocial stress²⁵ (Broadbent et al. 2023).

One way to measure affordability is the consumer price index (CPI). The CPI measures changes in the cost of a fixed basket of goods and services over time (Statistics Canada 2023a). From 2006 to 2022, the average annual change in the CPI in Ontario and Canada followed a similar trend at a 3% or less change. A large increase in the CPI in Ontario and Canada was seen from 2020 to 2022, which may be attributed to several events, including the COVID-19 pandemic and the Russian invasion of Ukraine in February 2022, both of which impacted the global supply chain (Macklem 2022; Statistics Canada 2023a).

In general, Ignace experiences higher food and gasoline costs compared to larger communities in the Local Study Area, but lower shelter costs. As of 2021, the average monthly shelter cost in Ignace was \$760 compared to \$1,020 in Dryden and \$1,100 for the Kenora District (Statistics Canada 2022a). Food and gasoline costs were collected for Ignace, Dryden, and Thunder Bay in January 2022, June 2022, and March 2023. Ignace had a higher unit price across all food basket categories (e.g., dairy products, fruits, vegetables) when compared to Dryden and Thunder Bay. Dryden and Thunder Bay had a larger variety of products to choose from compared to Ignace. Gasoline prices in Ignace were also higher than Dryden and Thunder Bay during these collection periods. As of March 2023, the gasoline prices in Ignace (169.9 cents/litre) were higher than Dryden (154.9 cents/litre) and Thunder Bay (155.9 cents/litre).

Over 20% of respondents to the Ignace Community Health and Wellness Survey (2023)²⁶ reported having challenges paying for the things they need. The most common expenses reported by approximately 25% of respondents included trouble affording communication services (cell phone or internet), food, and utilities (**Figure 4.3-1**). While shelter and childcare were reported less frequently, it is notable that only female respondents reported having trouble with these expenses. Female respondents reported more trouble paying for things than male respondents in every category except transportation. This may be attributed to the lower age of female respondents and the greater proportion of female respondents who reported living in a household with children. However, it may also relate to fewer career opportunities for the female members in the community due to their chosen fields of work or study (NWO Baseline Studies Key Person Interview Program 2022-2023). Women are also more likely to take responsibility for childcare, and there is an unmet need for licensed full-time childcare and school aged care in some Local Study Area communities (NWO Baseline Studies Key Person Interview Program 2022-2023).

Shelter costs, while lower in the Local Study Area than other parts of Ontario, were among the expenses identified as a challenge in the Ignace Community Health and Wellness Survey (2023). Individuals experiencing homelessness or who are precariously housed are individuals without a permanent address or residence, appropriate housing, or the immediate prospect, means, and

²⁵ Psychosocial stress refers to a perceived threat to one's social status, respect, or acceptance (Scott 2020).

²⁶ The Community Health and Wellness Survey (2023) did not have a sufficient sample size to disaggregate all affordability results by age and Indigenous identity.

ability to acquire it (KDSB 2021a). Indigenous people are overrepresented in the homeless population with 88% of individuals in the KDSB survey self-identifying as Indigenous. Most homeless individuals (76%) are between the ages of 25 to 55, while 15% are under the age of 25, and 8% are 56 years of age or older (KDSB 2021a).

While Indigenous individuals may move off reserves and from their home communities to seek better services, they can struggle to find housing in larger communities (GBA+ Workshop 2023). Communities across the Local Study Area are struggling with a lack of available rental units. Individuals may not be able to travel or commute to locations with more affordable housing due to a lack of transportation. Some residents have reported that discrimination can play a role in not being able to find housing.

5.1.4 Mental Health and Addictions

Mental health is the state of psychological and emotional well-being of an individual (Government of Canada 2020). Addiction refers to the problematic use of a substance (The Centre for Addiction and Mental Health n.d.). Individuals who experience mental health and/or substance use issues may require both social and health supports. There has been an observed increase in drug use in recent years affecting a disproportionate number of youth and Indigenous peoples, particularly those who have lower socio-economic status (GBA+ Workshop 2023). The mental health and emotional well-being of an individual can lead to incidents of assault and intentional self-harm. Details on injury, such as intentional self harm, are included in **Section 4.2.2. Table 5.1-4** shows self-reported mental health for residents of the NWHU and Ontario (see **Section 4.2.3** for further detail). Self-reported perceptions of mental health were similar to the Ontario averages, with a slightly smaller number of people in the NWHU reporting mental health as poor or fair, or reporting that most days are quite or extremely stressful.

