

KINROSS

Great Bear

Great Bear Gold Project Impact Statement

Appendix N-2:

Health Impact Assessment



GREAT BEAR RESOURCES

GREAT BEAR PROJECT HEALTH IMPACT ASSESSMENT

MARCH 2026





GREAT BEAR PROJECT HEALTH IMPACT ASSESSMENT

GREAT BEAR RESOURCES

PROJECT NO.: OMEMA2303
MARCH 2026

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ABBREVIATIONS

2SLGBTQQIA+	Two-spirit, lesbian, gay, bisexual, transgender, queer, questioning, intersex, and asexual communities, along with other sexual and gender identities represented by the + symbol
AEX	Advanced Exploration
ALCM	Additional lung cancer mortality
ANA	Asubpeeschoseewagong Netum Anishinabek
CCHS	Canadian community health survey
CCME	Canadian Council of Ministers of the Environment
CIE	Commission Internationale d'Éclairage
cm	Centimetres
CO	Carbon monoxide
COPD	Chronic obstructive pulmonary disorder
CSI	Community services and infrastructure
CSWB	Community safety and well-being
CULRTP	Current use of lands and resources for traditional purposes
CWB	Community well-being
dB	Decibels
dBA	A-weighted decibels
DPM	Diesel particulate matter
EAP	Employee assistance program
ECA	Environmental certificate of approval
ECCC	Environment and Climate Change Canada
EF	Ear Falls
EMS	Environmental management system
EPC	Exposure point concentration
ERA	Ecological risk assessment
FHOCP	Fish Habitat Offsetting and Compensation Plan
FIFO	Fly-in fly-out
FNFNES	First Nations Food, Nutrition and Environment Study
FNIGC	First Nations Information Governance Centre
fVC	Federal valued component
g/day	Grams per day
GBA	Gender-based analysis
GBR	Great Bear Resources
GIS	Geographic information systems
Great Bear Resources	Great Bear Resources Limited
ha	Hectares
HHERA	Human Health and Ecological Risk Assessment
HIA	Health Impact Assessment
HQ	Hazard quotient
hr	Hour
IAAC	Impact Assessment Agency of Canada
IDA	International Dark Sky Association

IK	Indigenous knowledge
ILCR	Incremental lifetime cancer risk
IPHCC	Indigenous Primary Health Care Council
KDSB	Kenora District Services Board
km	Kilometres
km ²	Square kilometres
LA _{eq} -1hr	A-weighted equivalent sound level
L _d	Day sound level
L _{dn}	Day-night sound level
L _{eq}	Energy equivalent sound exposure levels
LIM-AT	Low-income measure-after tax
L _n	Night sound level
LSA	Local Study Area
LSFN	Lac Seul First Nation
m	Metres
m ³ /s	Cubic metres per second
masl	Metres above sea level
MECP	Ministry of the Environment, Conservation and Parks
mg/kg	Milligrams per kilogram
mm	Millimetres
MMIWG	Missing and Murdered Indigenous Women and Girls
MMIQG2S+	Missing and Murdered Indigenous Women, Girls, Two-Spirit, Transgender, and Gender-Diverse+ peoples
MNO	Métis Nation of Ontario
MNR	Ministry of Natural Resources
MPOI	Maximum point of impingement
n	Sample size
N/A	Not applicable
NAPS	National Air Pollutant Surveillance
NCCAH	National Collaborating Centre on Aboriginal Health
NCCIH	National Collaborating Centre for Indigenous Health
NFB	National Nutritious Food Basket
NO ₂	Nitrogen dioxide
NOS	National Occupancy Standard
NOx	Nitrogen oxides
NWHU	Northwestern Health Unit
NWOMC	Northwestern Ontario Métis Community
O ₃	Ozone
OCAP	Ownership, control, access and possession
OPP	Ontario Provincial Police
PA	Project Area
PAH	Polycyclic aromatic hydrocarbon
PHAC	Public Health Agency of Canada
PM	Particulate matter
PM ₁₀	Particulate matter smaller than 10 microns

PM _{2.5}	Particulate matter smaller than 2.5 microns
POD	Point of departure
POPCs	Parameters of potential concern
POR	Point of reception
pVC	Pathway valued component
RL	Red Lake
RSA	Regional Study Area
SAR	Species at Risk
SLFNHA	Sioux Lookout First Nations Health Authority
SLMHC	Sioux Lookout Meno Ya Win Health Centre
SO ₂	Sulphur dioxide
SO _x	Sulfur oxides
SPM	Suspended particulate matter
TISG	Tailored Impact Statement Guidelines
TKLUS	Traditional Knowledge and Land Use Study
TMF	Tailings management facility
TRV	Toxicity reference value
VMF	Viggo management facility
VOC	Volatile organic compound
WFN	Wabauskang First Nation
WHO	World Health Organization
WMU	Wildlife management unit
WQG PAL	Water Quality Guideline Protective of Aquatic Life
WSP	WSP Canada Incorporated



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ATTACHMENT

A Baseline Health Profile

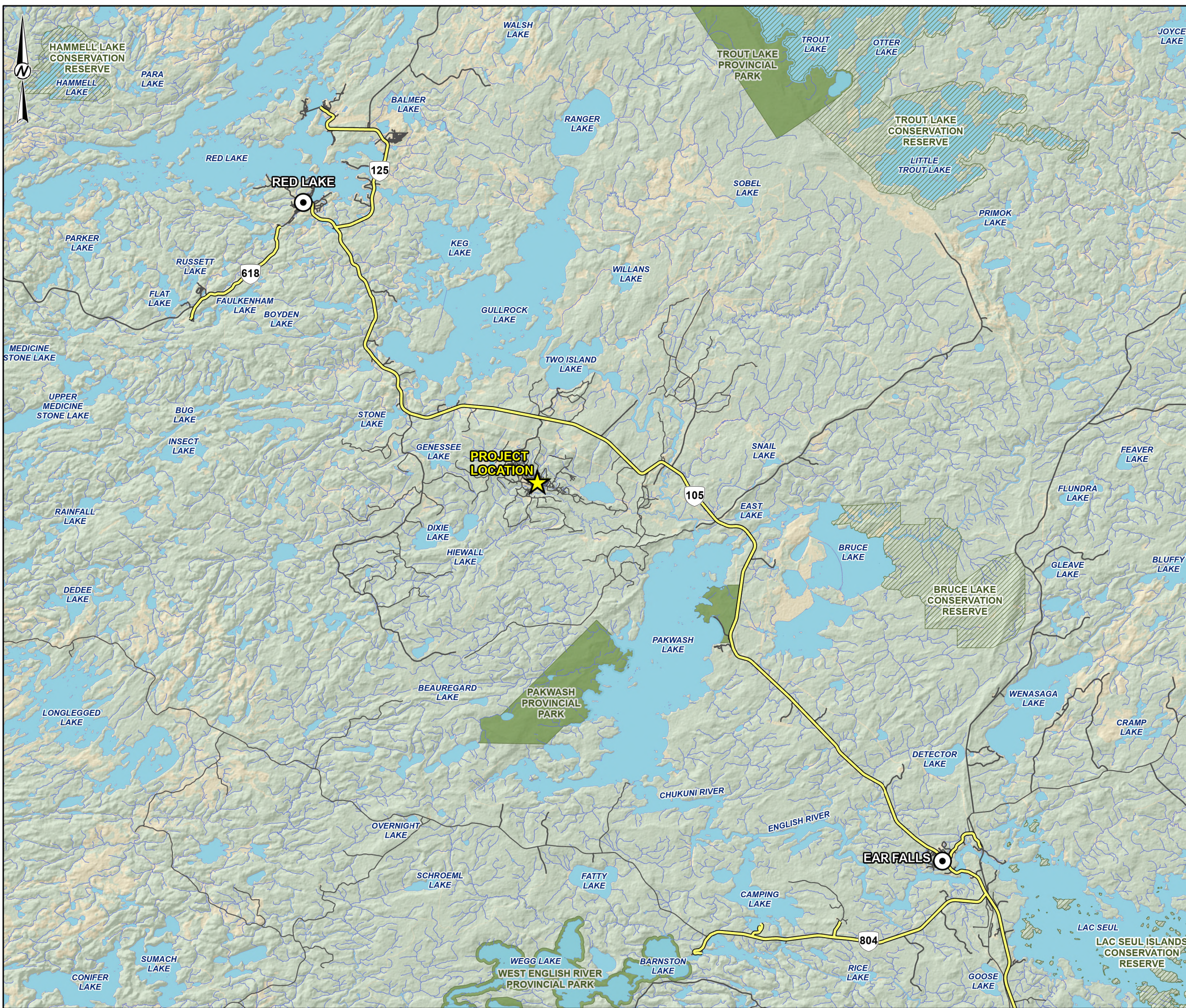
1 INTRODUCTION

Great Bear Resources Ltd. (Great Bear Resources), a wholly owned subsidiary of Kinross Gold Corporation has been exploring the Great Bear Property (the Property) with the objective of developing a gold mine and processing complex on the site (Figure 1-1). The Property is located near Highway 105, approximately 25 kilometres (km) southeast of the Municipality of Red Lake and 37 km northwest of the Township of Ear Falls (cross country distances). The centroid of the Project Area (PA) is approximately 455665E 5633910N, Zone 15N NAD 83 (Universal Transverse Mercator). The Property was acquired by Kinross Gold Corporation in 2022 in support of an objective to re-establish a long-term presence in Ontario. The Great Bear Gold Project (Project) is a proposed underground and open pit mine, and process plant with related facilities (Figure 1-2).

The Project is located within Treaty No. 3, encompassing a large area of northwestern Ontario (primarily the Lake Winnipeg drainage). The nearest Reserve lands to the Property are associated with the Wabauskang First Nation, located approximately 56 km southeast of the Project site. No Project facilities will be located on or near First Nation Reserves. The Project is also located within Northwestern Ontario Métis Community – Region 1 (Figure 1-3).

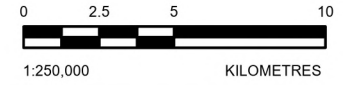
Relationships with local Indigenous Nations near the Project have been fostered for a number of years. The focus of Indigenous consultation and engagement activities for the Project to date has been with Indigenous communities identified to be potentially affected by the Project. The following Indigenous Nations were engaged by Great Bear Resources prior to, and during preparation of this Impact Statement:

- Lac Seul First Nation (LSFN)
- Wabauskang First Nation (WFN)
- Asubpeeschoseewagong Netum Anishinabek (ANA)
- Northwestern Ontario Métis Community (NWOMC).



SCALE: 1:30,000,000

- LEGEND**
- PROJECT LOCATION
 - TOWN
 - CONSERVATION RESERVE
 - PROVINCIAL PARK
 - HIGHWAY
 - LOCAL ROAD
 - RESOURCE / RECREATION ROAD
 - WATERCOURSE
 - WATERBODY



NOTE(S)
 1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. WATERCOURSES AND WATERBODY ACQUIRED FROM LAND INFORMATION ONTARIO (MNRF) AND MODIFIED TO MATCH AERIAL IMAGERY AND LIDAR.
3. ROADS INFORMATION PROVIDED BY GREAT BEAR RESOURCES, AUGUST 2022.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 15N

CLIENT
GREAT BEAR RESOURCES

PROJECT
GREAT BEAR PROJECT

TITLE
PROJECT LOCATION

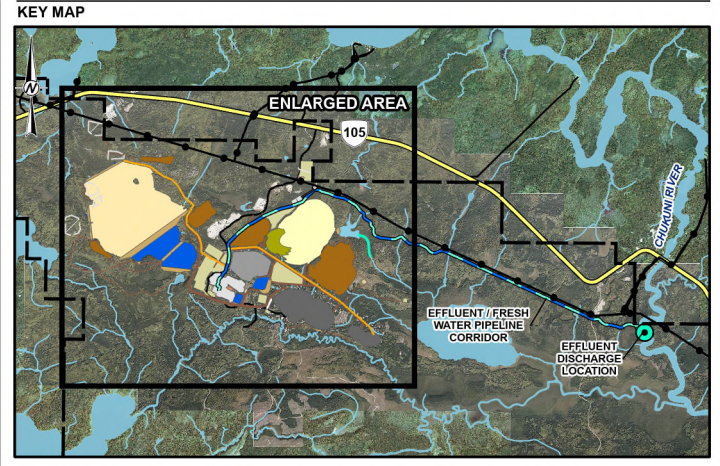
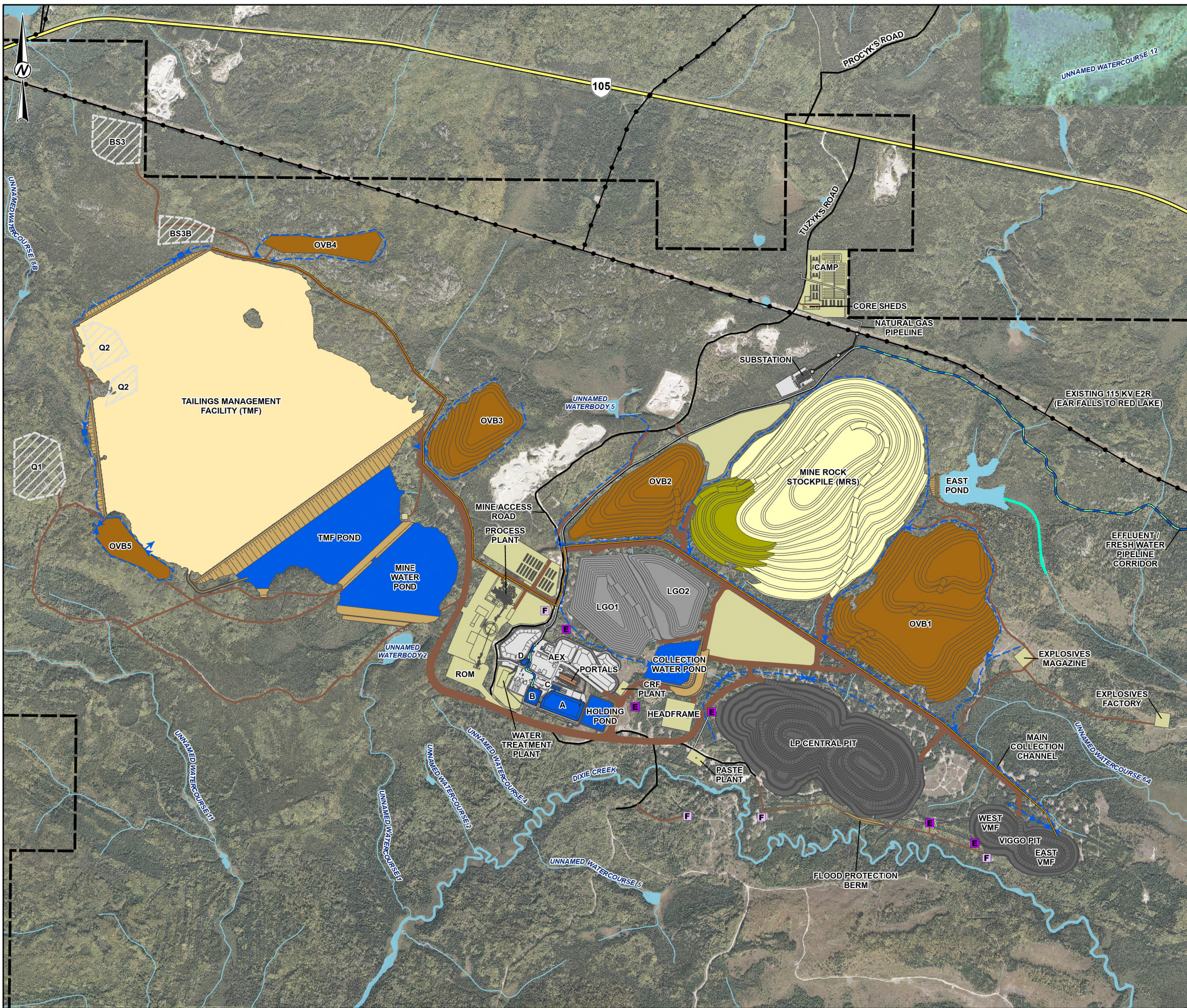
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	REVIEWED	---
	APPROVED	---



PROJECT NO. CA0031271	CONTROL 0001	REV. A	FIGURE 1-1
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PART 1: X:\CA\CA\CA0031271\Project\2025\Projects\CA0031271_001_Kinross_Great_Bear_Enr\Z_GIS\MapInfo_Healthline_12272025_Appearances.aprx PRINTED ON: Fri, 03/02/2025 11:48:27 AM

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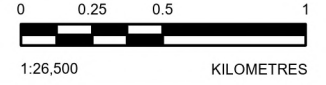


LEGEND

[Dashed Line]	PROPERTY BOUNDARY	[Black Line]	EXISTING TRANSMISSION LINE
[Yellow Line]	HIGHWAY (INCLUDING ENBRIDGE PIPELINE)	[Blue Line]	WATERCOURSE
[Solid Line]	LOCAL ROAD	[Blue Area]	WATERBODY

PROPOSED MINE FEATURE

[Black Area]	OPEN PIT	[Grey Area]	ADVANCED EXPLORATION SITE (AEX)
[Green Area]	MINE ROCK STOCKPILE (NPAG)	[Hatched Area]	ROCK QUARRY (Q) / SAND AND GRAVEL PIT (B)
[Yellow Area]	MINE ROCK STOCKPILE (PAG)	[Red Line]	DIVERSION CHANNEL
[Grey Area]	LOW GRADE ORE STOCKPILE (LGO)	[Square with F]	FRESH AIR VENT RAISE
[Brown Area]	OVERBURDEN STOCKPILE (OVB)	[Square with E]	EXHAUST VENT RAISE
[Light Yellow Area]	TAILINGS MANAGEMENT FACILITY (TMF)	[Black Line]	TRANSMISSION LINE
[Orange Area]	DAM	[Orange Line]	TAILINGS PIPELINE
[Blue Area]	POND	[Blue Line]	PASTE PLANT PIPELINE
[Blue Arrow]	COLLECTION DITCH	[Blue Line]	EFFLUENT / FRESH WATER PIPELINE CORRIDOR
[Green Area]	MINE FACILITIES / INFRASTRUCTURE	[Green Circle]	EFFLUENT DISCHARGE LOCATION
[Brown Line]	ROAD		
[Orange Line]	PORTAL		



NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE
2. VMF: VIGGO MANAGEMENT FACILITY
3. ROM: RUN OF MINE ORE
4. AEX PONDS: A-AEX MINE WATER POND, B-AEX TREATED WATER POND, C-AEX SETTLING POND, D-AEX SEDIMENT POND

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. AERIAL IMAGERY PROVIDED BY GREAT BEAR RESOURCES (SCENE DATE: SEPTEMBER 2022)
3. PROPERTY BOUNDARY PROVIDED BY GREAT BEAR RESOURCES, AUGUST 2024.
4. ROADS INFORMATION PROVIDED BY GREAT BEAR RESOURCES, AUGUST 2022.
5. SITE PLAN BASED ON INFORMATION PROVIDED BY GREAT BEAR RESOURCES, DECEMBER 2024 / JUNE 2025.
6. COORDINATE SYSTEM: NAD 1983 UTM ZONE 15N

CLIENT
GREAT BEAR RESOURCES

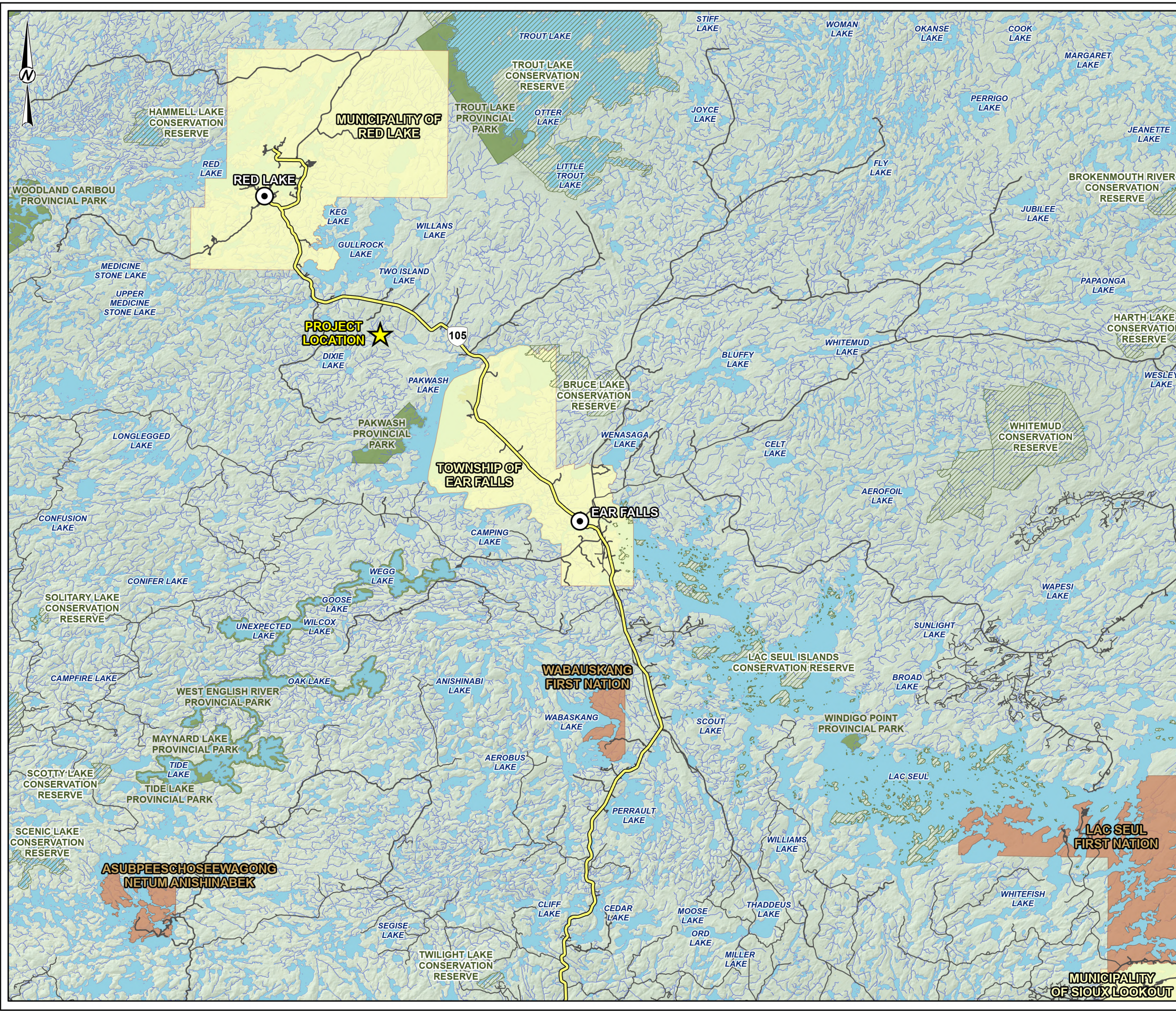
PROJECT
GREAT BEAR PROJECT

TITLE
SITE PLAN

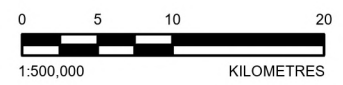
CONSULTANT	YYYY-MM-DD	2026-03-31
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	REVIEWED	---
	APPROVED	---

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- LEGEND**
- PROJECT LOCATION
 - TOWN
 - LOWER TIER MUNICIPAL BOUNDARY
 - FIRST NATION RESERVE
 - MÉTIS NATION OF ONTARIO REGION 1 (SHOWN IN KEY MAP)
 - CONSERVATION RESERVE
 - PROVINCIAL PARK
 - HIGHWAY
 - LOCAL ROAD
 - RESOURCE / RECREATION ROAD
 - WATERCOURSE
 - WATERBODY



NOTE(S)
 1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
 1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
 2. COORDINATE SYSTEM: NAD 1983 UTM ZONE 15N

CLIENT GREAT BEAR RESOURCES		
PROJECT GREAT BEAR PROJECT		
TITLE REGIONAL COMMUNITIES AND INDIGENOUS NATIONS		
CONSULTANT	YYYY-MM-DD	2026-03-31
	DESIGNED	---
	PREPARED	MD
	REVIEWED	---
	APPROVED	---
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1.1 OBJECTIVE

This Health Impact Assessment (HIA) report has been prepared by WSP Canada Inc. (WSP) to summarize the findings of the current and predicted health conditions in the vicinity of the PA. This HIA was prepared in accordance with industry best practices and to address the Tailored Impact Statement Guidelines (TISG) for the Project as issued by the Impact Assessment Agency of Canada (IAAC), dated August 1, 2024.

The objective of this HIA is to assess potential changes associated with the Project on the health of Indigenous communities in the surrounding area, including LSFN, WFN, ANA, NWOMC and Indigenous people living in Red Lake and Ear Falls (RLEF). To achieve this objective, the HIA identifies the suite of factors (determinants) that may be influenced by the Project and assesses them individually and holistically. This HIA draws on a variety of sources (qualitative and quantitative) to assess potential beneficial and adverse effects to health while considering Indigenous knowledge (IK) where available and pertinent.

1.2 HOW TO USE THIS REPORT

There are two main technical appendices that comprise the assessment of Indigenous health for the Project; the Human Health and Ecological Risk Assessment (HHERA; Impact Assessment Appendix N-1) and HIA (Impact Assessment Appendix N-2). Given the complex and interdisciplinary nature of assessing health, this HIA relies on a large number of inputs including other sections of the Impact Statement, technical appendices, and publicly available sources. These sources are referenced throughout the HIA as follows:

- **Impact Statement Sections:** where an Impact Statement section is being referenced, the format is as follows, Impact Statement Section # (pathway valued component; pVC / federal valued component; fVC Name). Example: Impact Statement Section 7.2 (pVC Air Quality).
- **Impact Statement Appendices:** where an Impact Statement appendix is being referenced, the format is as follows, Report Title (Impact Statement Appendix #; Citation: Author Year). Example: Human Health and Ecological Risk Assessment (HHERA) (Impact Statement Appendix N-1; WSP 2026a).
- **fVC Indigenous Peoples:** where the fVC Indigenous Peoples sections are being collectively referred to, the format is as follows, Indigenous Peoples sections (Impact Statement Sections # - #; fVC). Example: As described in the Indigenous Peoples sections (Impact Statement Sections 10 to 14; fVC Indigenous Peoples).
- **fVC Indigenous Peoples (Sub-sections):** where a specific fVC Indigenous Peoples assessment is being referenced, the format is as follows, Assessment Topic Name (Impact Statement Sections # -#; fVC Indigenous Peoples). Example: The community well-being assessment (Impact Statement Sections 10 to 14; fVC Indigenous Peoples) found that etc.
- **HIA Report Section:** where another section of the HIA report is being referenced, the format is as follows, (Section #). Example: Mitigations are found in Section 7.
- **HIA Attachment:** where an attachment to the HIA report is being referenced, the format is as follows, (Attachment Letter). Example: Baseline health profile (Attachment A).
- **Publicly Available Sources:** where a publicly available source is being referenced, the format is as follows, (Author Year). Example: (Chan et al. 2014).

This HIA should be considered in conjunction with the additional information and details presented in the other sections and appendices (linked pVC and fVC) of the Impact Assessment.

There are three health-specific technical appendices that inform the assessment of Indigenous health for the Project Impact Statement, the:

- HHERA (Impact Statement Appendix N-1; WSP 2026a)
- HIA Report (Impact Statement Appendix N-2)
- Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies (Impact Statement Appendix T; WSP 2026b).

Collectively these sources contribute to the inputs, assumptions, approaches and methods (quantitative and qualitative) applied in support of assessing Project effects on Indigenous health, which are also summarized in the Indigenous Peoples health sub-sections (Impact Statement Sections 10 to 14; fVC Indigenous Peoples) for LSFN, WFN, ANA, NWOMC and RLEF, respectively.

1.3 STATEMENT OF POSITIONALITY

This report was prepared by non-Indigenous practitioners at WSP in Ontario, Canada. Although efforts were made to reduce potential biases, it is acknowledged that this positionality inherently places certain constraints on this work. While we acknowledge our overall framework, informed by the *Impact Assessment Act*, is largely shaped by non-Indigenous ways of knowing, we intentionally work to interpret information through Indigenous viewpoints grounded in IK, where possible. We also acknowledge that Indigenous people are not a single uniform group; rather, they are distinct sovereign nations and communities, each with their own unique cultures, priorities, and worldviews.

1.4 PROJECT OVERVIEW

Great Bear Resources is planning to develop, operate and eventually reclaim a new gold mine on the Property, comprised of underground workings and two open pits with associated processing facilities and infrastructure. The Project layout places the required mine-related facilities near the underground ore deposit on lands held by Great Bear Resources and will re-use and expand on facilities developed as part of the onsite Advanced Exploration (AEX) Program as reasonable.

Ore extraction from the open pit and / or underground mine and onsite ore processing is planned to occur at a nominal combined rate up to 15,000 tonnes per day or less. Unconsolidated surface materials (overburden) and mine (waste) rock will also need to be removed from the open pits and underground workings to access the ore. There may be periods when the rate of mining ore is higher when only ore is being extracted. Overburden and mine rock will be re-used in Project construction and reclamation as appropriate, or stored in surface facilities on the Property.

Processing of mined ore to produce gold and silver (doré) bars will occur on the Property in a conventional process plant designed with a high level of water recycle. Tailings resulting from processing the ore in the process plant will be treated and stored in tailings management facilities on the Property. Contact water within the PA will be collected and managed. Excess water from the PA will be treated to meet regulatory requirements prior to discharge to the environment.

Mining and processing operations will be supported by other onsite buildings including: mine office and maintenance complex, cold and warm storage buildings, laydown areas and accommodations camp. These will be supported by related roads, power, tankage and piping infrastructure as needed. Solid and liquid wastes will be collected and managed in accordance with regulatory requirements. Hazardous wastes will be transported to existing facilities off site.

The stages envisioned for overall Property development are as follows:

- Construction phase: Years -3 to -1
- Operations phase: Years 1 to 26
- Closure and decommissioning (closure) phase: starting in Year 27.

1.4.1 PROJECT DESCRIPTION

The site is currently accessed via Tuzyk's Road, which connects to Highway 105. While access to the existing commercial aggregate operations along Tuzyk's Road will be maintained, a controlled access point is proposed to be established south of the operations to restrict entry to the Project for safety and operational purposes. The portion of Tuzyk's Road within the PA will be repurposed as the mine access road. Access to areas south of the Project along Tuzyk's Road is proposed to be re-established to allow stakeholders, and resource users to continue accessing these areas, as appropriate, while avoiding the Project site.

The major components of the Project are:

- Underground mine
- Open pits (two): LP Central pit and Viggo pit
- Surface stockpiles: overburden stockpile, mine rock stockpile, low grade ore stockpile and run of mine ore stockpile
- Ore process plant
- Facilities to manage tailings from the processing of ore: tailings management facility (TMF) and Viggo management facility (VMF; after construction phase)
- Water management and treatment works
- Dedicated aggregate operations to produce aggregate for onsite use
- Other onsite buildings, facilities, areas and infrastructure.

The site layout provided as Figure 1-2 consistent with the Impact Statement, places the required mine-related facilities on Great Bear Resources-held mining leases, near the open pits and openings to the underground to minimize the overall Project footprint. Extensive engineering and environmental studies have been completed to design the Project.

For further details, see Impact Statement Section 5 (Project Description and Activities).

1.4.1.1 CONSTRUCTION PHASE

Construction can begin once the impact assessment process is complete and initial environmental approvals are received. Great Bear Resources will work with local Indigenous communities to determine the appropriate ceremony requirements.

The construction phase is expected to take approximately up to three years. Certain activities, such as those involving working in wet or poorly accessible terrain, are best carried out when the ground is frozen. Sequencing of activities will also consider environmental aspects, such as fish spawning and bird nesting seasons. The total length of time for construction activities to be completed may vary depending on the time of the year when approvals are received, as well as according to personnel and equipment availability and scheduling constraints.

Primary construction phase activities are expected to include:

- Refinement of environmental management planning and documentation to support construction activities
- Development of construction camp, associated infrastructure and staging areas (the camp is designed to accommodate 1,000 people on a temporary basis during construction, and then be scaled down during operations)
- Site preparation activities including clearing, grubbing and bulk earthworks
- Onsite haul and access road construction
- Establishment and operation of water management and treatment facilities

- Completion of stripping of overburden, and extraction of mine rock and ore from Viggo pit (approximately 2.5 years), and initiation of these activities in the LP Central pit
- Expansion of the AEX underground workings including production mining with stockpiling of ore on surface
- Management of stripped overburden including storage in designated stockpiles and re-use in construction
- Management of extracted mine rock according to the metal leaching and acid rock drainage management plan
- Stockpiling of ore for future processing
- Onsite quarry, and sand and gravel (aggregate) resource development and operation
- Construction of diversions, dams and berms for water collection and management, and associated with for future tailings storage
- Establishment of offsetting and compensation-related features
- Construction of permanent buildings and infrastructure
- Establishment and operation of waste management facilities
- Initiation of the environmental monitoring and reporting required by construction phase environmental approvals
- Ongoing engagement and consultation with local Indigenous Nations and stakeholders.

1.4.1.2 OPERATIONS PHASE

During the operations phase, overburden, ore and mine rock will be extracted from the underground mine workings and LP Central pit for stockpiling or transport directly to the primary crusher for sizing. Sized ore will be processed to recover the gold and silver, and to produce doré bars for periodic shipment off site, approximately twice per month.

The operations phase is anticipated to last approximately 26 years and will include the following primary activities:

- Extraction and transport of ore and mine rock to surface via ramps, supplemented by a shaft to underground later in mine life
- Operation of the LP Central pit for up to about 9 years, including periodic stripping of surface overburden as needed
- Operation of the underground mine for approximately 26 years
- Processing of ore from the run of mine and low grade ore stockpiles in the process plant
- Management of overburden, mine rock, tailings and ore in designated facilities, including according to the metal leaching / acid rock drainage management plan as applicable
- Operation of water management and treatment facilities, including temporary storage of membrane filtration reject solution on surface
- Camp complex operations (approximately 300 persons)
- Operation of waste management facilities
- Progressive reclamation of stockpiles, facilities and yards as practical
- Environmental monitoring and reporting required by construction phase and operations phase
- Ongoing engagement and consultation with local Indigenous Nations and stakeholders.

1.4.1.3 CLOSURE PHASE

The integrated closure approach which is a required element of the Great Bear Resources social performance management system, requires planning for the end of mine life prior to construction, considering both environmental and social impacts. This holistic strategy encompasses physical and environmental activities like reclamation and monitoring, as well as social aspects like employee transition and community engagement. The goal is to create a positive legacy for host communities and secure long-term benefits beyond the mine's operational lifespan.

Closure of the Project will be governed primarily by the Ontario *Mining Act* and its associated Regulations and Codes. The Ontario *Mining Act* requires that a Closure Plan be certified to the Mine Rehabilitation Code by qualified professionals, prior to disturbance associated with the mining project being initiated, and that financial assurance be provided to the Ministry of Energy and Mines before substantive development takes place.

During the initial active closure stage, the following activities will be completed which will take up to three years after operations cease:

- Continuation of environmental monitoring and compliance reporting required by environmental approvals as applicable
- Execution of Closure Plan measures for final reclamation of facilities and site
- Removal of assets that can be salvaged for re-sale or re-use
- Initiate re-filling of the LP Central pit with water if not started during operations
- Pumping of contact water treatment (membrane filtration) reject solution into the underground mine for permanent storage, and re-filling of the underground mine and VMF with water
- Demolition and recycling and / or disposal of remaining materials in approved facilities
- Reclamation of affected areas, such as by re-grading, placement of an appropriate cover as needed and revegetation
- Ongoing engagement and consultation with Indigenous Nations and stakeholders.

A passive closure period is proposed to follow during which the site will be on care and maintenance status. The following activities will continue:

- Continuation of environmental monitoring and compliance reporting required by retained environmental approvals
- Completion of filling of the VMF, underground workings and LP Central pit with water
- Maintaining the water level below surface in the VMF and LP Central pit until water quality is acceptable for passive discharge to the environment
- Ongoing engagement and consultation with local Indigenous Nations and stakeholders.

After it has been determined that site waters are suitable for passive discharge to the environment, the water treatment system and remaining site facilities will be decommissioned during a final closure period. This work will be completed in less than one year.

1.4.2 INDIGENOUS COMMUNITIES AND REGIONAL CONTEXT

The Property is located within Treaty No. 3, also known as the North-West Angle Treaty, which was signed in 1873 by a group of Salteaux Ojibwe chiefs and representatives of the Crown, placing a large area of northwestern Ontario (primarily the Lake Winnipeg drainage) under the Treaty (Government of Ontario 2024). The Project lies on the traditional territories of LSFN, WFN, ANA, the NWOMC and in the District of Kenora.

Nearby municipalities include the Municipality of Red Lake and the Township of Ear Falls and as such, Indigenous people in Red Lake and Ear Falls (RLEF) were also identified as potentially impacted by the Project within the TISG for the Project as issued by the IAAC. The nearest Reserve lands are associated with the communities of WFN, located cross country approximately 56 km southeast of the Project site; ANA located approximately 77 km cross country (approximately 200 km by road) southwest of the Project site; and LSFN located approximately 101 km east of the Project site. The Property is also located within the NWOMC - Region 1, which covers northwestern Ontario.

2 HEALTH IMPACT ASSESSMENT APPROACH AND METHODOLOGY

The HIA aims to weave together different views on health and wellness to provide a holistic perspective on potential beneficial and adverse effects on Indigenous health resulting from Project activities. The HIA approach includes consideration of different definitions of health and wellness, particularly within the context of Indigenous communities. How health is defined and perceived directly affects how it is assessed. HIA relies on a holistic view of health, that encompasses physical, mental, spiritual and cultural health, extending beyond the presence or absence of illness or injury. Given the practice of HIA is rooted in a holistic approach that considers broader determinants of health and wellness, it is well suited to evaluating Indigenous health.

This HIA includes assessment of a wide range of determinants of health, including biophysical and social determinants. The assessment draws on the findings from other assessments, including the HHERA (Impact Statement Appendix N-1; WSP 2026a), to understand changes to upstream environmental, social, economic and cultural conditions that have the potential to directly or indirectly influence Indigenous health and wellness. A detailed discussion of the inputs relied upon in the HIA is provided in Section 4.3.

This section of the HIA report includes a discussion of Indigenous perspectives on health and wellness, including Indigenous community-specific information, where available, as well as IAAC definitions and approaches to assessing effects. The HIA incorporates peer-reviewed scientific literature, publicly available data, community-specific information, and IK. This section also describes Health Canada's (2024a) interim HIA guidance, HIA best practices globally and within Canada, and details the HIA approach and methodology. The objective of this section is to provide the necessary information to understand and interpret the HIA process, assessment and results.

2.1 DEFINING HEALTH

Health is a complex and multi-faceted concept. The evolution of the definition and meaning of health is described in the Health Canada (2024a) interim HIA guidance:

“[The World Health Organization’s (WHO’s)] definition of health is the most commonly used and cited definition in the field of HIA. This definition asserts that health is ‘a state of complete physical, mental and social wellness and not merely the absence of disease or infirmity.’ In 1986, the WHO further clarified that health is ‘a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities.’ Expanding its understanding of health, the WHO has defined mental health as ‘a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community” (Health Canada 2024a).

A similar concept that is used in HIA practice and in other disciplines is that of wellness. Human wellness may be defined as *“a state of being with others and the environment, which arises when human needs are met, when individuals and communities can act meaningfully to pursue their goals, and when individuals and communities enjoy a satisfactory quality of life” (Breslow et al. 2016).*

Since the 1970s, there has been a proliferation of new research and activities focusing on health status, particularly the health status of populations. According to the WHO, *“many factors combine together to affect the health of individuals and communities. Whether people are healthy or not, is determined by their circumstances, environment and personal behaviours. To a large extent, factors such as where we live, the state of our environment, genetics, our income and education level, and our relationships with friends and family all has considerable impacts on health” (WHO 2017).* Stemming from a large body of literature, the social determinants of health help explain why health inequities exist, and how non-medical

factors help to determine health outcomes for both the individual and population groups (Marmot 2005; PHAC 2011; Mancini and Sala 2018).

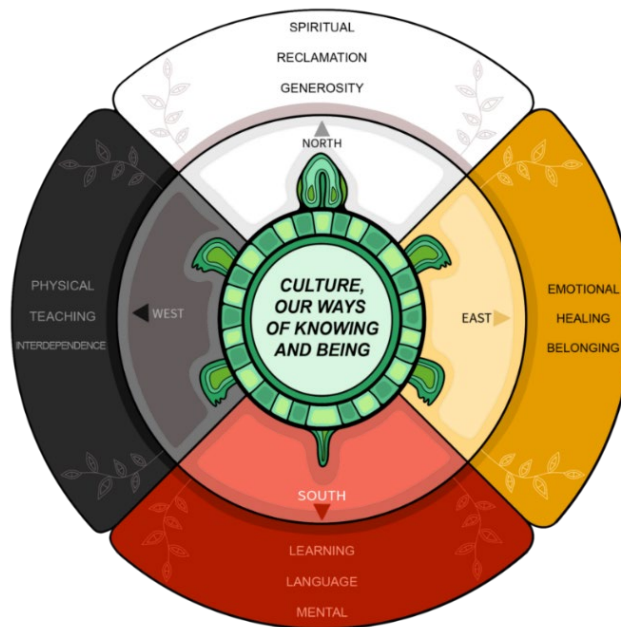
Health from an Indigenous perspective often calls attention to the interconnectedness of mental, spiritual, physical, and emotional domains. This encourages focus on children, and requires family and community support (FNHA 2016; Kwiatkowski 2011). It is recognized that cultural diversity exists across First Nations and Métis peoples, and therefore how different communities define health, and what factors determine positive health outcomes, will vary.

2.2 INDIGENOUS PERSPECTIVES ON HEALTH

Indigenous health is shaped by a range of unique determinants that are deeply interconnected with historical, social, cultural, and environmental factors. These determinants are rooted in the legacy of colonization, ongoing systemic inequalities, and the strong relationship that Indigenous people have with their land, culture, and communities (Loppie and Wein 2022).

It is acknowledged that many Indigenous perspectives on health and wellness are unique and distinct, focusing more on the holistic interconnectedness of health (Salerno et al. 2021). The Indigenous Primary Health Care Council (IPHCC) has published a Model of Wholistic Health and Wellbeing (Figure 2-1), which incorporates physical, mental, emotional, and spiritual elements of wellbeing and it is the belief that these elements must operate in harmony (IPHCC 2022).

Figure 2-1: IPHCC’s Model of Wholistic Health and Wellbeing



Source: (IPHCC 2025).

Health among Indigenous communities is viewed holistically, which is based on a foundational understanding of the interconnected nature of physical, mental, spiritual, and emotional health and wellness. The Indigenous worldview of “*All my relations*” upholds the notion that these dimensions of health are also connected to the health of all living things including the environment, culture, family and community (Lewis et al. 2021; Mashford-Pringle and Shawanda 2023). Lewis et al. (2021) emphasizes the importance of maintaining the balance between all four dimensions, because “*well-being flows from balance and harmony among all these elements of personal and collective life,*” and that the balance

must be maintained at the individual, family, and community level. Frameworks such as the Medicine Wheel illustrate this worldview, showing that imbalance in any area can disrupt overall wellness (Jones and Bradshaw 2015; Mashford-Pringle and Shawanda 2023).