Table 5.1-4: Mental Health Statistics in the NWHU and Ontario

	NWHU (2019/20)	Ontario (2019/20)
Perceived mental health fair or poor	8%	10%
Perceived mental health very good or excellent	65%	65%
Perceived life stress (most days quite a bit or extremely stressful)	18%	22%
Population with mood disorder (diagnosed by a health professional as having a mood disorder, such as depression, bipolar disorder, or mania)	12%	10%

Source: Statistics Canada 2022b.

Table 5.1-5 summarizes drug and alcohol use statistics in the NWHU and Ontario. Close to a quarter of residents in the NWHU report heavy alcohol use, which is higher than the rate of Ontario. Cases of opioid-related emergency department visits, hospitalization visits, and deaths are higher in the NWHU than in Ontario. Similar to trends in Ontario, opioid use has been increasing in in the NWHU recent years.

Table 5.1-5: Drug and Alcohol Use Statistics in the NWHU and Ontario

	NWHU	Ontario
Self-reported heavy alcohol use (2015/16)	26%	19%
Cases of opioid-related emergency department visits (2021)	173 per 100,000 population	114 per 100,000 population
Cases of opioid-related hospitalizations visits (2021)	23 per 100,000 population	16 per 100,000 population
Cases of opioid-related deaths (2021)	38 per 100,000 population	19 per 100,000 population

Source: Public Health Ontario 2018, 2022.

5.2 SOCIO-ECONOMIC FINDINGS RELEVANT TO SUSTAINABILITY

Sustainability, as defined in the *Impact Assessment Act*, Section 2, "...means the ability to protect the environment, contribute to the social and economic well-being of the people of Canada and preserve their health in a manner that benefits present and future generations" (Government of Canada 2019b). The NWMO’s Community Well-being Framework (**Figure 5.2.1**) provides a useful basis for thinking about sustainability. The framework encourages exploration of the Project through different lenses including people, economics and finance, infrastructure, community and culture, environment, and spirit (NWMO n.d.c). This section provides a discussion of baseline sustainability considerations for each topic in the framework with the exception of environment which is the subject of other baseline studies.

Figure 5.2-1: NWMO Community Well-Being Framework



5.2.1 People

The NWMO's community well-being framework identifies people, or human assets, as an important consideration relative to the Project (NWMO n.d.c). Project employment requirements have the potential to affect local populations through in-migration, which in turn could alter the demographic characteristics and character of the Local Study Area.

Globally, there is a divergence in population trends with many poorer countries growing and other more advanced countries aging and, in some instances, declining (Albrechtsen 2013). This is consistent with the overall trend in the Local Study Area, where the population is aging, and community populations are generally remaining stable or declining. The Indigenous population is an exception to this trend, being generally younger and more likely to experience population growth. Communities in the Local Study Area support growth in the region and acknowledge the need for associated infrastructure and services to adjust proportionally to a change in demand (NWO Baseline Studies Key Person Interview Program 2022-2023). The Township of Ignace, for example, would like to see the population grow to 2,500-3,000 people while maintaining the small-town nature of the community (InterGroup 2020).

Several factors could contribute to sustaining and grow the population in the Local Study Area. For seniors, a lack of supportive and affordable housing and health supports could result in them leaving smaller communities to access these supports. Youth may need to leave the Local Study Area to pursue education and employment opportunities and may not return. Local administration and service providers are aware of these challenges and looking to solutions; however, a continuation of these trends is possible if solutions are not realized.

5.2.2 Infrastructure

The NWMO's community well-being framework identifies infrastructure, or physical assets, as important to each community's structure (NWMO n.d.c). An influx of people has the potential to increase demands on municipal infrastructure, facilities, and housing.

Municipal infrastructure in the Local Study Area is generally meeting the needs of the current population. However, facilities and infrastructure are aging and will require upgrades and replacements to continue to serve the local population. Not all communities in the Local Study Area have the same access to facilities and amenities, meaning that in some instances infrastructure in communities like Dryden support not only their own population, but those of neighbouring communities. Capacity constraints may arise if population growth were sizeable and sudden.