The Medicine Wheel, while not a singular or universally standardized teaching, is a widely used IK framework that offers a wholistic, interconnected view of health grounded in physical, emotional, spiritual, and mental dimensions. It provides Western practitioners with a visual representation and culturally meaningful way to understand Indigenous perspectives on wellness, emphasizing balance and relationality rather than linear cause-and-effect thinking (Mashford-Pringle and Shawanda 2023). Unlike Western approaches that prioritize clinical trials or compartmentalized approaches to measure biomedical outcomes, the Medicine Wheel foregrounds the interdependence of all aspects of life and encourages practitioners to consider cyclical thinking, broader patterns, and community contexts in their work (Mashford-Pringle and Shawanda 2023). As a result, it can serve as a valuable guide for integrating Indigenous worldviews into Western health practice using a Two-eyed Seeing approach in a respectful and culturally informed way.

In one teaching of the Medicine Wheel by Dapice (2006) and described in a study by Tanner et al. (2022) the four dimensions of Indigenous health and wellness can be understood as follows:

- Physical health and wellness refer to the physical functioning of the body, including health behaviours, nutrition, safety and physical conditions (e.g., obesity, chronic disease)
- Mental health and wellness encompass elements of cognitive processes and thinking abilities, which can be strengthened through culture, as well as knowledge and language transmission
- Emotional health and wellness relate to feelings, and affective or mood elements
- Spiritual health and wellness are comprised of a sense of identity, meaning, and connection to the Creator and creation, beliefs, and values. When this connection is weakened or missing, individuals may experience hopelessness or despair.

It is understood that this worldview is consistent among the local Indigenous communities within the region. The land is viewed as a teacher, with both the environment and cultural traditions having healing power that can help individuals in distress cope with pain or harm (Radu et al. 2014). The land also plays a central role in reconnecting with traditional foods (Bagelman et al. 2016), preserving and revitalizing Indigenous languages (NCCIH 2016), and accessing traditional medicines (Manitowabi and Shawande 2011). Community members believe that being on the land fosters wellness and healing (McGuire-Adams 2023). Importantly, the environment is not seen merely as a resource to be used; it is a relational partner, and harm to the land is perceived as directly affecting community wellness (Salerno et al. 2021). Activities such as visiting the land, hunting, being on the water, or spending time in the bush are understood to foster a profound sense of wellness (McGuire-Adams 2023).

Mno bimaadziwin (mino-bimaadziwin), the Anishinaabe concept of the good life, is defined as a state of balanced living that integrates ethical conduct, spiritual, and physical harmony, as well as the fulfillment of reciprocal obligations to family, community, and all of creation (Sullivan 2024). This perspective is informed by a historical relationship with nature, relying on forests, rivers, and lakes for sustenance and spiritual guidance. A healthy community, from their perspective, is resilient and self-sustaining, where individuals thrive in harmony with the land, traditions, and cultural identity (Sullivan 2024). Anishinaabe governance structures, such as the doodemag (clan system), are similarly rooted in the ancestral teachings and principles of responsibility, relational ethics, and harmony that define the good life (Sullivan 2024).

The Nibi Declaration, published by the Grand Council Treaty #3 Women's Council (2019), explains the Anishinaabeg connection with water. The Nibi Declaration *“speaks to the sacred relationship and responsibilities that the Anishinaabe have with water, water beings, and the lakes and rivers around them”* (Grand Council Treaty #3 Women's Council 2019).

Indigenous communities explain that: *“In Ojibwe culture, healing is holistic - connecting mind, body, spirit, and land. When the land thrives, so do we,”* (Grassy Narrows Mental Health Services 2026). The philosophy of Mino-Bimaadziwin is rooted in the Seven Grandfather Teachings:

- *“Debwewin (Truth) - Truth involves living authentically and resonating with others through shared experiences. It emphasizes understanding truth through lived experience and relationships.*
- *Dabasendizowin (Humility) - Humility is recognizing one’s interdependence with all creation, knowing one’s place in the world, and fostering gratitude and reciprocity for all relations.*
- *Manaaji’indiwin (Respect) - Respect is an active acknowledgment of interdependence and compassion toward all living beings, including plants, animals, and the natural environment.*
- *Zaagi’idiwin (Love) - Love is at the core of the teachings, promoting unconditional compassion, self-acceptance, and harmony with others and the Creator.*
- *Zoongide’ewin (Courage) - Courage involves the strength to love and reconcile even with those who have caused harm, fostering peace and harmony for future generations.*
- *Gwayakwaadiziwin (Honesty) - Honesty, or integrity, is about aligning actions with one’s words, accepting oneself, and living free from contradiction or deception.*
- *Nibwaakaawin (Wisdom) - Wisdom is the application of knowledge and truth for the benefit of future generations, emphasizing balance, purpose, and interconnection with all of life,” (Nelson et al. 2025).*

Métis approaches to health similarly emphasize holistic balance between the mental, physical, emotional, and spiritual dimensions, but may differ in cultural framing and historical determinants. While the Métis National Council emphasizes similar guiding principles of health such as *Miyo Pimatisiwin* (the good life), these should be understood through a culturally specific interpretation shaped by unique Métis identity, mixed Indigenous–European heritage, and the distinct effects of colonization on the Métis Nation (Métis National Council 2025).

Therefore, while recognizing that Indigenous and western perspectives on health differ, it is important to acknowledge that individual Indigenous communities across Turtle Island (North America) also possess diverse perspectives on health, each shaped by their unique histories and lived experiences.

A summary of any available community-specific information on health perspectives for LSFN, WFN, ANA, NWOMC, and RLEF is presented in Attachment A.

2.3 HIA GUIDANCE AND BEST PRACTICES

On August 28, 2019, the *Impact Assessment Act* came into force, with a renewed mandate, such that *“impact assessments (IAs) of proposed resource and infrastructure development projects designated under the associated regulations are now required to consider the environmental effects, as well as the broader social, economic and health implications, both positive and negative, of project-related components and activities”* (Health Canada 2024a). In response, Health Canada released Interim Guidance: Health Impact Assessment of Designated Projects under the *Impact Assessment Act* (Health Canada 2024a). This guidance defines HIA as *“a combination of procedures, methods and tools that systematically judges the potential, and sometimes unintended effects, of a policy, plan, programme or project on the health of a population and the distribution of those effects within the population”* (Health Canada 2024a).

This HIA follows guidance provided by Health Canada, IAAC and others, as detailed in the TISG for the Project, including:

- Interim Guidance – Health Impact Assessment of Designated Projects under the Impact Assessment Act. December 2024 (Health Canada 2024a).
- Analyzing Health, Social and Economic Effects under the Impact Assessment Act. 27 November 2020 (IAAC 2020).
- Indigenous Mental Wellness and Major Project Development: Guidance for Impact Assessment Professionals and Indigenous Communities. Final Report. 7 May 2021 (Salerno et al. 2021).

- Intangible Impacts More-than-mental health: Indigenous identity, culture, community and relationship with land are integral to Indigenous wellbeing (Training Manual). June 2021. (Lewis et al. 2021).
- Minimum Elements and Practice Standards for Health Impact Assessment, Version 3. September 2014 (Bhatia et al. 2014).

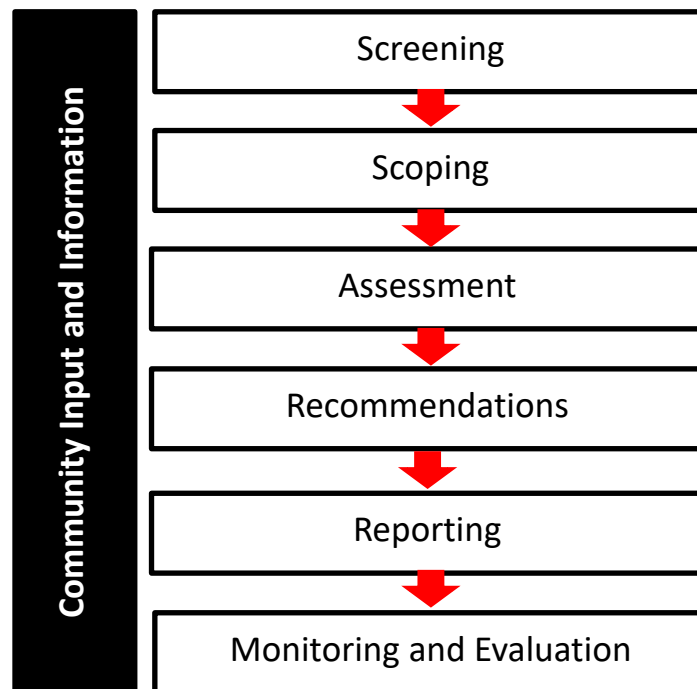
Guidance specific to the HHERA is presented in Impact Statement Appendix N-1 (WSP 2026a). In addition, relevant guidance related to other specific determinants of health (e.g., noise; Health Canada 2023) are referenced in Section 6.

In addition to following regulatory guidance and best practices in the field of HIA, the process includes consideration of Indigenous views, values and IK as described in further detail in Section 2.5 and Section 4.4. Community-specific IK, and publicly available information, has also been considered in the assessment of biophysical and social determinants of health (Section 6). This approach aims to weave together IK and information that has been obtained through engagement with the local Indigenous communities with public data, information and impact assessment methods.

2.4 HIA METHODOLOGY

The HIA process is a prescriptive set of steps (Figure 2-2), that are intended to provide a framework for the assessment of potential beneficial and adverse effects on human health and wellness. The HIA process is intended to be rigorous, yet flexible, with specific approaches within the broader framework being tailored to the jurisdiction, project and community context.

Figure 2-2: Steps of a Health Impact Assessment



2.4.1 SCREENING

The screening step focuses on exploring which determinants of health may be influenced by the proposed project. This step relies on diverse information sources such as scientific literature, IK, community engagement activities, and professional expertise. Screening helps identify whether potential health effects are well understood or complex, who might be affected, whether HIA is an appropriate assessment methodology, and whether there are community concerns surrounding the proposed project. Consideration of these questions helps determine a project's potential for health effects and whether to conduct an HIA (Health Canada 2024a).

In the context of conducting an HIA under the *Impact Assessment Act*, the screening process also involves reviewing the proposed project activities across their lifecycle and considering IAAC's Summary of Issues (i.e., high-level summary of the comments received on the proponent's Initial Project Description). Understanding the concerns of the public, Indigenous communities, or any jurisdiction or federal authority can support identifying the relevant determinants of health for the HIA. Ultimately, screening provides an early opportunity for community voices to shape the assessment, and it typically begins at the start of planning when the TISG identify the requirement for an HIA (Health Canada 2024a). The screening step is concluded when a decision is made regarding whether to proceed with an HIA for the Project; the screening step of the HIA is provided in Section 3.

2.4.2 SCOPING

The scoping step builds on the information gathered during screening and lays out the overall plan for the HIA, defining what will be assessed, how it will be assessed, and who will be involved. Scoping includes setting temporal and spatial boundaries, understanding data and information availability and limitations, and identifying the most relevant health determinants based on evidence and community input. It involves selecting priority issues, screening data sources, and planning engagement and communication approaches. While there is no single scoping protocol for every project, according to Health Canada (2024a) this scoping phase may include:

- *“Management of the HIA: defining roles and responsibilities and implementing a system to ensure data are collected and assessed within the time and resource constraints of the given project.*
- *Scope of the HIA: identifying the issues of highest priority, based on established evidence and / or community input, and the assessment of population / area.*
- *Methodological Approach of the HIA: identifying the major sources of information required for the HIA and determining how the evaluation and analysis will be conducted, including a communication plan for stakeholder engagement. Specific tools and methods that would support the assessment of a designated project may be referenced in the Tailored Impact Statement Guidelines.”*

The scoping process also includes development of pathways of health effects (e.g., effect pathway diagrams), which illustrate how project activities may lead to direct or indirect changes in environmental, social, or economic conditions and how these changes may ultimately influence human health. Effect pathway analysis not only involves consideration of the individual effects but also the interactions among health, environmental, social, and economic changes to support requirements of the *Impact Assessment Act*. Given the HIA process is iterative, the scope and effect pathway diagrams may be refined as the assessment step is undertaken and new information emerges (Health Canada 2024a).

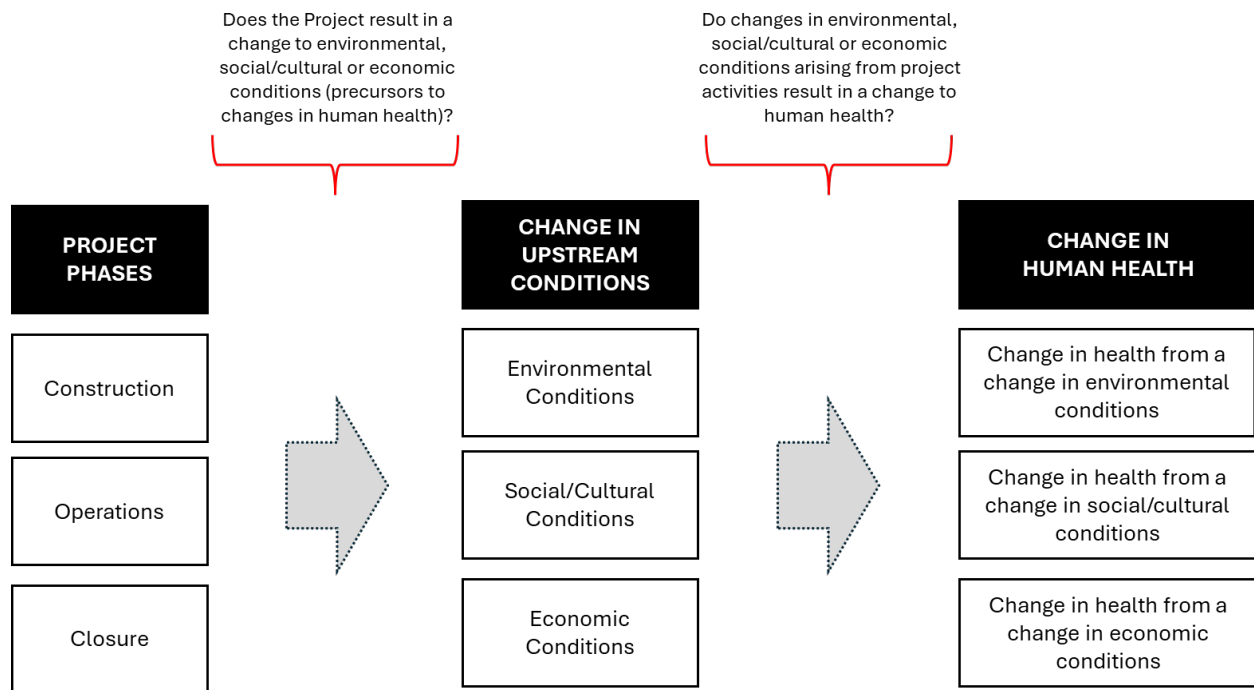
Collectively, these components provide an overall plan and blueprint for conducting the HIA. The scoping step should be conducted with published evidence, expert input, and with consultation with local communities to align with their views, concerns and priorities. The scoping step of the HIA is provided in Section 4.

2.4.3 ASSESSMENT

The assessment step involves systematically determining the potential health effects (both beneficial and adverse) from Project activities, including understanding the distribution of those effects across communities and subgroups, and an indication of required mitigation and / or enhancement measures needed based on assessment findings (Section 6). A combination of quantitative and qualitative assessment methods are used to identify, characterize and assess potential effects both at the individual determinant level and to support an overall assessment for health. The specific approach used within the assessment step was informed by Health Canada (2024a) interim HIA guidance and other resources previously described in Section 2.3. The interim HIA guidance (Health Canada 2024a) outlined three key components included in the assessment step:

- **Baseline Health Profile:** The first part of conducting the assessment step is to gain an understanding of existing health conditions through development of a baseline health profile. The Baseline Health Profile provides a summary of available data and information to characterize population health status. *“The development of a baseline health profile typically involves finding and compiling data on existing health conditions, including health outcomes, within the population or area of interest, either through existing secondary data sources or community specific input. This baseline information identifies the community’s health challenges and opportunities, current population health status, and statistics on health-related behaviours, as a reference point from which to conduct the effect assessments”* (Health Canada 2024a). Health outcomes of potential relevance to Project activities across all phases should be included in the baseline profile, where available. Regarding data availability, there is often limited or very limited data at the community level, particularly for remote northern communities and Indigenous groups. *“Where gaps or limitations in baseline health data exist, it is recommended that these uncertainties be explicitly stated in the Impact Statement. To the extent possible, data should be disaggregated to reflect differences in health status among diverse groups of people”* (Health Canada 2024a). The Baseline Health Profile is discussed in Section 5 and provided in Attachment A.
- **Identification of Potential Effects.** The purpose of the assessment step is to predict whether health effects (direct or indirect) may occur as a result of the Project, including the Project’s effects on upstream environmental, social, cultural and economic conditions, as well as the extent of these effects (Figure 2-3). In doing so, it is important to consider which groups are likely to benefit, which groups may be adversely affected, and which groups may be unaffected by the Project. Determining these health linkages and inter-relationships typically involves quantitative and qualitative approaches. Identification of potential effects should be done using the best available evidence, such as peer reviewed literature, systematic reviews, IK, government agency reports, local data, technical models (e.g., HHERA), expert opinion, and community input (Health Canada 2024a; ICMM 2010). As per Hoogeveen et al. (2022): *“It should be expected that HHERA will be integrated into an HIA when determinants of health other than chemical exposure are being assessed, making the HHERA a subcomponent of the much larger HIA.”* Where possible, it is also important to consider whether certain groups may miss out on potential benefits, or if equity gaps are likely to widen as a result, even if such groups do not directly experience adverse effects.
- **Apply Assessment Framework to Assess Project-related Effects.** Following development of the baseline profile, and identification of potential pathways of effect, an assessment framework provides a consistent and transparent approach for assessing Project-related effects. *“Each health determinant is assessed based on whether it is related to a project’s direct or indirect effect [...] and includes a detailed discussion of all relevant criteria. Each criterion should be evaluated based on data from the Impact Assessment, evidence from the scientific literature, information from available IK studies (if provided), and professional judgment. If professional judgment is used, it is recommended that a detailed evidence-based rationale should be provided in the accompanying text. To the extent possible, uncertainties and limitations of the analysis should be discussed (e.g., conservativeness of assumptions, lack of community-specific data) to support the level of confidence in the assessment findings”* (Health Canada 2024a).

Figure 2-3: Approach for Consideration of Upstream Conditions influencing Health



The assessment framework used in the HIA is described in Section 2.4.3.1 and the residual effects assessment approach is described in Section 2.4.3.2. Another important component of the HIA is Gender Based Analysis Plus (GBA Plus) where the distribution of effects across different population subgroups is considered in the context of health; this approach is detailed in Section 2.4.3.3. Finally, throughout the HIA where data and information are limited, or where technical assessment have identified inherent uncertainties, these are clearly identified through an explanation of limitations and uncertainties in Section 11.

2.4.3.1 HIA ASSESSMENT FRAMEWORK

The assessment framework applied in HIA assists in systematically summarizing and characterizing evidence in order to come to a conclusion of potential effects (beneficial or adverse) for each determinant of health. Criteria are selected based on the jurisdiction (i.e., Health Canada 2024a), Project context and site information, scientific evidence and community feedback. These criteria are then defined and characterized in such a way that allows for complex concepts and interdependencies to be consistently applied in the assessment of potential effects on health (Table 2-1). This framework is preceded by cohesive and transparent description of the evidence used to support the assessment of predicted effects. *“Each criterion should be evaluated based on data from the IA, evidence from the scientific literature, information from available Indigenous Knowledge studies (if provided), and professional judgment”* (Health Canada 2024a).

The framework relies on characterizing effects based on their severity or scale (e.g., no substantial effect, minor, moderate, major) as defined by Health Canada (2024a). The term magnitude was not used, to avoid confusion with the residual effects assessment approach, as described in Section 2.4.3.2. The geographic and temporal extent of the effects are considered through the application of specific spatial boundaries that are relevant to that determinant (Section 4.2.1) and temporal boundaries relevant to the project (Section 4.2.2). Where differential effects were identified either geographically, or temporally, this was identified in each assessment section. The HIA relied on Project data, technical modelling outputs, IK and community feedback, as well as scientific literature to identify whether predicted effects were likely to occur and whether specific communities were uniquely affected.

For this HIA, the assessment framework focused on five main criteria: Direction of Potential Effect, Scale of Potential Effect (post-mitigation), Affected Populations (Indigenous communities), GBA Plus, and Mitigations and Enhancements.

- **Health Determinant:** the specific determinant of health being assessed is identified upfront, with a description of whether it is classified as a biophysical or social determinant of health.
- **Direction of Potential Effect:** identifies whether the potential effect that will be assessed is expected to be adverse or beneficial to health. It is important to note that this determination of direction of effect should be considered pre-assessment, meaning that it does not suggest the effect is predicted to occur, only that if it were to occur the direction would be beneficial versus adverse. In some cases, a determinant may have both beneficial and adverse components, depending on the pathways of effect.
- **Scale of Potential Effect (Post-Mitigation):** considers the expected scale and / or severity of the effect including aspects such as the proportion of the population that might be affected (individual versus population-level), likelihood and duration in the context of the determinant, deviation from baseline conditions, and the potential for parameter concentrations above health-based guidelines and / or acceptable risk targets. Determination of scale of effect also takes into account perception and avoidance issues, the local Indigenous communities' connection to the land, and inclusion of local IK.
- **Affected Populations (Indigenous Communities):** considers the distribution of effects across the study population to address concerns surrounding equity. Given this HIA includes assessment of 5 different Indigenous populations (LSFN, WFN, ANA, NWOMC and RLEF), the assessment considers both effects on the Indigenous population as a whole, and identifies, if possible, whether any differential effects are expected for an individual Indigenous community specifically. Subgroups within the community are assessed as part of GBA Plus.
- **GBA Plus:** identifies sub-populations that may be differentially affected (i.e., will the change likely affect the entire population, or will specific subgroups be disproportionately affected?). This component of the assessment framework includes GBA Plus considerations, additional details on GBA Plus are provided in Section 2.4.3.3.
- **Mitigations and Enhancements:** identifies those measures recommended through the HIA process that aim to mitigate potential adverse effects and enhance potential benefits to protect, and where possible, improve population health. A list of measures identified in the HIA is provided in Section 7.

The assessment framework criteria applied throughout this HIA are summarized in Table 2-1.

Table 2-1: HIA Summary of Assessment of Potential Effects for each Determinant of Health

Criteria	Description	Characterization
Health Determinant	Identify the determinant of health being assessed	<ul style="list-style-type: none"> Determinant name and classification (i.e., biophysical or social determinant of health). E.g., Air Quality (Biophysical Determinant of Health)
Direction of Potential Effect	Describe whether the potential effect may be beneficial or adverse	<ul style="list-style-type: none"> Beneficial: the potential effect on human health may be beneficial, thereby improving conditions that support Indigenous health. Adverse: the potential effect on human health may be adverse, thereby diminishing conditions that support Indigenous health.
Scale of Potential Effect for this Determinant (post-mitigation)	Describes the expected scale of the Project-related effect to Indigenous health for this determinant	<ul style="list-style-type: none"> Negligible: there is limited to no effect on Indigenous health expected as a result of Project activities for this determinant following implementation of mitigation measures. Minor: the effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures. Moderate: the effect on Indigenous health is expected to be moderate following implementation of mitigation measures; measurable deviation from baseline population-level health is possible due to Project activities for this determinant. If the effect is adverse, some support may be required to maintain baseline (current conditions). Major: the effect on Indigenous health is expected to be major following implementation of mitigation measures; measurable deviation from baseline population-level health is probable due to Project activities for this determinant, with a high degree of support required to mitigate adverse effects in order to maintain baseline levels and / or baseline levels are no longer attainable.
Affected Populations (Indigenous Communities)	Refers to the distribution of the effects across Indigenous communities and includes equity considerations	<ul style="list-style-type: none"> Assessment findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. Assessment findings indicated that potential effects may differ across Indigenous communities.
GBA Plus	Identify relevant GBA Plus considerations for this determinant	<ul style="list-style-type: none"> There are groups that may experience effects differently for this determinant. Details are discussed in individual GBA Plus sections. There are no groups expected to experience effects differently for this determinant.
Mitigations and Enhancement	Additional measures based on the assessment of potential effects for this determinant ⁽²⁾	<ul style="list-style-type: none"> Additional measures, beyond what is included in the other pVC and fVC sections of the Impact Statement are listed below (determinant-specific) with further details provided in Section 6 and the list of health measures provided in Section 7. ⁽¹⁾ List of mitigation and enhancement measures provided.

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC).

2 Assumes measures included in upstream pVC and fVC sections of the Impact Statement are implemented.

ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); HIA = Health Impact Assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; pVC = pathway valued component; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

Following application of the HIA assessment framework for each individual determinant of health, a prediction of the overall change in health can be made. The predicted scale of effect is the driving factor associated with potential health effects which includes consideration of likelihood, duration in the context of population-level changes to human health; however, duration, affected populations and GBA Plus analysis also play an important role in characterizing the overall change and resulting effect.

Following the determination of overall effect on health, as part of the Impact Statement process, the next step is to complete a residual effects assessment, as per methodologies presented in Impact Statement Section 6, and described in Section 2.4.3.2 below.

2.4.3.2 RESIDUAL EFFECTS APPROACH

For each Indigenous community, a determination is made about whether, after mitigation, residual Project-related effects remain for health. Given the broad range of determinants of health considered in the HIA, and the different health influences associated with each one, conservatism is applied when determining whether, on balance, there is a residual effect on Indigenous health from the Project. For each determinant an assessment of potential effects includes a characterization of the scale of potential effects, ranging from negligible to major (as described in Section 2.4.3.1). Where the potential effect is adverse in nature, the scale of effect for each individual determinant is considered alongside the others for a single Indigenous community. This determination is made through a combination of Project information, best available evidence (project-specific and scientific literature), IK, baseline health considerations, an understanding of the effectiveness of mitigation measures, and professional judgement. The residual effects determination and assessment are provided in Section 8.

The assessment of significance is completed in a structured format described in Impact Statement Section 6.6 (Effects Assessment Methodology) if residual effects are identified. The significance of residual effects to these criteria is evaluated utilizing the following attributes according to the three threshold levels listed in Table 2-2.

- **Ecological and social context:** a qualitative measure of the sensitivity and / or resilience of the criteria to the potential effect
- **Magnitude:** a quantitative (statistical desktop data, usually collected from Statistics Canada's Census) or qualitative (information collected through interviews, questionnaires and focus groups) measure of the size or severity of the effect after mitigation relative to the baseline condition and / or applicable guideline
- **Extent:** the geographic area where the effect is expected to occur
- **Duration:** the period of time over which an effect is expected to occur
- **Frequency:** how often an effect is expected to occur
- **Reversibility:** the ability for the effect to be reversed
- **Timing:** the degree to which the effect is expected to occur during a sensitive period for the criteria (applicable to select criteria).

For a residual effect of a criteria to be determined to be significant, the following conditions must both be satisfied:

- A Level II or III rating is attained for ecological and social context
- A Level II or III rating is attained for all of the attributes involving magnitude, extent, duration, frequency, reversibility, and timing, as applicable.

Conversely, if a Level I rating is achieved for any of the attributes involving magnitude, extent, duration, timing or frequency; or, if a Level I rating is achieved for ecological and / or social context (where applicable), the effect is considered not significant.

Utilizing this methodology, a predicted effect is not considered to be significant if it is of:

- Low magnitude and / or extent
- Short term duration including residual effects (i.e., the effect itself is short term)
- Is likely to occur very infrequently (or not at all) with little potential for long-term effects.

Similarly, the effect is not likely to be significant if it has low or limited importance to the ecological and / or social context.

The likelihood or probability of the significant adverse effect occurring is assessed, although a level is not provided, recognizing that there is some overlap in the concepts of duration, timing, frequency and likelihood.

The level of confidence is described for the significance determination and considers factors such as the certainty of the scientific information, the level of rigor, conservatism and confidence in the modelling and assessment methods, professional judgement, and the effectiveness of proposed mitigation. A follow-up monitoring program may be developed to confirm determinations with higher levels of uncertainty where appropriate.

Table 2-2: Criteria-specific Magnitude Rankings (Residual Effects – Health)

Attribute	Description	Category
Ecological and Social Context	A qualitative measure of the sensitivity and / or resilience to change, based on professional judgement, consultation and IK	<ul style="list-style-type: none"> • Level I: Criteria may or may not be sensitive, and can support the predicted change with typical mitigation measures. • Level II: Criteria is sensitive and requires special measures to support the predicted change. • Level III: Criteria are sensitive and unable to support the predicted change even with special measures.
Magnitude	A qualitative or quantitative measure to describe the size or degree of the residual effects relative to baseline conditions	<ul style="list-style-type: none"> • Level I: measurable Project-related changes in environmental exposures and / or social determinants of health are unlikely to result in a material adverse change in population-level health status of local Indigenous people. • Level II: measurable Project-related changes in environmental exposures and / or social determinants of health may result in a material adverse change in population-level health status of local Indigenous people. • Level III: measurable Project-related changes in environmental exposures and / or social determinants of health will result in a substantial adverse change in population-level health status of local Indigenous people.
Geographic Extent	The spatial extent over which the residual effect will take place	<ul style="list-style-type: none"> • Level I: Effect is restricted to the LSA. • Level II: Effect extends beyond the LSA but within the RSA. • Level III: Effect extends beyond the RSA.
Duration ⁽¹⁾	The time period over which the residual effect will or is expected to occur	<ul style="list-style-type: none"> • Level I: Effect occurs over the short term: less than or equal to three years. • Level II: Effect occurs over the medium term: more than three years but less than 32 years. • Level III: Effect occurs over the long term: greater than 32 years.
Frequency	The rate of occurrence of the residual effect	<ul style="list-style-type: none"> • Level I: Effect occurs once, infrequently. • Level II: Effect occurs intermittently or regularly. • Level III: Effect occurs frequently or continuously.

Attribute	Description	Category
Reversibility	The extent to which the residual effect can be reversed	<ul style="list-style-type: none"> • Level I: Effect is fully reversible during the Project phases. • Level II: Effect is partially reversible during the Project phases. • Level III: Effect is not reversible during the Project phases.
Timing ⁽²⁾	A measure of whether the residual effect occurs during a sensitive period of the year	<ul style="list-style-type: none"> • Level I: Effects do not occur during a sensitive period, or related effects are fully mitigated. • Level II: Effects occur during a sensitive period and are partially mitigated. • Level III: Effects occur during a sensitive period and are not mitigated.

Notes:

- 1 These timelines approximately align with the Project: construction phase is approximately three years, operations phase is approximately 26 years, and the active closure period is an additional three years.
- 2 As applicable.
 IK = Indigenous knowledge; LSA = Local Study Area; RSA = Regional Study Area

Following completion of the residual effects assessment (Section 8), a confidence rating is determined (Section 8.4). The confidence level reflects the information available through Project-specific confidential Traditional Knowledge Land Use Study (TKLUS) reports, publicly available data (including primary and grey literature, government websites, previously completed environmental / impact assessment reports), understanding of the effectiveness of applicable mitigation measures, and outcomes of other pVCs and fVCs that are considered upstream of Indigenous health. Collectively, these elements formulate a determination of whether there is a high, moderate or low level of confidence in the predicted effects. The higher the confidence rating, the less uncertainty there is in the inputs, assumptions and findings of the assessment. Where confidence is low, results must be interpreted with a high degree of caution; often reflecting critical limitations in data, inputs and assumptions upon which the assessment is based.

For the assessment of Indigenous health, a list of the limitations and uncertainties associated with the HIA and key inputs, is provided in Section 11.

2.4.3.3 GENDER-BASED ANALYSIS PLUS (GBA PLUS) APPROACH

GBA Plus is an analytical tool to assess how diverse groups of people may experience policies, programs, and initiatives (IAAC 2021). The plus indicates that the analysis goes beyond sex and gender and includes a range of other identity factors. Identity factors may include Indigenous identity (i.e., Indigeneity), age, language, ethnicity, racialization, sexual orientation, ability, level of education, and class. When applied to HIA, a GBA Plus approach supports an understanding of subgroups that may be already experiencing existing conditions differently from the broader population, how effects may be experienced differently or disproportionately, and how mitigation and benefit enhancement measures may need to be targeted to address the identified different or disproportionate effects (IAAC 2021).

According to IAAC’s guidance on Gender-Based Analysis Plus, “GBA Plus is an analytical process—a way of thinking, as opposed to a unique set of prescribed methods [...]. The appropriate methods for a GBA Plus will depend on the community and project context. Practitioners should provide a rationale for the methodologies they apply, including references to relevant literature, best practices and input from communities” (IAAC 2021).

Also important to GBA Plus is the concept of intersectionality. The concept of intersectionality was first developed by Kimberle Crenshaw in 1989 and is now widely recognized as an analytical approach that describes how “groups of people are not homogeneous, as they have multiple, and diverse intersecting factors that impact how they understand, [...] shape their perspectives, ideologies, and experiences,” (Women and Gender Equality Canada 2022).

Intersectionality is key to GBA Plus as it recognizes that there are multiple factors that could influence how an individual or community could experience an effect, which individually may not put them at a disadvantage but combined can lead to higher vulnerability.

In addition, understanding the systemic factors and barriers experienced by diverse and distinct population subgroups and how these factors contribute to existing conditions of specific population subgroups is an important part of GBA Plus. Clearly understanding these factors provides the context for how and why vulnerabilities might be experienced and highlights the barriers that may keep some from experiencing benefits. While one project or development has not created these systemic factors and cannot address systemic inequity or marginalization alone, it can exacerbate a context of inequity if potential effects and mitigation measures are not considered through a lens of equity.

Established best practices in HIA inherently includes consideration of ways that effects from projects, policies, or programmes may be experienced differently among diverse subgroups of the population. The HIA applied a GBA Plus approach by purposefully evaluating how potential health and wellness effects may be influenced by different identity factors and how these factors intersect with local context and lived experience. Where sufficient data were available to do so, the HIA quantitatively evaluated effects to unique subgroups (e.g., consideration of women and children in quantitative risk estimates). Where data were unavailable or insufficient for disaggregation, the HIA qualitatively discussed the potential for effects to be influenced by different identity factors such as gender, age and Indigenous identity.

Therefore, GBA Plus is embedded throughout the HIA since evaluation of the distribution of effects across a community is standard HIA practice. In addition, GBA Plus considerations have been provided in: (i) the discussions related to approach and methodology, (ii) the baseline health profile, (iii) the assessment of determinants of health, (iv) the recommendations (mitigation and enhancement) and (v) the limitations and uncertainty.

It is acknowledged that Indigenous identity is often considered a GBA Plus identity factor in mainstream GBA Plus analyses. Indigenous people have historically faced marginalization and are burdened by a legacy of colonialism and racism that has resulted in poorer health for this population on average compared to non-Indigenous nations (Hill et al. 2023). Indigenous people in Canada have and continue to experience systemic health inequities rooted in colonialism, systemic racism, and oppression. Collectively, these communities continue to face structural barriers that restrict equitable access to resources, opportunities, and culturally appropriate care, contributing to disproportionate health disparities (The Native Women's Association of Canada 2022).

Simultaneously, it is important to recognize the distinct identities, needs, and vastly diverse lived experiences of First Nations, Métis, and Inuit communities, rather than treating Indigenous identity as one homogenous factor or category.

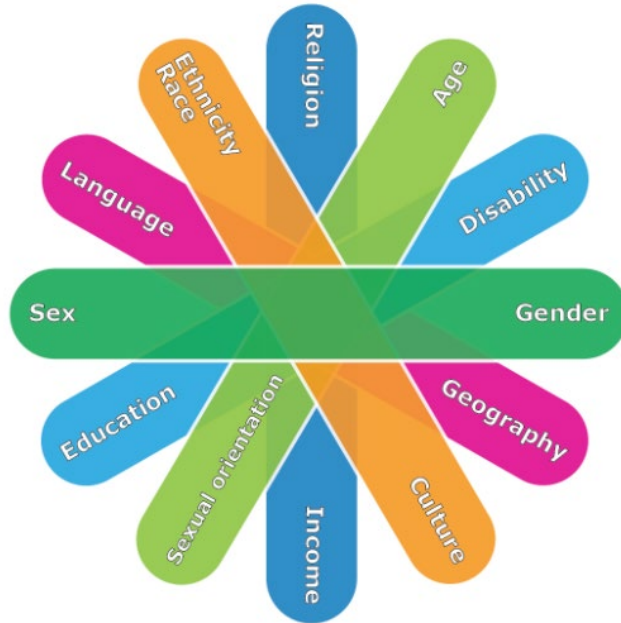
“In practice, GBA + [Plus] fails to critically engage with and evaluate the colonial systems of power, privilege, and oppression that structure it. The current [federal] approach aligns Indigeneity as an adjacent variable to other racialized or ethnocultural backgrounds, rather than centering and analyzing the unique impacts that colonization has had on Indigenous experience,” (The Native Women's Association of Canada 2022). In addition, IAAC's guidance on Gender-based Analysis Plus in Impact Assessment states: *“The appropriate methods for a GBA Plus will depend on the community and project context. Practitioners should provide a rationale for the methodologies they apply, including references to relevant literature, best practices and input from communities,”* (IAAC 2021).

The HIA is intended to assess the potential effects of the Project on Indigenous health; therefore, the GBA Plus analysis contained herein will consider sub-populations within Indigenous communities that could be disproportionately affected. It is important to note that Indigenous identity itself is a key aspect of GBA Plus, which is why Indigenous identity is a focus of the entire assessment, including baseline health disparities and other potential vulnerabilities identified relative to Indigenous identity. Therefore, it is recognized that the communities' Indigenous identity intersects with the other GBA Plus subgroups that are identified herein, which will be clearly discussed throughout the HIA.

The Department of Justice Canada (2022) states: *“The “plus” in GBA Plus explicitly acknowledges that a rigorous GBA Plus assessment goes beyond gender and sex to include consideration of multiple identity factors such as age, disability, economic status, education, gender, sex and sexual orientation, geography, language, racialization and ethnicity and religion and spirituality. This list is not exhaustive, and the factors cannot be considered in isolation. An intersectional approach requires consideration of*

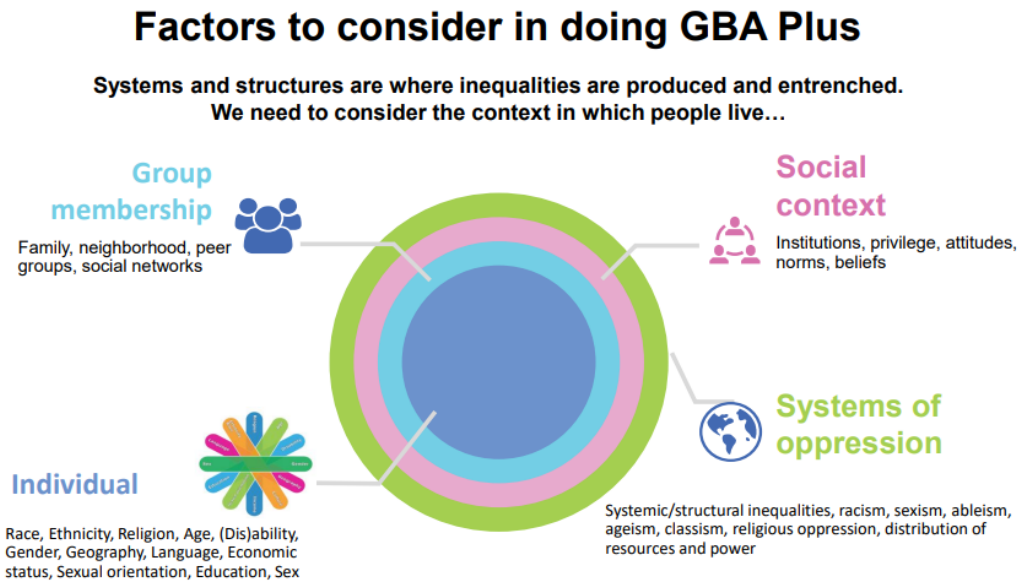
how multiple overlapping factors shape legal, social, health and economic opportunities and outcomes, as well as barriers to accessing systems, programs or services”, as demonstrated by Figure 2-4.

Figure 2-4: GBA Plus Conceptual Diagram



Source: Department of Justice 2022

Figure 2-5: Factors to Consider in doing GBA Plus



Source: IAAC n.d.

Therefore, it is acknowledged that several additional identity factors, such as religion, ethnicity, geography, race, sexual orientation, and others, are also relevant within a GBA Plus framework. For the purposes of this assessment, however, the GBA Plus identity factors listed below represent the primary subpopulations of analytical focus for this Project, selected based on the demographic and epidemiological characteristics of the local populations, community engagement, and professional judgement. Specifically, the selection of the identity factors listed below in Table 2-3 was informed by review of consultation and engagement records, the public health data presented in the Baseline Health Profile (Attachment A), as well as the demographic and socio-economic information documented in the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024).

Table 2-3: Key GBA Plus Identity Factors Selected for the HIA

Identity Factor	Description
Gender ⁽¹⁾	<ul style="list-style-type: none"> • Men+: Individuals whose gender identity aligns with or is associated with masculine roles and social positioning, including cisgender, transgender, and gender-diverse people. • Women+: Individuals whose gender identity aligns with or is associated with feminine roles and social positioning, including cisgender, transgender, and gender-diverse people.
Age	<ul style="list-style-type: none"> • Youth (children and infants): Individuals in early developmental stages (individuals under 18 years of age) • Young adults: Individuals in transitional life stages typically associated with workforce entry, increased mobility, and evolving socio-economic determinants (individuals 15-29 years of age). • Older Adults and Elders: Older adults and community-recognized Elders with increased susceptibility to health effects due to age-related physiological changes and cumulative lifetime exposures (individuals 65+ years of age).
Mental Ability	<ul style="list-style-type: none"> • Individuals with pre-existing mental health conditions: Persons with diagnosed or self-reported mental health challenges (e.g., anxiety, depression) • Individuals with concurrent substance use (e.g., alcohol, drugs) and mental health challenges: Populations experiencing co-occurring mental health and substance use disorders.
Physical Ability	<ul style="list-style-type: none"> • Individuals with disabilities: Persons with pre-existing mobility, sensory, cognitive, or functional limitations. • Individuals with chronic health conditions: Persons with pre-existing health conditions (e.g., cardiovascular, metabolic, or respiratory diseases).
Socio-economic Status	<ul style="list-style-type: none"> • Low-income individuals and households: Populations with constrained material and financial resources where food security and housing needs may be difficult to meet. • Individuals with low educational attainment or limited labour-market participation: Populations with lower levels of education (e.g., without a high school diploma) and / or insufficient skill development.

Notes:

1 The categories of men+ and women+ were used for analytical simplicity and were adopted from categories used in the census by Statistics Canada (2022a). These categories include cisgender and transgender persons, and non-binary persons are denoted by the + symbol.

GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+)

To assess how Project-related changes to determinants of health may affect different population subgroups, each identity factor was reviewed to determine whether effects were expected to be even or disproportionate. This assessment drew on available demographic data, baseline health indicators, and evidence from primary and grey literature. Table 2-4 below provides brief definitions of the terms used throughout the HIA to evaluate GBA Plus and health equity considerations.

Table 2-4: Contextual Definitions of Key GBA Plus Terms Used for the HIA

Term	Meaning
Metrics for Distribution of Effect	
Even	An identity factor is considered Even when there is insufficient or no available evidence that indicates elevated vulnerability, unique exposure pathways, or differential effects that would distinguish this group from the broader population.
Disproportionate	An identity factor is classified as Disproportionate when evidence shows that individuals within this group may experience higher-than-average risk, vulnerability, exposure, or health effects compared to the general population or comparison groups (e.g., due to biological susceptibility, socioeconomic conditions, cultural factors, geographic factors, reduced adaptive capacity, or other structural determinants).
Identity Factors	
Age	Age is a key demographic variable used to identify population groups (e.g., children, working-age adults, older adults / Elders) and is derived using the person's date of birth and the reference date (Statistics Canada 2022a)
Gender	<p><i>"Gender refers to an individual's personal and social identity as a man, woman or non-binary person (a person who is not exclusively a man or a woman). Gender includes the following concepts:</i></p> <ul style="list-style-type: none"> <i>gender identity, which refers to the gender that a person feels internally and individually;</i> <i>gender expression, which refers to the way a person presents their gender, regardless of their gender identity, through body language, aesthetic choices or accessories (e.g., clothes, hairstyle and makeup), which may have traditionally been associated with a specific gender.</i> <p><i>A person's gender may differ from their sex at birth [...]. A person's gender may change over time. Some people may not identify with a specific gender,"</i> (Statistics Canada 2022a).</p>
Physical Ability	The Accessible Canada Act defines disability as <i>"any impairment, including a physical, mental, intellectual, cognitive, learning, communication or sensory impairment — or a functional limitation — whether permanent, temporary or episodic in nature, or evident or not, that, in interaction with a barrier, hinders a person's full and equal participation in society"</i> (Department of Justice 2022). This identity factor focuses on physical abilities such as those that influence strength, endurance, flexibility, balance, and coordination.
Mental Ability	The Accessible Canada Act defines disability as <i>"any impairment, including a physical, mental, intellectual, cognitive, learning, communication or sensory impairment — or a functional limitation — whether permanent, temporary or episodic in nature, or evident or not, that, in interaction with a barrier, hinders a person's full and equal participation in society"</i> (Department of Justice 2022). This identity factor focuses on physical, cognitive, psychomotor, and sensory abilities.
Socio-economic Status	Socioeconomic status refers to an individual's level of income, wealth, education, and social standing, and is commonly used to describe a person's or group's economic and social position within society (PHAC 2018).

Note:

GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+)

Overall, the above GBA Plus considerations were used to assess potential effects, including the distribution of those effects across different Indigenous communities, and across different subgroups within Indigenous communities. The use of the GBA Plus approach throughout the HIA helps describe the determinants of health for diverse population subgroups within each community. The identification of subgroups that may be differently affected also informed the review of upstream conditions pVCs and fVCs (where applicable) and the development of recommended mitigation and enhancement measures.

2.4.4 RECOMMENDATIONS (MITIGATION AND ENHANCEMENT)

As a result of the assessment step, the HIA identifies specific recommendations based on assessment of individual determinants of health but also based on the holistic evaluation of overall health and wellness. Mitigation measures are features of a project intended to eliminate, reduce, control or offset the adverse effects of a project. They include restitution for any damage to the environment caused by those effects through replacement, restoration, compensation or other means. Mitigation measures must be technically

and economically feasible. Formulating recommendations is a vital part of the HIA process because it allows the findings of the assessment to be converted into practical measures that can improve the health and wellness of the affected community (Ross and Orenstein 2014). It is important to provide recommendations to both enhance beneficial effects and mitigate or minimize adverse effects, taking into account the potential for differential effects experienced by different subgroups as indicated through GBA Plus.

Given that health is influenced by many upstream conditions, the mitigation and enhancement measures identified in those other sections of the Impact Statement may also be relevant to health. According to Health Canada (2024a): *“There may be relevant sections of the related broader IA [Impact Assessment] (from other chapters in the IA report on social, economic, and / or environmental conditions) that have already proposed mitigation and enhancement measures for the protection and promotion of human health. These measures could be referenced in the HIA as well. However, it is recommended that any gaps be identified where the proposed mitigation efforts may not fully mitigate potential adverse human health effects or if there are opportunities to further enhance potential beneficial health effects. In such cases, additional recommendations could be made in the HIA to fill these gaps or, if appropriate, revisions to the measures in the other IA sections could be suggested. Where a minimal effect is predicted, additional recommendations may not be warranted”* (Health Canada 2024a).

Mitigation and enhancement measures recommended for each determinant of health are provided in Section 6, with a list of health measures identified in the HIA provided in Section 7.

2.4.5 REPORTING

The reporting step of an HIA is intended to reflect the importance placed on transparent communication of the steps of the HIA process. Within the IA context, HIAs typically take the format of large technical reports that inform health sections within the Impact Statement. Given the complex nature of health, the reporting step is critical for accurate, transparent and clear communication of all aspects of the HIA process. The objective of the reporting step is to *“inform interested and involved parties (i.e., decision-makers, health authorities or other government bodies, affected Indigenous Peoples and communities)”* (Health Canada 2024a). This HIA report followed Health Canada’s (2024a) suggested report template that outlines key sections and important information to be included, where appropriate.

2.4.6 MONITORING AND EVALUATION

Monitoring and evaluation are considered the last steps of an HIA because they both focus on the outcomes of the process. Monitoring is often conducted in order to validate the findings of an HIA, ground-truth assumptions, and provide ongoing data and information to local communities regarding factors that are directly or indirectly related to their health and wellness. Due to the holistic nature of HIA, it often includes consideration of environmental quality monitoring, monitoring of health outcomes and trends (where appropriate / available) and can include monitoring of traditional foods in instances involving Indigenous populations. The monitoring process typically involves ongoing data collection by the project proponent, other rightsholders and stakeholders, such as community members or local public health authorities, to validate predicted effects. This process supports proper implementation and helps evaluate effectiveness of the mitigation and / or enhancement measures that resulted from the HIA, and track predicted effects over time (Health Canada 2024a).

As described in Health Canada’s interim HIA guidance (2024a), key activities of the monitoring step include:

- *“Provide a clear description of targeted health related effects and / or indicators to be used in the long-term monitoring of the project.*
- *Ensure all relevant HIA recommendations are considered for monitoring plans, where necessary.*
- *Identify an individual or organization that is willing and has clear responsibility to conduct the planned monitoring and analyze results.*

- *Include a process for reporting the monitoring findings to rights holders, key decision makers and HIA stakeholders.*
- *Provide enough detail in the monitoring plan to ensure efficient and effective processes are implemented.*
- *Allocate adequate financial resources to conduct, complete and report the monitoring program.”*

Evaluation involves the reflection and critical assessment of the HIA process and any outcomes that were influenced as a result of the HIA findings. The evaluation considerations for this HIA are discussed in Section 9.2, Influence of Consultation and Engagement.

This section provides a summary of the past and ongoing activities that have supported the discussion, scoping and assessment of Indigenous health.

Great Bear Resources communicated Project information with Indigenous groups and stakeholders related to the Project during the Planning Phase of the Impact Assessment process, including during preparation of the Initial Project Description and Detailed Project Description. Great Bear Resources will continue to engage with stakeholders as the Project progresses, to gather information on the current capacity / services of local municipalities and townships, and to determine potential effects (beneficial and adverse) of the Project on the interests of Indigenous groups and stakeholders that may be affected.

Consultation and engagement have been ongoing for several years, both prior to and throughout the impact assessment process, and will continue over the life of the Project. Impact Statement Section 3 provides more detail on the consultation and engagement process to date. The record of consultation (Impact Statement Appendix C) includes a summary of comments received and responses provided during the development of the Impact Statement.

Great Bear Resources has provided funding to support the documentation of IK for local communities and to inform the preparation of the Impact Statement. Confidential reports have been prepared for NWOMC, LSFN, and WFN, which have been shared with Great Bear Resources to help inform the Impact Statement. These studies, based on geographic information system (GIS) mapping, interviews, and community workshops, document traditional land use patterns, which are relevant to Indigenous health and wellness as well as the importance of community food systems, cultural continuity, and intergenerational knowledge transfer:

At the time of writing this report, the results of the ANA Land Use and Occupancy Study were not available. The provision of the study and / or content remain at the discretion of ANA.

IK and local knowledge shared with Great Bear Resources have been incorporated throughout this report, as appropriate. Information on which confidential reports and details and methodology on how they were used for the HIA and the production of this report are described in Section 4.4.

Great Bear Resources provided the following effects assessment chapters (excluding health) to LSFN and WFN for their review and validation:

- Indigenous Peoples LSFN (November 12, 2025)
- Indigenous Peoples WFN (November 19, 2025)
- Indigenous Peoples Red Lake / Ear Falls (November 19, 2025).

The validation enabled the communities to verify that the information (IK), shared with Great Bear Resources to inform the Impact Statement, has been considered and interpreted appropriately. It is important to acknowledge that the validation step is not a sign-off from communities on the conclusions in the chapters; information included within the chapters may be considered by LSFN and WFN to inform the independent Anishinaabe-Led Indigenous Assessment decision making process. A letter was received on January 20 2026 from Chief Bull (LSFN) and Chief Petiquan (WFN) to confirm that the validation process had been completed. A workshop also occurred with LSFN and WFN on February 19, 2026 to present interim health results. Comments related to health received during this process, such as concerns raised around cost of living in the area, housing and homelessness, access to health services, and environmental changes due to Project activities, have been considered in the HIA.

Information was also shared with ANA and NWOMC. Each community received their applicable Indigenous Peoples effects assessment chapter and the RLEF effects assessment chapter on date February 27, 2026 (excluding health). A presentation was also shared on interim health results. This approach aimed to maximize the time for ANA and NWOMC review. Great Bear Resources will address comments following submission of the Impact Statement.

This section is intended to summarize how the HIA relied on feedback and consultation from the engagement process throughout the impact assessment. As detailed in Section 2.4.2, engagement and collaboration is a key component of the scoping step of the HIA.

As detailed in Impact Statement Section 3 (Participation and Engagement), engagement activities between Great Bear Resources and Indigenous communities have included in-person and virtual small group meetings, in-person and virtual community meetings, site visits, small workshops, formal presentations, public engagements, one-on-one in-person engagements, letters, and emails.

Feedback from Indigenous Nations and stakeholders has directly influenced the assessment of potential effects on Indigenous health and the development of mitigation and enhancement measures, including:

- **Potential points of reception:** Confidential reports in the form of TKLUS for LSFN, WFN, and NWOMC included information on land and resource use, species of importance for subsistence and cultural purposes, and cultural areas of importance. The assessment of human health, including the selection of surrogate species and points of reception (PORs) used in the HHERA included consideration of this information. Further detail on this process is provided in Section 4.4.
- **Wild Rice Enhancement Project:** At the request of LSFN and WFN, Great Bear Resources has funded a collaborative study to address the loss of historic Wild Rice production on Wabauskang Lake. The enhancement project, located on the WFN reserve and supported by LSFN, will develop options for habitat restoration and knowledge-sharing on sustainable harvesting practices, supporting long-term stewardship by community members. Wild Rice has been highlighted as a key interest by Indigenous communities. This mitigation measure supports Indigenous health and wellness.
- **Contamination:** In response to concerns about waterfowl exposure to contaminants (e.g., tailings and toxins), the Project has committed to robust tailings management, regular environmental monitoring, and transparent communication of results. Wildlife will be discouraged from inhabiting contact water ponds, including but not limited to the TMF pond, mine water pond and collection water pond. Concerns presented by ANA include seeking information related to the Project's possible effects on increased mercury and mercury methylation in the English River system, cumulative impacts to the regional watershed as result of the Project and prior industrial activities, and impact to traditional rights, harvest and rights bearing activities. In order to address concerns surrounding the possibility of the Project further contributing to ongoing mercury levels and risk of methylation, Great Bear Resources will be partaking in a study as designated by IAAC to focus on the possibility of further mercury and methylmercury impacts potentially arising from this Project. This study is presented in Impact Statement Appendix T (WSP 2026b).
- **Environmental monitoring and Indigenous participation:** Great Bear Resources has committed to ongoing engagement with Indigenous environmental monitors and the Environmental Management Committee, to support IK informing the monitoring of species of importance.
- **Communication and adaptive management:** The Project will maintain open communication with communities regarding monitoring results, adaptive management measures, and opportunities for community input throughout the Project lifecycle.

Great Bear Resources identified a preliminary list of potential pVCs and fVCs based on comments raised during consultation on the Project, as well as data from several biophysical and human environment baseline studies, and literature sources. These pVCs and fVCs have been used as inputs into the HIA. In addition, a summary of the feedback from each local Indigenous community relevant to health and that was considered in the HIA is summarized in the sections below. The information presented in the sub-

sections below has collectively informed the selection and assessment of the determinants and indicators for the assessment of Indigenous health.

Lac Seul First Nation (LSFN)

Engagement with LSFN started in February 2018, and has been ongoing throughout the impact assessment process, and will continue with LSFN over the life of the Project. Great Bear Resources has a mutual and respectful relationship with LSFN including providing support to the community through funding of research conducted for the TKLUS undertaken by LSFN.

During a community meeting on October 10, 2023, during the Planning Phase for the Impact Assessment, an Elder of the LSFN spoke on the intrinsic value of water including to all life, fish and traditional medicines, and the importance of protecting water for future generations.

LSFN indicated that real or perceived environmental contamination, particularly water contamination, could change the experience for land users and result in changes to food security, the transfer of cultural knowledge and health. LSFN noted that potential surface water contamination could adversely affect the safety and quality of drinking water and traditional food sources, including hunted and trapped game, harvested plants, as well as fish, which is a key component of the community diet. Additionally, concerns were raised that changes to air quality as a result of elevated dust levels, as well as changes to water quality may change the experience of land users, change access to traditional harvesting areas and pose health risks. As described in Impact Statement Section 10 (fVC Indigenous Peoples: LSFN) during consultation and engagement activities with LSFN, LSFN also raised concerns related to potential increases in cost of living and employment opportunities associated with the Project crime, human trafficking, sexually transmitted infections, and violence against Indigenous women and girls due to the increased population. During an Anishinaabe-Led Indigenous Assessment meeting, held October 31, 2025, concerns including community safety associated with the Project, protecting and improving the health of community members; including access to land-based healing, food security and nutrition, and enhanced community recreation and community infrastructure were presented and discussed with Great Bear Resources.

As described above, a workshop occurred with LSFN on February 19, 2026 to present interim health results. Comments related to health received during this process, such as concerns raised around cost of living in the area, housing and homelessness, access to health services, and environmental changes due to Project activities, have been considered in the HIA.

Based on engagement and consultation to date, and confidential reports prepared by or for LSFN, key considerations incorporated under health include: ongoing communication, cost of living, food security, public safety, access to harvesting areas and potential effects to water, wildlife, fish, and vegetation that could potentially affect the health of the community members.

Wabauskang First Nation (WFN)

Engagement with WFN started in February 2018 (via email), has been ongoing throughout the impact assessment process, and will continue over the life of the Project. Great Bear Resources have been working collaboratively with WFN and LSFN to advance through the Project. WFN has noted that they have a positive working relationship with Great Bear Resources that supports a collaborative approach to Project design and identification of mitigation and monitoring measures that reflect WFN land use patterns, needs and cultural values.

A member of the WFN expressed a concern regarding potential effects to natural spring water that could be used for drinking water related to the AEX Program on October 17, 2023. During the environmental baseline studies specific efforts were made to identify springs that could potentially be affected by the Project, however no suitable springs were identified in the area during baseline investigations.

WFN indicated that real or perceived environmental contamination could change the experience of land users and result in changes to food security, the transfer of cultural knowledge and health. WFN noted that potential surface water contamination, particularly in rivers and wetlands, could adversely affect the safety and quality of drinking water and traditional food sources, including hunted and trapped game, harvested plants, as well as fish, which is a key component of the community diet. Members indicated

health concerns related to the consumption of moose and deer harvested in areas with active forestry operations, as well as the potential for water-dependent species such as beavers, birds, muskrat and otters to be exposed to contaminated waters. Additionally, concerns were raised that visual and sensory disturbances; potential herbicide use; changes to air quality as a result of elevated dust levels and dust suppressant products approved for use by the Province of Ontario to spray roads for dust management; as well as flooding and changes to water quality may change the experience of land users, change access to traditional harvesting areas, change resource quality and pose health risks.

WFN also raised concerns related to potential increases in violence, racism, crime, sexually transmitted infections, and violence against Indigenous women and girls due to the increased population.

As described above, a workshop occurred with WFN on February 19, 2026 to present interim health results. Comments related to health received during this process, such as concerns raised around cost of living in the area, housing and homelessness, access to health services, and environmental changes due to Project activities, have been considered in the HIA.

Based on engagement and consultation to date, and confidential reports prepared by or for WFN, key considerations incorporated under health include: ongoing communication, food security, community safety, access to harvesting areas and potential effects to water, wildlife, fish, and vegetation that could potentially affect the health of the community members.

Asubpeeschoseewagong Netum Anishinabek (ANA)

Consultation with ANA regarding the Project began on October 1, 2022, and is ongoing in relation to the various permits related to the Project, including during the exploration phase and the AEX Project. The consultation has included emails, letters and virtual meetings. Some of the information below was also summarized from publicly available sources (ANA 2024).

ANA has provided feedback on health directly, as well as feedback on upstream determinants and factors that may affect health indirectly. Through consultation and engagement, ANA has raised concerns that environmental contamination could change the experience of land users and result in changes to food safety, the transfer of cultural knowledge and health. ANA indicated concerns related to surface water contamination as a result of the Project, as well as concerns with existing water contamination, primarily mercury and methylmercury, in the English-Wabigoon River System that could adversely affect the safety and quality of traditional food sources, including hunted and trapped game, harvested plants and fish. Members indicated concerns related to culturally important species including moose, caribou, wolverine, and fish, including walleye and sturgeon. Additionally, concerns were raised that changes to air quality and changes to water quality may change the experience of land users and transmission of knowledge and ways of life, change access to traditional harvesting areas, disrupt aquatic processes, change resource quality and pose health risks.

Based on engagement and consultation to date with ANA, key considerations incorporated under health include: ongoing communication, access to traditional food sources; potential effects to water, wildlife, fish, and vegetation that will affect the health of the community members; and change to overall community identity and social cohesion.

Northwestern Ontario Métis Community (NWOMC)

Engagement with NWOMC started in June 2023, and has been ongoing throughout the impact assessment process, and will continue with NWOMC over the life of the Project. At the time of writing this document, the majority of the consultation records highlight the NWOMC focus on the development and delivery of their TKLUS. There have been a few concerns raised so far regarding the scope of the Project and assessment study outcomes.

NWOMC indicated that environmental contamination could change the experience of land users and result in changes to food security, the transfer of cultural knowledge and health. NWOMC noted that potential surface water contamination could adversely affect the safety and quality of traditional food sources, including hunted and trapped game, harvested plants and fish. NWOMC raised concerns about the potential for water contamination in the larger English River system and emphasized its effects on fish habitat, health and populations was also a concern.

Additionally, concerns were raised that visual and sensory disturbances, traffic, habitat loss due to vegetation clearing, changes to air quality as a result of Project activities, as well as changes to water quality may change the experience of land users, change access to traditional harvesting areas, change resource quality, and pose health risks.

NWOMC also raised concerns that the increased population due to employment may result in changes to hunting and fishing around the Project, affecting food availability, as well as increased drug and alcohol use that could impact communities and local infrastructure, including healthcare.

Based on engagement and consultation to date, and confidential reports prepared by or for NWOMC, key considerations incorporated under health include: ongoing communication, increased cost of living due to the increase in population; food security and access to water and harvesting areas; increased use of drugs and alcohol; potential effects to water, wildlife, fish, and vegetation that could potentially affect the health of community members.

Indigenous Peoples in the Red Lake and Ear Falls Area (RLEF)

Engagement has been ongoing for several years prior to, and throughout this impact assessment process, and will continue with Indigenous people living in the Red Lake and Ear Falls area over the life of the Project.

It is assumed that RLEF area share similar values as other Indigenous communities in the area. It was noted that potential surface water contamination, particularly in rivers and wetlands, could adversely affect the safety and quality of traditional food sources, including hunted and trapped game, harvested plants and fish. Additionally, concerns were raised that visual and sensory disturbances; flooding; changes to air quality as a result of elevated dust levels and dust suppressant products approved for use by the Province of Ontario to spray roads for dust management; as well as changes to water quality may change the experience of land users and the transfer of intergenerational knowledge, change access to traditional harvesting areas, change resource quality, and pose health risks.

Engagement with RLEF noted concerns related to potential increases in violence, racism, crime, sexually transmitted infections, and violence against Indigenous women and girls due to the increased population. Concerns were also raised about increased strain on social services such as daycare, food banks and women's shelters.

Based on engagement and consultation to date, and confidential reports prepared by or for Indigenous communities, key considerations for RLEF incorporated under health include: ongoing communication, food security, access to health and social services, community safety, access to harvesting areas and potential effects to water, wildlife, fish, and vegetation that could potentially affect the health of the community members.

3 SCREENING

The first step of the HIA process is screening, to determine whether an HIA is required. The screening step involves a review of the available project information to identify whether there is potential for potential effects (both beneficial and adverse) to health and wellness. The following factors contributed to the decision to include an HIA as part of the Impact Statement:

- The scale and scope of the Project
- IAAC has identified HIA, in combination with HHERA, is a preferred tool with which to assess potential health effects within Impact Statement
- The TISG identified that a dedicated HIA, supported by an HHERA should be completed to “*show an understanding of the Project’s health, social, and economic impacts on Indigenous Peoples*”.