The main driver of potential population growth in the absence of the Project would be in-migration, most likely to be related to major natural resources and commodities projects occurring in the region. Housing remains a key constraint to potential growth. The housing shortage in the Local Study Area presents not only challenges to future labour force demand for housing, but also in terms of offering an appropriate diversity of housing to meet the current needs of populations such as seniors, youth, and Indigenous people who face different barriers in accessing appropriate and affordable housing options (**Section 2.3.5** and **Section 5.1.3**). Access to housing contributes to an individual's ability to obtain a job, among other factors that

contribute to an individual's health and well-being such as an individuals' ability to access and fully participate in school or have consistent access to health care (CMHC 2022b; Tuttle 2020).

5.2.3 Economics and Finance

5.2.3.1 Local Economy and Labour Demand

The NWMO's community well-being framework identifies economics, or economic assets, as important to communities (NWMO n.d.c). The Project has the potential to increase demand for labour, economic activity, and affect the financial health of the area.

Historically, the communities of the Local Study Area have been dependent on the natural resource economy meaning that they are subject to boom-bust cycles. Events such as the closure of forestry or mining operations resulted in decreases to the population as out-migration follows when people seek economic opportunities elsewhere. With near- and mid-term job growth anticipated in the Local and Regional Study Areas (**Figure 3.4-1**), the ability to house those with an interest in migrating to the region may become a limiting factor to growth. Some resource sector operations in northwestern Ontario such as forestry and mining are now offering housing for their workers in camps or other short-term accommodation on a rotational basis, meaning that in-migration to the communities is limited.

Employment is projected to increase by approximately 25% in the Local Study Area between 2021 and 2042. Most of this growth is anticipated to be in occupations related to health services; sales and services; business, finance, and administration; and trades and transport. To achieve this level of growth in the number of jobs, efforts will be required to attract and retain more workers as population growth has been generally stagnant over the last decade and the labour force is aging with many retirements annually. Current labour shortages have been noted in the Local Study Area, and the ability to attract and retain people to the communities is exacerbated by the availability and affordability of housing.

Realizing economic opportunities "will only happen by ensuring that Canadian workers have the support, skills, and training to succeed... An integral part of this approach is ensuring that unique circumstances of marginalized and underrepresented groups are addressed to ensure their full and equal participation in the economy" (Government of Canada 2023c). In the Local Study Area, differences among men and women, and among the overall population and Indigenous population relative to education and training may require specific strategies to meet the region's future labour demand. Key person interviews also consistently identified the lack of a diverse set of postsecondary offerings locally as a gap in education. The Government of Ontario has a vision for Northern Ontario to, by 2036, have "a skilled, educated, healthy and prosperous population that is supported by world-class resources, leading edge technology and modern infrastructure" (Government of Ontario 2011) (see **Section 2.2.2.1**).

5.2.3.2 Municipal Financial Health

The surplus or deficit for a local government is an indicator of its financial health and helps provide context on whether its revenues cover its expenditures. Intergenerational equity is an important part of real financial sustainability and includes the need for appropriate fiscal planning so that the generation of people who benefit from the local government and its assets are also

the ones paying for it. A key principle of financial sustainability is the need to share local government cost burdens equitably between generations (Association of Municipalities of Ontario 2018; Johal et al 2019). An indicator to help understand the financial health of a local government is whether local government revenues are consistently covering planned expenses. Additional details on municipal government finances are provided in **Section 3.7.1**. In the Local Study Area, Sioux Lookout has consistently had a surplus from 2016 to 2020. Ignace (2016 to 2019), Dryden (2016 to 2020), and Machin (2016 to 2020) have had a surplus or deficit that varied over the timeframe, but in aggregate the surpluses have exceeded the deficits (MMAH 2021).