Therefore, it was determined that both an HHERA (Impact Statement Appendix N-1; WSP 2026a) and HIA (Impact Statement Appendix N-2) would be completed for the Project.

4 SCOPING

The scoping step, as summarized in the sections below, is the planning stage for the HIA. It sets out the blueprint for the assessment by identifying which determinants of health to include in the assessment of potential effects (Section 4.1), clearly describing the spatial and temporal boundaries of the HIA (Section 4.2), identifying key sources of data and information that will be used (Section 4.3), and discussing how received IK will be considered in the assessment (Section 4.4).

4.1 SELECTING THE DETERMINANTS OF HEALTH

There are many factors that influence a person's health and wellness. Collectively, these are known as the determinants of health. The WHO (2024) broadly groups these factors into several categories: (i) the physical environment; (ii) the social and economic environment; and (iii) individual characteristics and behaviours. Some of these factors are fixed, such as genetics and ethnicity, while others are variable and can change over time (e.g., employment, access to services, etc.). The following is a summary of the determinants of health, as described by the WHO (2024):

- **Education:** low education levels are linked with poor health, more stress and lower self-confidence
- **Physical environment:** safe water and clean air, healthy workplaces, safe houses, communities and roads contribute to good health
- **Employment and working conditions:** people in employment are healthier, particularly those who have more control over their working conditions
- **Social support networks:** greater support from families, friends and communities is linked to better health
- **Culture:** customs and traditions, and the beliefs of the family and community affect health
- **Genetics:** inheritance plays a part in determining lifespan, healthiness and the likelihood of developing or being pre-disposed to developing certain illnesses
- **Personal behaviour and coping skills:** balanced eating, keeping active, smoking, drinking, and how we deal with life's stresses and challenges affect health
- **Health services:** access to and use of services that prevent and treat disease influences health
- **Gender:** Men and women are differentially susceptible to and suffer from different types of diseases at different ages.

Although the WHO is considered an authority on human health and wellness, and is often cited in western science approaches, it needs to be considered alongside Indigenous views of health and wellness. It is acknowledged that across Canada, Indigenous perspectives on health and wellness are unique and distinct, focusing more on the holistic interconnectedness of health and a connection to the land.

As discussed in Section 2.2, Indigenous communities also have their own concepts of health and wellness, and these concepts are diverse across different First Nations, Inuit, and Métis groups in Canada, each shaped by their unique histories and lived experiences.

The HIA process is rooted in a determinants of health approach, which accounts for a broad consideration of factors that individually and collectively have the potential to influence human health. In addition, Indigenous views on health, wellness and the important connections to the land and water, guide the HIA process. The selection of health determinants (as provided below) was undertaken using a multi-pronged approach including consideration of IK, health-based evidence, relevant HIA guidance (Health Canada 2024a), information from similar projects, and professional judgement.

The following (Table 4-1) is a list of the determinants of health that are considered in the HIA; while they are presented as discreet components in the list, it should be appreciated that this breakdown is approached in a broader holistic context as described above, acknowledging the complex interactions that exist and with reflection on the Indigenous views of health and wellness.

Table 4-1: Heading Criteria, Potential Effects, and Indicators for each Determinant of Health

Criteria	Potential Effect	Determinants / Indicators
Change in Health (fVC Indigenous Peoples)	Change in Health (Biophysical Determinants of Health)	Air Quality: <ul style="list-style-type: none"> • Change in air quality (measured as $\mu\text{g}/\text{m}^3$) • Change in health risks from exposure to air (measured as calculated Hazard Quotients, Incremental Lifetime Cancer Risks and / or Additional Lung Cancer Mortality)
		Multi-media Environmental Quality: <ul style="list-style-type: none"> • Change in soil quality (measured as milligrams per kilogram; mg/kg) • Change in water quality (measured as milligrams per litre) • Change in traditional food quality (measured as mg/kg in food, milligram per kilogram of body weight per day as dose) • Change in health risks from exposure to multiple environmental media including soil, water and traditional foods (measured as calculated Hazard Quotients and / or calculated Incremental Lifetime Cancer Risks)
		Access and Availability of Water: <ul style="list-style-type: none"> • Change in access (location), and availability of water (flow, levels) for drinking, recreational and cultural uses • Change in perception of environmental quality (avoidance)
		Access and Availability of Traditional Foods: <ul style="list-style-type: none"> • Change in traditional foods access and availability via wildlife, vegetation and fish population changes (measured as qualified and / or quantified population-level changes and land use) • Change in risks to ecological receptors, including plants, mammals, birds, fish (measured as calculated Hazard Quotients) • Change in perception of environmental quality (avoidance)
		Sensory Disturbances (Sound, Vibration, Light): <ul style="list-style-type: none"> • Change in sound levels (measured in dBA) and % Highly Annoyed (%HA) • Change in vibration levels (measured as air overpressure in dB) • Change in light emissions (measured as sky glow and light trespass levels) • Change in environmental quality (avoidance)
Change in Health (Social Determinants of Health)	Change in Health (Social Determinants of Health)	Economics (Employment, Income, Education): <ul style="list-style-type: none"> • Change in cost of living and traditional economy (measured as change in cost of living metrics for goods and services, cost of living trends, traditional economy practices) • Change in economic opportunity and inequality (measured as people-years of employment, Project revenues, employment participation, access to employment, income \$CAD) • Change in access to health and social services (measured by capacity for service delivery, availability of services) • Education and training statistics as it relates to employment opportunities
		Housing: <ul style="list-style-type: none"> • Change in Availability (measured as size of non-local workforce, and existing housing type, quality, available units, vacancy rates, planned builds)

Criteria	Potential Effect	Determinants / Indicators
		<ul style="list-style-type: none"> • Change in Home Value, Affordability and Ownership (measured as size of non-local workforce, and existing housing costs \$CAD; change in cost of living metrics for goods and services; change in economic opportunity and inequality) <p>Access to Health and Social Services:</p> <ul style="list-style-type: none"> • Change in access to health and social services (measured as number, capacity, and location of facilities, programs, providers, and planned upgrades e.g., schools, Elder, youth, and women’s services, health services, mental health and addiction services, and community recreation) • Change in municipal, provincial, and non-profit service delivery (measured number, capacity, demand, planned upgrades) • Service provider assessments of wait times, capacity limitations, and staffing needs in health, social, and education sectors • Information on household pressures and caregiver challenges <p>Food Security:</p> <ul style="list-style-type: none"> • Changes in Food Security (measured by access, availability and utilization [quality and use] and stability of traditional foods; cost of living changes; perceptions of effects) • Changes in use (avoidance) of certain traditional food sources or drinking or recreational water sources, and resultant changes to traditional economy, due to the perception of environmental quality • Perceived changes in environmental quality and tranquillity and effects on diet <p>Mental Wellness and Personal Behaviours:</p> <ul style="list-style-type: none"> • Change in mental wellness and personal behaviours (including perceived stress, depression, anxiety, concern for future generations) via qualitative discussion of community feedback and regional data on the state of intergenerational trauma, mental wellbeing, cultural continuity, poverty, community cohesion, perception of wellness, and if applicable, substance use in the absence of site-specific quantitative data on mental wellness <p>Actual and Perceived Safety (Accidents and Malfunctions):</p> <ul style="list-style-type: none"> • Change in actual and perceived public safety, including emotional and social stress factors, due to risk of accidents and malfunctions (measured as risk characterization per potential accident type; qualitative analysis using community feedback in the absence of site-specific quantitative data on emotional and social stress) <p>Safety of Indigenous Women and Girls:</p> <ul style="list-style-type: none"> • Change in the safety of Indigenous Women and Girls (local crime rates [violent and non-violent] with a focus on crimes committed against women and girls) • Statistics on Missing and Murdered Indigenous Women and Girls (MMIWG)

Notes:

\$CAD = Canadian dollars; dbA = A-weighted decibels; dB= decibels; fVC = federal valued component; %HA = percent highly annoyed; mg/kg = milligram per kilogram; µg/m³ = micrograms per cubic metre

For the above biophysical and social determinants of health, the HIA considers data and information (including technical modelling results) from a wide variety of disciplines, including pVCs, fVCs and technical appendices. Consideration of IK is woven together with western approaches to health assessment, in order to identify and characterize potential effects to Indigenous health and wellness.

4.2 SPATIAL AND TEMPORAL BOUNDARIES

This section defines the spatial boundaries for the assessment of Indigenous health (including both biophysical and social determinants of health), with consideration of the extent of potential effects and relevant input pVC and fVC boundaries. Temporal boundaries are also described, based on Project phases and anticipated timing of Project activities. These boundaries are carried throughout the HIA.

4.2.1 SPATIAL BOUNDARIES

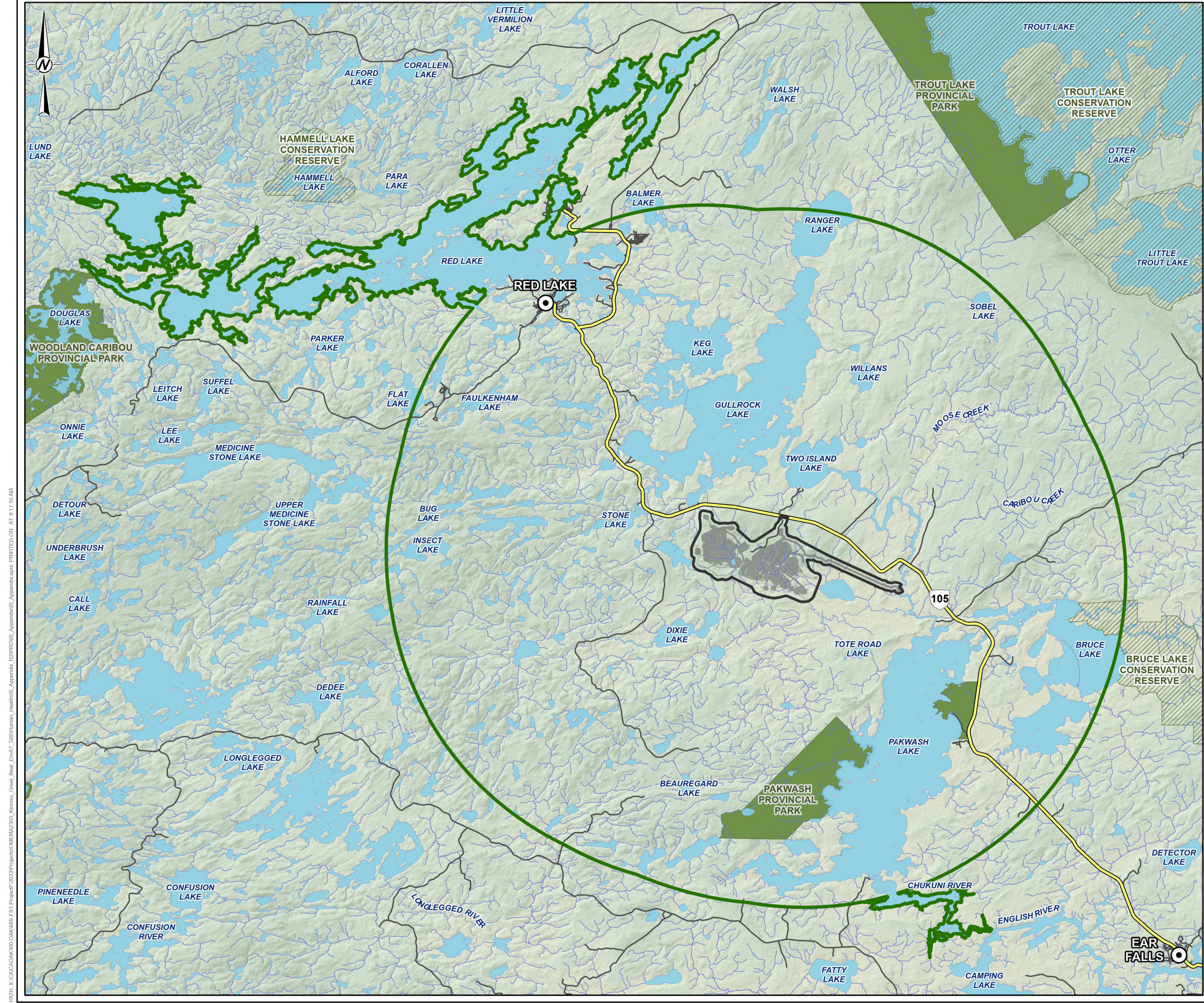
In the assessment of Indigenous health in the HIA, the spatial boundaries have been divided into two categories: (i) spatial boundaries for the assessment of biophysical determinants of health, and (ii) spatial boundaries for the assessment of social determinants of health. Broadly the spatial boundaries are described as follows, with specific delineations for biophysical and social determinants identified in the sections below.

- **Project Area (PA):** the Project footprint including all temporary and permanent areas associated with the mine site development, as well as an outside buffer to allow flexibility for design optimizations prior to construction and over the mine life (Figure 1-2).
- **Local Study Area (LSA):** extends beyond the PA and is intended to capture potential direct effects from the Project (such as emissions, discharges and habitat loss) and indirect effects resulting from the Project.
- **Regional Study Area (RSA):** extends beyond the PA and encompasses the LSA and where appropriate, extends further to support a regional context in the assessment of potential Project effects. It is the maximum geographical extent or zone of influence in which potential effects from the Project are assessed.

4.2.1.1 SPATIAL BOUNDARIES FOR BIOPHYSICAL DETERMINANTS OF HEALTH

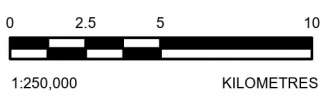
The spatial boundaries used for the assessment of biophysical determinants of health are shown in Figure 4-1 and Figure 4-2 and are defined as follows:

- **PA:** the Project footprint including all temporary and permanent areas associated with the mine site development, as well as an outside buffer to allow flexibility for design optimizations prior to construction and over the mine life. The PA is approximately 3,349 ha in size.
- **LSA:** is the area within which Project-related effects may reasonably be expected to occur and can be predicted or measured with a reasonable degree of accuracy and confidence. The LSA extends beyond the PA and is intended to capture potential direct effects from the Project (such as emissions, discharges and habitat loss) and indirect effects resulting from the Project. The LSA for biophysical determinants of health is adopted from the HHERA LSA, and represents a combination of both the air quality and surface water system LSAs. The LSA encompasses the area adjacent to the PA to capture the maximum predicted ground-level concentrations due to the Project and where air quality can be predicted or measured with a reasonable degree of accuracy. This zone includes the leased claims boundary and extends approximately 10 km from the main area of the PA (excluding a buffer for the Chukuni River pipelines or pump house). For surface water, the LSA includes sub-watersheds of Dixie Creek that intersect with the PA, as well as the Chukuni River (the receiving environment). It also includes the Chukuni River upstream to the Snowshoe Rapids Dam, and downstream to the outlet of Pakwash Lake.



LEGEND

- GREAT BEAR PROJECT FOOTPRINT
- PROJECT AREA
- REGIONAL STUDY AREA FOR BIOPHYSICAL DETERMINANTS OF HEALTH - HEALTH IMPACT ASSESSMENT
- TOWN
- CONSERVATION RESERVE
- PROVINCIAL PARK
- HIGHWAY
- LOCAL ROAD
- WATERCOURSE
- WATERBODY



- NOTE(S)**
1. ALL LOCATIONS ARE APPROXIMATE
- REFERENCE(S)**
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
 2. ROADS INFORMATION PROVIDED BY GREAT BEAR RESOURCES, AUGUST 2022.
 3. SITE PLAN BASED ON INFORMATION PROVIDED BY GREAT BEAR RESOURCES, DECEMBER 2024 / JUNE 2025.
 4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 15N

CLIENT
GREAT BEAR RESOURCES

PROJECT
GREAT BEAR PROJECT

TITLE
REGIONAL STUDY AREA FOR BIOPHYSICAL DETERMINANTS OF HEALTH - HEALTH IMPACT ASSESSMENT

CONSULTANT	YYYY-MM-DD	2026-03-31
	DESIGNED	---
	PREPARED	MD
	REVIEWED	---
	APPROVED	---



PROJECT NO. CA0031271	CONTROL 0001	REV. A	FIGURE 4-2
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- **RSA:** encompasses the LSA and is used to provide regional context. The RSA extends beyond the PA and encompasses the LSA and, where appropriate, extends further to support a regional context in the assessment of potential Project effects. It is the maximum geographical extent or zone of influence in which potential effects from the Project are assessed. The RSA for biophysical determinants of health is adopted from the HHERA RSA, which represents a combination of both the air quality RSA which is 10 km further than the LSA, and surface water system RSA which encompasses the LSA and extends into the Dixie Creek watershed, encompassing Dixie Lake and Hiewall Lake. Upstream, it follows the Chukuni River to include Two-Island Lake, Gullrock Lake, Keg Lake and Red Lake. Downstream, the RSA continues through Pakwash Lake and along the Chukuni River to its confluence with the English River.

4.2.1.2 SPATIAL BOUNDARIES FOR SOCIAL DETERMINANTS OF HEALTH

The spatial boundaries used for the assessment of social determinants of health are shown in Figure 4-3 and are defined as follows:

- **PA:** the footprint of the Project including all temporary and permanent areas associated with the mine site, as well as a buffer to allow flexibility for design optimizations prior to construction and over the mine life. The PA is approximately 3,349 ha in size.
- **LSA:** is the area within which Project-related effects may reasonably be expected to occur and can be predicted or measured with a reasonable degree of accuracy and confidence. The regions that the Project's socio-economic demands are expected to influence, possibly causing direct, indirect and / or induced effects on Indigenous health, include the Indigenous communities of LSFN, WFN, ANA, NWOMC, and RLEF.
- **RSA:** encompasses the LSA and is used to provide regional context. The region surrounding the LSA and the PA may also experience direct, indirect, and / or induced effects on Indigenous health due to the socio-economic demands of the Project. The RSA for Indigenous health, specifically the social determinants, is the District of Kenora.

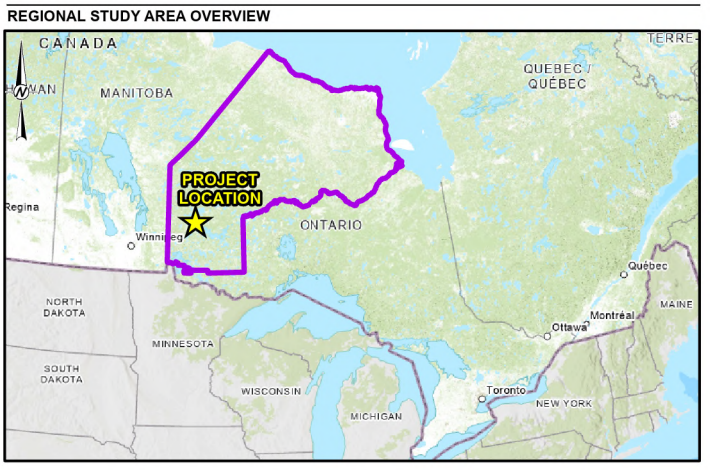
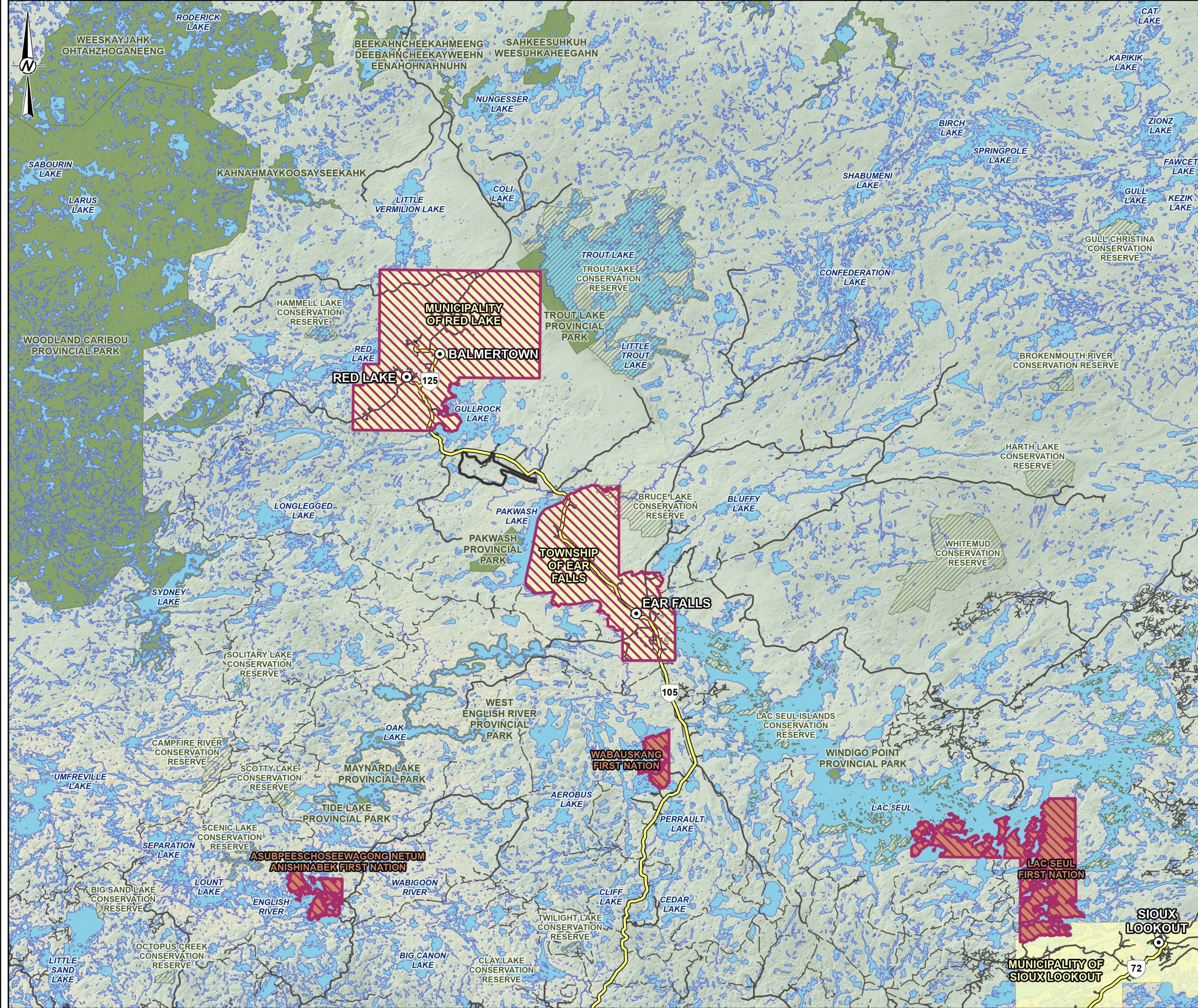
These boundaries are consistent with those used for the fVC Indigenous Peoples sections (Impact Statement Sections 10 to 14).

4.2.2 TEMPORAL BOUNDARIES

Temporal boundaries were defined by the schedule of phases of the Project (i.e., construction, operations, and decommissioning and closure), past conditions and historical context of the Project.

The temporal boundaries for the assessment are:

- **Construction phase:**
 - Years -3 to -1 (3 years) representing the primary period of Project construction
- **Operations phase:**
 - Years 1 to 26 (26 years), during year 1 the Project will transition from construction into operations and will not be at full capacity
- **Closure phase:**
 - Years 27 to 29 (3 years) represent the active closure period when most of the decommissioning and reclamation of the Project area is completed
 - Year 30 is a passive closure period
 - Year 31 is the final closure period (removal of water management infrastructure).



SCALE: 1:30,000,000

LEGEND

- PROJECT AREA
- TOWN
- FIRST NATION RESERVE
- LOWER TIER MUNICIPAL BOUNDARY
- CONSERVATION RESERVE
- PROVINCIAL PARK
- HIGHWAY
- LOCAL ROAD
- RESOURCE / RECREATION ROAD
- WATERBODY
- LOCAL STUDY AREA FOR SOCIAL DETERMINANTS OF HEALTH - HEALTH IMPACT ASSESSMENT
 - LAC SEUL FIRST NATION
 - WABAUSKANG FIRST NATION
 - ASUBPEESCHOSEEWAGONG NETUM ANISHINABEK FIRST NATION
 - TOWNSHIP OF EAR FALLS
 - MUNICIPALITY OF RED LAKE
- REGIONAL STUDY AREA FOR SOCIAL DETERMINANTS OF HEALTH - HEALTH IMPACT ASSESSMENT (SHOWN IN OVERVIEW MAP)
 - DISTRICT OF KENORA

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. WATERCOURSES AND WATERBODY ACQUIRED FROM LAND INFORMATION ONTARIO (MNR) AND MODIFIED TO MATCH AERIAL IMAGERY AND LIDAR.
3. ROADS INFORMATION PROVIDED BY GREAT BEAR RESOURCES, AUGUST 2022.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 15N

CLIENT
GREAT BEAR RESOURCES

PROJECT
GREAT BEAR PROJECT

TITLE
SPATIAL BOUNDARIES FOR SOCIAL DETERMINANTS OF HEALTH - HEALTH IMPACT ASSESSMENT

CONSULTANT	YYYY-MM-DD	2026-03-31
DESIGNED	---	---
PREPARED	MD	---
REVIEWED	---	---
APPROVED	---	---

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4.3 HIA INPUTS AND INFORMATION SOURCES

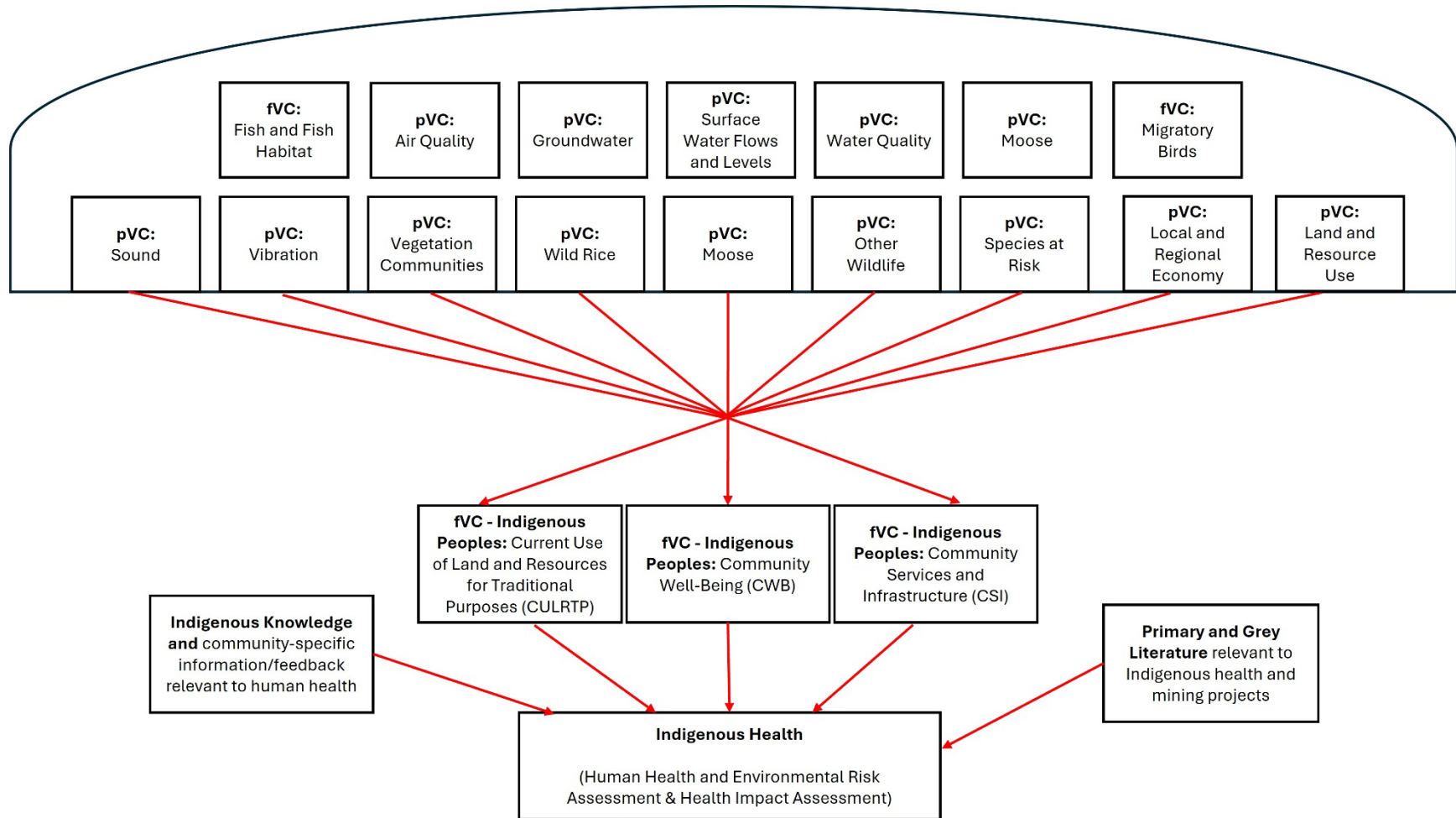
The HIA relies on a large number of inputs to support the assessment of Project-related effects on Indigenous health. These inputs are presented in Figure 4-4 and described in additional detail in Section 6.

It is noted that Figure 4-4 illustrates the most direct inputs relevant to the assessment of Indigenous health; other indirect pVCs or fVCs (e.g., archaeology/cultural heritage) are captured through the inclusion of these direct inputs and are not displayed graphically. The upstream pVCs and fVCs relied upon throughout the HIA are presented in Table 6-2 and a summary of inputs for each determinant of health is included in Section 6 under Evidence for Assessment.

In addition, information contained in the other assessment sections of the fVC Indigenous Peoples are relied upon throughout the HIA, and described in detail for each community:

- Predicted Changes to Indigenous Peoples – LSFN (Impact Statement Section 10)
- Predicted Changes to Indigenous Peoples – WFN (Impact Statement Section 11)
- Predicted Changes to Indigenous Peoples – ANA (Impact Statement Section 12)
- Predicted Changes to Indigenous Peoples – NWOMC (Impact Statement Section 13)
- Predicted Changes to Indigenous Peoples – RLEF (Impact Statement Section 14).

Figure 4-4: Key Inputs and Information Sources for the HIA



4.4 INCLUSION OF INDIGENOUS KNOWLEDGE

As part of the Project, local Indigenous communities (i.e., ANA, LSFN, WFN, NWOMC and RLEF), were engaged by Great Bear Resources to participate in the Impact Assessment process and were invited to provide IK and information from TKLUS reports, as described in Impact Statement Section 3 (Participation and Engagement) and the record of consultation (Impact Statement Appendix C). It is understood that the IK / TKLUS reports received are confidential. While maintaining confidentiality, IK considerations and information have been reviewed and considered throughout the Impact Statement. Each TKLUS report provided by Indigenous communities was systematically reviewed to identify information relevant to the assessment of Indigenous health. This includes land use and community-specific information to inform both the HIA, and the HHERA (Impact Statement Appendix N-1; WSP 2026a). Information relied on in the assessments included identification of areas of cultural importance, traditional land use activities occurring within the LSA and RSA and identifying species of cultural importance and those commonly consumed as part of traditional food diets, and validation of HHERA model inputs (i.e., exposure locations, traditional food species).

The following confidential reports prepared by or for specific Indigenous communities informed the HIA:

- What We Heard Report (Extract), prepared for Lac Seul First Nation and Wabauskang First Nation.
- A report titled Northwestern Ontario Métis Community Traditional Knowledge and Land Use Study for the Great Bear Gold Mine.
- A report titled Wabauskang First Nation Traditional Knowledge Mapping Study Using GIS Project 2021-2022, prepared for Wabauskang First Nation.
- A report titled Wabauskang First Nation Traditional Knowledge and Land Use Study, prepared for Wabauskang First Nation.
- A report titled The Centre of The Universe: Stories of Obishikokaang, Lac Seul First Nation Traditional Knowledge & Land Use Study, prepared for Lac Seul First Nation.
- A report titled Response Memo to Impact Statement – Indigenous Knowledge – Typical Requirements from SLR, Lac Seul First Nation Traditional Knowledge Studies, prepared for Lac Seul First Nation.

The information contained in the confidential reports prepared on behalf of LSFN, WFN and NWOMC is considered proprietary to the respective Indigenous communities. Therefore, they are thus broadly identified as confidential reports in this section. The HIA aligns its use of IK shared by Indigenous Nations with established digital data governance principles for Indigenous data sovereignty, such as the ownership, control, access and possession principles (OCAP®) developed by the First Nations Information Governance Centre (FNIGC 1998).

ANA is currently undertaking a Land Use and Occupancy Study. It is noted that at the time of producing this report, the results of the ANA Preliminary Land Use and Occupancy Study were not available. Therefore, it is acknowledged that the information pertaining to ANA in the HIA was not provided by the community but rather was assumed to be applicable to ANA community members based on publicly available secondary sources. The main secondary sources used to inform the HIA regarding ANA were as follows:

- Asubpeeschoseewagong Netum Anishinabek. 2024. The Great Bear Gold Mine Project. Grassy Narrows: Grassy Narrows First Nation.
https://registrydocumentsprd.blob.core.windows.net/commentsblob/project-85832/comment-61892/2024%2003%2006%20ANA%20Letter%20to%20Kinross,%20MINES,%20IAAC%20Signed%204870-3547-9979__%204.pdf.

- Chan, L., Receveur, O., Batal, M., David, W., Schwartz, H., Ing, A., Fediuk, K., Black, A., and Tikhonov, C. 2014. First Nations Food, Nutrition and Environment Study (FNFNES): Results from Ontario (2011/2012). Ottawa: University of Ottawa. https://www.fnfnes.ca/docs/FNFNES_Ontario_Regional_Report_ENGLISH_2019-10-16.pdf
- Mergler, D., DaSilva, J., Fillion, M., and Philibert, A. 2019. The legacy of mercury poisoning in Grassy Narrows First Nation. First Nations Food, Nutrition and Environment Forum, Ottawa.
- Mergler, D., Philibert, A., Fillion, M., and Da Silva, J. 2023. The Contribution across Three Generations of Mercury Exposure to Attempted Suicide among Children and Youth in Grassy Narrows First Nation, Canada: An Intergenerational Analysis. *Environmental Health Perspectives*. 131(7), 77001. <https://doi.org/10.1289/EHP11301>
- Mergler, D., Philibert, A., Fillion, M., and Silva, J. D. 2025. Childhood mercury exposure and early death in Grassy Narrows First Nation, Canada: a retrospective study. *Environmental Health*. 24, 39. <https://doi.org/10.1186/s12940-025-01190-7>.

It is acknowledged the information from these sources is not considered IK. Information from these publicly available reports, along with any other information sources that pertain to ANA that have been used throughout the HIA, is referenced and cited as applicable.

In addition, consultation with ANA regarding the Project began on October 1, 2022, and is ongoing in relation to the various permits related to the Project, including during the exploration phase. The consultation has included emails, letters and virtual meetings. Section 2.5 of the main HIA report provides more detail on the nature of the comments provided by Indigenous communities, during the development of the Impact Statement. Where applicable and relevant, community feedback from ANA from consultation and engagement activities was used to inform the HIA. Concerns presented by ANA include seeking information related to the Project's possible effects on increased mercury and mercury methylation in the English River system, cumulative impacts to the regional watershed as result of the Project and prior industrial activities, and impact to traditional rights, harvest and rights bearing activities. In order to address concerns surrounding the possibility of the Project further contributing to ongoing mercury levels and risk of methylation, Great Bear Resources undertook a study requested by IAAC to evaluate potential methylmercury generation from Project in downstream watersheds and evaluated potential risk to human health associated with fish consumption. This study can be referenced in Impact Statement Appendix T (WSP 2026b).

Similarly, there was no TKLUS report available explicitly for RLEF. For the purposes of characterizing baseline health conditions, the health-related information identified from TKLUS report by LSFN, WFN and NWOMC were considered applicable to RLEF.

As such, the interpretations presented for ANA and RLEF should be viewed as informed assumptions, rather than definitive community-specific conclusions.

For the HIA, the information provided in IK / TKLUS reports was used to illustrate each community's relationship to the land as a connection to health and wellness, including land-based activities supporting cultural identity, food systems, and social cohesion. Based on the information contained within abovementioned reports, members of the local Indigenous communities reported spending time in the area surrounding the Project (i.e., PA and / or LSA and / or RSA) to practice their traditional use of land including fishing, hunting, harvesting / gathering of plant material (such as berries and medicinal plants) and spiritual / cultural practices. Information contained within the abovementioned confidential reports explicitly related to health was limited. However, information related to the environment, culture, and land- use was included within TKLUS reports and the inherent link between these elements and Indigenous health and wellness are acknowledged. As such, a summary of the IK that was considered in the HIA is presented below. For a more fulsome list of community-specific interests and concerns gleaned through consultation and engagement, please refer to Impact Statement Section 3 (Participation and Engagement) and Impact Statement Appendix C (Record of Consultation). In addition, a summary of community-specific interests and concerns related to health identified during consultation and engagement is presented above in Section 2.5.

The information contained within the following bullets was sourced primarily from confidential reports prepared by or for LSFN, WFN, NWOMC, and provided to Great Bear Resources.

- For LSFN, members reported spending time in the PA and in the region to engage in traditional land use activities including fishing, hunting, harvesting, and gathering of traditional foods. Trapline areas within the PA were identified and include RL068 and RL059, which are both registered to LSFN; a non-Indigenous trapper is active in RL068. In addition, LSFN reported areas of spiritual and cultural importance within the region. It is noted that the community has expressed particular concern with water quality (for drinking and medicinal use), mushroom harvesting, trout populations, the displacement of moose, and general environmental contamination of water and food that animals are dependent on. The importance of wild rice to LSFN was also noted. For LSFN, access to traditional foods and participation in land-based activities strengthens connections to family and community, supports intergenerational relationships, and reinforces a sense of belonging rooted in place.
- For WFN, members reported spending time in the region to engage in traditional land use activities including fishing, hunting, harvesting, and gathering of traditional foods. In addition, WFN reported areas of spiritual and cultural importance within the region. It is noted that the community has expressed particular concern with water quality, species at risk (SAR), fish populations and habitat, hunting and trapping. WFN members expressed uncertainty about how changing water chemistry associated with the Project treated effluent could affect plant growth, particularly in sensitive wetland ecosystems, and whether traditional harvesting areas will be safe to use in the future. The importance of wild rice to WFN was also noted. For WFN, access to traditional foods and engagement in land-based activities maintains cultural continuity, supports land-based knowledge, and maintains food, medicine, and ceremonial systems.
- NWOMC has identified large and small game harvesting areas in the PA and LSA. The PA and LSA have also been identified as moose habitat, however, no hunting or trapping by NWOMC has been identified in the PA. In the LSA, NWOMC has also identified hunting, trapping, fishing, gathering of traditional foods and kill sites for additional terrestrial species of cultural importance. It is also noted that berries and fish make up an important part of the Métis diet. The NWOMC have noted that particular concern related to Project effects to soil and water quality resulting in adverse effects to wildlife, fish and vegetation. Information from confidential reports indicated that Métis citizens have a deep sense of place rooted in long-standing relationships with the land and waters of the Lake of the Woods and Lac Seul Traditional Harvesting Territory, which overlaps with the Project, where they have lived, worked, and harvested for generations. Some community members noted potential social effects from an influx of workers, such as rising housing costs, strain on infrastructure and healthcare, and increased drug and alcohol issues. At the same time, some participants were optimistic that the Project could bring jobs, economic growth, improved healthcare services, and opportunities for Métis businesses, along with broader community support such as student bursaries and social service funding.
- Indigenous people make up 24% and 19% of the populations of the Municipality of Red Lake and the Township of Ear Falls, respectively. Therefore, the nature of the values, comments, and information provided in confidential reports for participating Indigenous Nations described above may overlap with RLEF. It was assumed that RLEF area share similar values as other Indigenous communities in the area and the information above from confidential reports was applicable to RLEF.
- In a confidential report provided by LSFN and WFN, concerns about mercury contamination and access to clean drinking water for people living in the community and animals drinking the water were identified.
- In confidential reports provided for LSFN and WFN, the Indigenous worldview of the Seven Generations Principle was identified; although, it is noted that the roots of the Seventh Generation Principle were based on Haudenosaunee (Iroquois) philosophy. Importantly, the HIA considers the Seven Generations Principle, which supports a holistic analysis of past, current and future conditions, including the establishment of barriers and their effects across time (Indigenous

Corporate Training Inc. 2020). Applying the Seven Generations Principle allows for a contextual understanding of how barriers and their effects on all related beings, spirits, elements, and principles for Indigenous communities have been established or could be further amplified or introduced for current and future generations, including up to seven or more generations into the future. This application of a broader definition of temporal boundaries was considered in the HIA and is an example of weaving together IK with a western assessment approach.

In addition, a workshop occurred with LSFN and WFN on February 19, 2026 to present interim health results. Comments related to health received during this process, such as concerns raised around cost of living in the area, housing and homelessness, access to health services, and environmental changes due to Project activities, have been considered in the HIA. This is further described in Section 2.5.

The HIA relied on findings from the HHERA (Impact Statement Appendix N-1; WSP 2026a), particularly for the assessment of biophysical determinants of health. An overview of the HHERA process is provided in Section 6.1. As described above, information from IK / TKLUS reports was used to inform the HHERA for the purposes of identifying areas of cultural importance and traditional land use activities occurring within the LSA and RSA, and identifying species of cultural importance and those commonly consumed as part of traditional food diets. This information was used to validate the exposure locations and species evaluated in the HHERA.

Specifically, information from IK / TKLUS reports was used in the HHERA to validate PORs selected for the Air Quality Assessment (Impact Statement Appendix D-2; WSP 2025a) for inclusion in the HHERA human health inhalation assessment. This process was completed by comparing described land use areas and maps provided in IK / TKLUS reports to selected POR locations. The IK / TKLUS reports were also used to identify additional relevant PORs for inclusion in the HHERA human health inhalation assessment where land use areas were identified in IK / TKLUS reports but were not represented by a POR previously. For the HHERA human health multi-media assessment, information in the IK / TKLUS reports were used to identify species commonly consumed as part of traditional food diets. As described in detail in the HHERA, traditional foods consumption rates available from literature (i.e., FNFNES, Chan et al. 2014; 2021) were used as inputs to the human health multi-media model. Species identified in IK / TKLUS reports was used to validate the species identified in literature as being commonly consumed by Indigenous people in Ontario. As stated above, it is acknowledged that the information pertaining to ANA in the HIA was not provided by the community, but rather was assumed to be applicable to ANA community members based on publicly available secondary sources. For RLEF, where either LSFN or WFN reports identified relevant information, it was assumed to also be applicable to RLEF. As such, the interpretations presented for ANA and RLEF should be viewed as informed assumptions, rather than definitive community-specific conclusions. The following information related to traditional foods species was identified from IK / TKLUS and other reports:

- The communities (LSFN, WFN, NWMOC; and assumed for ANA and RLEF) identified walleye (pickerel), lake whitefish, northern pike (jackfish), moose, deer, rabbit, blueberries, raspberries and wild rice (manoomin) as frequently consumed species. These species were also identified by the FNFNES as top three consumed species in their respective food type (i.e., fish, wild game, plants) (Chan et al. 2014). The species listed were considered in the HHERA for the human health multi-media assessment.
- For birds, communities (LSFN, WFN, NWMOC; and assumed for RLEF) identified goose, duck and grouse / partridge as frequently consumed, which aligns with the bird species identified in the FNFNES (Chan et al. 2014), and these species were considered in the HHERA for the human health multi-media assessment.
- For berries, communities (LSFN, WFN, NWMOC; and assumed for ANA, and RLEF) additionally identified chokecherry / pin cherry and cranberry as frequently consumed species. Blueberries and raspberries were identified as the most commonly consumed berries by the FNFNES report for Ontario (Chan et al. 2014). It was confirmed that consumption rates for blueberries and raspberries were protective of consumption rates for chokecherry / pin cherry and cranberry (Chan et al. 2014; 2021). Blueberries and raspberries were considered in the HHERA for the human health multi-media assessment.