Understanding a municipality's reserve funds and accumulated surplus helps provide context on the funding available for expected future expenses, its intergenerational equity, and financial sustainability. If a surplus occurs at the end of a fiscal year, a municipality can transfer the amount to accumulated surplus or to the appropriate reserve funds for future use (Government of Ontario 2001). If a deficit occurs at end of fiscal year, a municipality may use the accumulated surplus as a funding source from prior years or the deficit may be funded by the appropriate reserves (Government of Ontario 2001). Ignace (2016 to 2019), Dryden (2016 to 2020), and Machin (2016 to 2020) have generally had a stable accumulated surplus or reserve funds, while Sioux Lookout had a consistent increase (2016 to 2020).

5.2.4 Community and Culture

The NWMO's community well-being framework identifies community and culture, or the social assets, as important to communities (NWMO n.d.c). The Project has the potential to affect the availability of services and activities which meet the needs of the community. Social well-being can be fostered by things like adequate access to health and social services, and safety from crime and aggression. It also contributes to less tangible aspects of a community like community spirit, a sense of belonging, and sense of place (Institute for Sustainable Communities 2024).

5.2.4.1 Health and Social Services

Service providers work collaboratively to meet the health and social service needs of each community. Many services are coordinated and offered by agencies that operate at a regional scale, such as the Kenora District Services Board, and the availability of services varies locally. Not all communities have the same breadth of services available meaning that in some instances residents must travel among communities to meet all of their needs. Key gaps in service delivery include childcare, senior services, mental health and addictions treatment, and culturally appropriate Indigenous services (NWO Baseline Studies Key Person Interview Program 2022-2023). While many of these gaps are not different from those experienced by the population of Ontario as a whole, they can be exacerbated by the remote and rural nature of the Local Study Area, distances among places, and limited public transportation services.

5.2.4.2 Safety and Security

Safety and security contribute to social well-being. Close to half (44%) of participants in the Ignace Community Well-being Survey (**Figure 4.1-2**) identified safety as one of the strengths of the community. Community safety and well-being plans are required in Ontario under the *Police*

Services Act (1990a) that went into effect in January 2019 (Government of Ontario 2021a). The plans describe the well-being and safety values of communities and provide an indication of some of the challenges they are working to address. Ignace; Sioux Lookout; and Dryden, Machin, and area have Community Well-being and Safety Plans. Details on the Community Well-Being and Safety Plans are summarized in **Section 2.2.2.4**. Each of the plans speaks to community cohesion as a key contributor to the vibrancy of their communities, along with supporting each community's resilience.

5.2.4.3 Connections to Nature

The NWMO's community well-being framework identifies the natural environment, or natural assets, as important to communities (NWMO n.d.c). The Project has the potential to affect the natural environment and the relationship between people and the environment. Access to the outdoors and activities such as fishing, hunting, hiking, boating, snowmobiling, and other outdoor pursuits are of value to people. In addition to recreation, the natural environment supports local tourism as visitors are drawn to the natural assets of the region. Key themes identified for the communities in the Local Study Area include the importance of the small-town feel, the accessibility and closeness to nature, and the resource-based economy.

The majority (87%) of participants in the Ignace Community Well-being Survey (**Figure 4.3-2**) identified the natural environment as one of the strengths of the community, making it the highest ranked strength of the items identified. Residents of Ignace take pride in their connection to nature, emphasizing the importance of fresh air, clean lakes, and the area's natural beauty, which contributes to the community's appeal for both residents and visitors (Local Social Cultural and Health Workshop 2021; TD Graham & Associates 2019).

In Dryden, the community aims to lead in environmental stewardship, emphasizing the preservation of natural beauty and access to nature. A love for the outdoors is integral to residents' quality of life, with proximity to nature being a primary reason for living in Dryden (NWO Baseline Studies Key Person Interview Program 2022-2023).

Residents of Machin value their small-town lifestyle and independence, proximity to the natural environment, and natural beauty (Crupi Consulting 2017).

In Sioux Lookout, the abundant natural resources that surround the community form the basis of the community's lifestyle, where residents embrace community, diversity, and the great outdoors (Municipality of Sioux Lookout n.d.a). Sioux Lookout strives to encourage and foster a healthy and safe community by promoting and enhancing the area's natural assets to encourage activities, develop programs that encourage healthy lifestyles, and ensure that there are appropriate services in place for a diverse range of needs (Municipality of Sioux Lookout 2020b).

Additional details on a community's character, including its connection to nature, are described in **Section 2.2.1**.

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