- For traditional plants, communities (LSFN, WFN, NWMOC; assumed for ANA, and RLEF) identified Labrador tea, and four communities identified mint as frequently consumed. While not identified as the most commonly consumed plants in the FNFNES study for Ontario, consumption rates for Labrador tea and mint were available (Chan et al. 2014; 2021) and considered in the HHERA for the human health multi-media assessment.
- For wild game, caribou were also identified by communities (LSFN; assumed for ANA, and RLEF) as frequently consumed. While not identified as one of the most commonly consumed wild game meats in the FNFNES study for Ontario, consumption rates were available (Chan et al. 2014; 2021) and considered in the HHERA for the human health multi-media assessment. Beaver and muskrat were additional wildlife species identified by three communities as species which were hunted and / or trapped, however based on the information available in the TKLUS reports these species are consumed less frequently than other wild game such as moose, deer, rabbit, which were identified as top consumed species by both the TKLUS reports and the FNFNES for Ontario (Chan et al. 2014). Moose, deer and rabbit were considered in the HHERA for the human health multi-media assessment. Beaver and muskrat were not considered ecological multi-media assessment.
- It is recognized that the traditional foods evaluated in the HHERA do not represent the full range of species ingested by Indigenous people in the area of the Project. However, through consideration of both species reported as most frequently consumed in the IK / TKLUS reports and top consumed species identified based on the FNFNES report (Chan et al. 2014), the HHERA provides a reasonable evaluation of potential exposure to Project-related parameters of potential concern (POPCs) through ingestion of traditional foods.

The information from IK / TKLUS reports was also used to select species of cultural importance and / or commonly consumed species as valued ecological components for evaluation in the HHERA ecological multi-media assessment.

For full details of the incorporation of IK / TKLUS reports information in the HHERA, please refer to the HHERA (Impact Statement Appendix N-1; WSP 2026a).

5 BASELINE HEALTH PROFILE

A Baseline Health Profile (Attachment A) has been developed to reflect existing conditions that relate directly and indirectly to human health and wellness. The Baseline Health Profile provides an overview of current conditions related to community health and specifically Indigenous health, where available. A detailed account of publicly available information related to burden of disease, death / birth rates, injuries, and mental health rates / status, and other wellness indicators is also included. As applicable, health status information is sufficiently disaggregated and analyzed to support the analysis of potential effects to underrepresented groups (e.g., by age, gender, Indigenous identity) and to support GBA Plus.

As described in Section 1.3.2, the Project lies within Treaty No. 3 territory, on the traditional territories of LSFN, WFN, ANA, the NWOMC in the District of Kenora. Nearby municipalities include the Municipality of Red Lake and the Township of Ear Falls and as such, RLEF were also identified within the TISG for the Project as issued by IAAC. Therefore, the Baseline Health Profile and the HIA focus on the health information for LSFN, WFN, ANA, NWOMC, and RLEF (hereafter collectively referred to as local the Indigenous communities, where applicable).

In addition to the Baseline Health Profile (Attachment A), detailed methodology and results regarding socio-economics and community resources near the Property are reported in the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024). The Socio-economic Baseline Study provides an overview of the existing socio-economic conditions in the region. The study focuses on the communities of LSFN, WFN, ANA and the NWOMC, as well as the Municipality of Red Lake, Township of Ear Falls and the District of Kenora, which includes RLEF.

The following sections provide a summary of key data and information taken from the Baseline Health Profile (Attachment A). It is important to note that the data presented are primarily from publicly available sources. Limited data on Indigenous health were available and therefore the data presented may reflect Indigenous health in the region and not necessarily be representative of each Indigenous community individually. However, this baseline health information is considered to provide a reasonable proxy for the baseline conditions experienced across the Indigenous communities in the region, in the absence of community-specific health information.

5.1 HEALTH DATA SOURCES

Attachment A provides a summary of baseline health-related information from both publicly available sources and confidential reports prepared for Indigenous communities in the region and provided to Great Bear Resources. In addition to population health indicators (e.g., burden of disease, birth rates, injuries, mental health rates/status), Indigenous-specific wellness indicators such as land-based health, cultural continuity, community relationships, language and knowledge preservation, and spiritual health and wellness were described within Attachment A.

The baseline conditions presented in Attachment A were informed by primary (data collection) and secondary (desktop) research using a broad range of information sources, including:

- Confidential reports prepared by or for LSFN, WFN, and NWOMC and provided to Great Bear Resources
- Data collected from local community members, including Indigenous members, via a Great Bear Project Community Health Survey administered in 2024 (details provided in Section 6 of Attachment A)
- Interviews with organizations within the local communities to investigate the tangible and intangible effects that may occur during the development phases of the Project, including records of contact from community engagement interviews completed for the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024)

- Municipal, provincial and federal government publications (e.g. policy and planning materials, government reports, municipal websites and plans)
- Statistical publications (e.g., Statistics Canada Community Profiles from both 2016 and any available 2021 data, and the results of the National Household Survey)
- Relevant publicly available information (e.g., community organization websites, business websites, letters from Indigenous communities to government agencies, primary and grey literature)
- Media articles, including websites.

The key public sources of information and data for the Baseline Health Profile (Attachment A) included the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024); data from public reports published by the Sioux Lookout First Nations Health Authority (SLFNHA); data from the Statistics Canada 2021 Census; data from the Northwestern Health Unit (NWHU) reports, publications and statistics; Public Health Ontario databases, and other reputable sources of relevant health data.

Where data and information were unavailable at the community-level but were available for a relevant district or region or province, they were included. As the Municipality of Red Lake is part of Kenora District, which is located within northwestern Ontario, information for Kenora District, Northwestern Ontario (including the NWHU) and the province of Ontario were also considered if available.

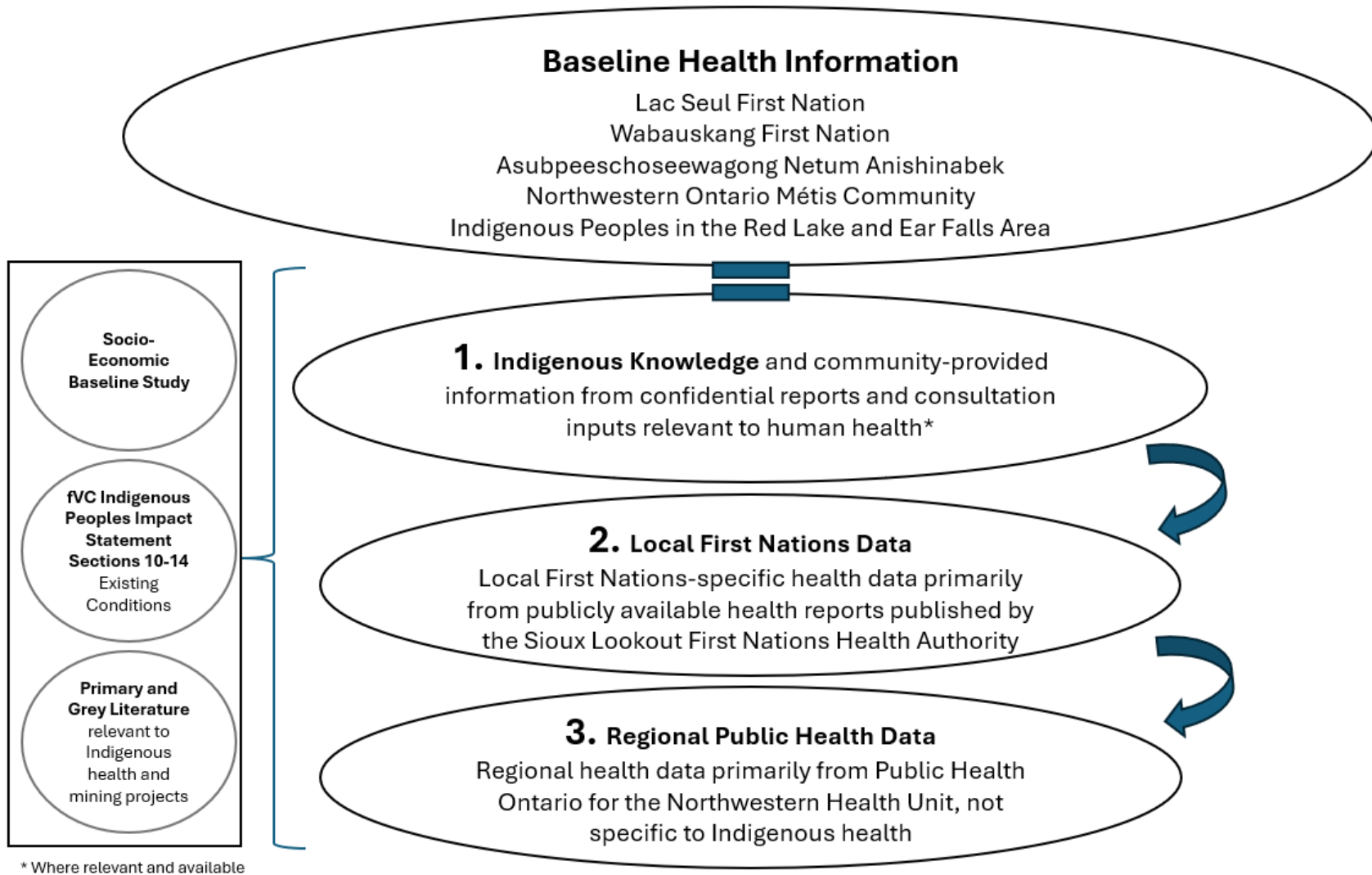
Specifically, the baseline health conditions for the Project were characterized using the following tiered hierarchy of information sources, which is also graphically depicted in Figure 5-1 below:

- 1 IK studies, community provided information, and consultation inputs were prioritized where available
- 2 Second, local First Nations specific health data were used, primarily sourced from publications by the SLFNHA
- 3 Third, regional health data from Public Health Ontario for the NWHU were also considered, acknowledging that these data are not specific to Indigenous health.

As applicable, health status information was sufficiently disaggregated and analyzed to support the analysis of potential effects to underrepresented groups and support GBA Plus. A more detailed description of the source databases, information sources, associated limitations, hierarchy, and methodology used to characterize baseline conditions is provided in Attachment A.

It is acknowledged that community-specific health and wellness data for Indigenous communities is lacking nation-wide. This lack of community-specific baseline health data is a contributing factor in the assessment of effects and confidence ratings identified in the HIA.

Figure 5-1: Hierarchy of Sources and Inputs Used to Characterize Baseline Indigenous Health Information



5.2 ASSUMPTIONS AND INFORMATION LIMITATIONS

As described in Section 5.1 above, the baseline health information presented in Attachment A draws on multiple publicly available datasets, including those published by the SLFNHA and Public Health Ontario for the NWHU. Due to limited availability of community level health data for LSFN, WFN, ANA, NWOMC, and RLEF, regional SLFNHA and NWHU data have been used as the best available evidence to characterize baseline health conditions throughout the HIA.

Therefore, references to Sioux Lookout area First Nations and NWHU throughout Section 6 of the HIA report are intended solely to describe the sources of these datasets and the geographic areas for which data are available. It is recognized that these datasets do not correspond exactly to the Indigenous communities (i.e., LSFN, WFN, ANA, NWOMC, RLEF) and, in some cases, do not include each of the Indigenous (i.e., First Nations and Métis) populations included in this assessment. The specific details of which communities were included in which data sources are described in Attachment A.

For the purposes of this assessment, and only in the absence of more specific data, it is assumed that these regional health patterns provide a reasonable proxy for the baseline conditions experienced across the Indigenous communities in the region.

The Project team recognizes the limitations of this assumption, including that SLFNHA datasets may underrepresent each Indigenous community, or communities not served by SLFNHA, as well that NWHU data may not they fully capture on-reserve Indigenous populations or remote communities. These limitations may result in the underestimation or overgeneralization of some community-specific health conditions.

In addition to compiling information from publicly available resources and databases, a Great Bear Project Community Health Survey was administered to collect primary data. This survey was administered online and designed to collect information from local residents in Red Lake, Ear Falls and surrounding areas, including residents who identify as Indigenous. It is important to note however that this was not designed as an Indigenous survey and was not administered to collect IK.

The use of regional data is not intended to replace or supersede IK, community-led research, or community-specific health information. Rather, it reflects the best publicly available evidence at the time of reporting. The limitations associated with applying regional datasets to community-level health characterization are explicitly acknowledged and are further discussed in Section 9 of this report.

5.3 HISTORICAL CONTEXT

This section provides a summary of information for each of the local Indigenous communities that is relevant to health, including historical information. As described in Section 4.4 and 5.1, this section considers information from confidential reports prepared by or for LSFN, WFN, and NWMOC, as well as information from publicly available sources.

It is acknowledged that the process of summarizing the histories of the identified Indigenous communities required a considerable amount of simplification of many complex historical movements, land use and settlement patterns and social interactions experienced by the Indigenous groups in the region. The community histories that are summarized here and further detailed in Attachment A represent only a snapshot of information in part, from publicly available online sources, and therefore may not represent Indigenous people's experiences of the recorded events and may only tell a partial story. An effort was made to prioritize sources by Indigenous authors and organizations. It is acknowledged however, that many publicly available sources may reflect inherent biases, particularly those shaped by colonial narratives or non-Indigenous interpretations. This limitation is recognized, and the content presented in Attachment A and in this report as a whole should be understood within this context.

Colonialism in Canada has operated as an interconnected system of laws, institutions, and policies, including the residential school system, that displaced First Nations, Inuit, and Métis peoples from their lands, suppressed their cultures and governance systems, and undermined self-determination, with

lasting effects on health and wellness (PHAC 2024). Many current health disparities observed in Indigenous populations are a result of colonialism in Canada (PHAC 2024; SLFNHA 2024a). While these harms and forms of oppression share common themes, such as land dispossession, forced assimilation, and intergenerational trauma, they also took distinct forms for each Indigenous group, including but not limited to, treaties and the *Indian Act* for First Nations, forced relocations and epidemics for Inuit, and land scrip and exclusion from treaties for Métis (PHAC 2024).

In a confidential report prepared for LSFN, some members described the effects of colonialism on their community. For example, community members shared how even the creation of the reserve boundaries had an impact, as the creation of these boundaries restricted their way of life and their culture to exist within artificial or colonial lines. They discuss how these impacts and the impacts of language loss and the residential school system are felt through generations. For ANA, colonial policies have “*led to intergenerational trauma and the loss of language, cultural teachings, and self-sufficiency*” (GNFN ANA 2025). For Métis populations in Canada, “*the root cause of poorer health outcomes suffered by the Métis lies in inter-generational family and individual experiences of trauma caused by colonial policies and adversity in their childhood,*” (Métis National Council 2025). Perspectives on colonization from confidential reports prepared for WFN or community websites was not available. These examples are not intended to fully capture the complex history of colonial impacts on Indigenous people, but instead to highlight some of the distinct ways colonialism has shaped and continues to shape their experiences.

The term Anishinaabe describes a group of First Nations peoples who share cultural and linguistic relations and who are primarily located around the Great Lakes region. This group includes the Ojibwe, Chippewa, Odawa, Potawatomi, Algonquin, Saulteaux, Nipissing, and Mississauga First Nations, collectively referred to as Anishinaabeg, which is the plural form of Anishinaabe. It is noted that some other communities and Métis individuals may also identify with this broader cultural-linguistic group. Although the term Anishinaabe is often used to refer specifically to the Ojibwe, it actually encompasses several other First Nations, and it is important to not to equate the term solely with Ojibwe (Hele 2025).

Several Anishinaabe communities are now present throughout northern Ontario where they settled during their migration, including the communities of LSFN, WFN, and ANA (Grand Council Treaty #3 n.d.; Hele 2025), with the NWOMC and RLEF also present in the region.

5.4 EXISTING CONDITIONS (INDIGENOUS HEALTH)

The available baseline (existing conditions) data for Indigenous health, including physical health and wellness (e.g., chronic conditions, communicable diseases, demographics), health-related behaviours (e.g., food consumption, physical activity, substance use) and mental wellness (depression, stress / anxiety, perception of risk) are provided in the Baseline Health Profile (Attachment A).

This section provides a summary of baseline conditions for Indigenous health within the LSA and RSA, drawing on available quantitative data sources and qualitative information, including IK where relevant and available, as well as local and regional health reports. As described in Section 5.1 above, IK studies, community provided information, and consultation inputs were prioritized where available. Secondly, where available, local First Nations specific health data were used, primarily sourced from publications by the SLFNHA. To supplement these sources, regional health data from Public Health Ontario for the NWHU were also considered, acknowledging that these data are not specific to Indigenous health.

As stated above in Section 2.5, Great Bear Resources provided the effects assessment chapters (excluding health) for LSFN (Impact Statement Section 10), WFN (Impact Statement Section 11) and RLEF (Impact Statement Section 14) to LSFN and WFN for their review and validation. A workshop also occurred with LSFN and WFN on February 19, 2026 to present interim health results. Comments related to health, including existing conditions, received during this process, such as concerns raised around cost of living in the area, housing and homelessness, access to health services, and environmental changes due to Project activities, have been considered in the HIA. Information was also shared with ANA and NWOMC. Each community received their applicable Indigenous Peoples effects assessment chapter and the RLEF effects assessment chapter on date February 27, 2026 (excluding health). A presentation was also shared on interim health results. The information below is organized into broad categories to support

a structured summary of general baseline health conditions for communities in the region. The categories were intended to focus on wellness indicators, rather than illness, to reflect health areas of interest identified by Indigenous communities in the region, sourced from a public report titled the Community Health Indicators Engagement Summary Report, published by the SLFNHA (2017). Therefore, the subheadings below represent general categories informed by the health indicator framework described by SLFNHA (2017), with slight adaptations applied to accommodate the structure of the data that was available, as well as the baseline information most relevant to the Project. For more details on baseline health data and community-specific information, please see Attachment A.

5.4.1 ENVIRONMENT AND LAND-USE

Baseline concentrations of parameters in air, water, and traditional foods will be presented as part of the HHERA (Impact Statement Appendix N-1; WSP 2026a). As described in Section 4.4, this quantitative baseline information was supplemented by IK provided through confidential reports for LSFN, WFN, and NWOMC, which identify important elements of land use and land-based practices. These reports are particularly relevant for LSFN, WFN, and RLEF provide context on how the land is used, valued, and relied upon for sustenance, culture, and health and wellness.

Access to and consumption of traditional foods by Indigenous people is not only important culturally but is also a health-related behaviour. For instance, a confidential report prepared for LSFN describes that hunting and trapping have traditionally been integral to LSFN community and culture, providing them with food, connection to family and acting as a way of connecting them with the lands and waters. Some LSFN community members have noted that hunting patterns have changed, with less hunting happening for some in recent years. Similarly, LSFN has noted the importance of trapping to connecting with and learning from family, and how trapping techniques have evolved over time. Fishing is a key aspect of LSFN identity and maintaining their way of life while stewarding the natural resources in the territory. Fishing is an important source of food and economic livelihood for LSFN and plays a central role in LSFN's culture, traditions, and relationship to the land. Traditionally, LSFN members participated in commercial fishing operations for income, although LSFN community members have noted how this has changed. Fishing is also associated with cultural teaching across generations, for example, the techniques of processing and cooking the fish, as indicated by one LSFN member. Overall, access to traditional foods and the ability to participate in land-based activities is a determinant of health for LSFN including its contributions to connection to family and community.

A confidential report prepared for WFN describes that for WFN members, the ability to engage in land-based practices, such as hunting, fishing, and plant harvesting, is linked to their ability to maintain land-based knowledge, food practices, and seasonal routines. Harvesting is central to WFN's food, medicine, and ceremonial systems. Although not often considered health endpoints in western science per se, these cultural determinants are closely tied to Indigenous health (Earle 2011a; NCCIH 2016). Overall, access to traditional foods and the ability to participate in land-based activities is a determinant of health for WFN including through its contributions to cultural continuity.

For ANA, land-based practices are central to their health as they have indicated: *"This is an area where our ancestors have practiced, and we currently practice our Anishinaabe way of life; a way of life that relies on a healthy environment and is central to our identity, health, wellness, and livelihood,"* (ANA 2024). Historical industrial activity in the region may have influenced existing (baseline conditions) in the region, particularly for ANA. Baseline concentrations of mercury (including methylmercury) in the LSA and RSA were incorporated into the risk characterization step of the HHERA (Impact Statement Appendix N-1; WSP 2026a). In addition, a Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies (Impact Statement Appendix T; WSP 2026b) was completed to evaluate potential Project contributions to mercury and methylmercury concentrations in waterbodies downstream of the RSA, the results of which were incorporated into the HHERA. The HHERA reviewed and incorporated relevant aspects of the Grassy Narrows Land Protection Team (GNLPT) memorandum (GNLPT 2025), such as heavy or subsistence consumption rates for fish and a variety of lifestages including sensitive lifestages (e.g., toddler, child-bearing female). The findings of the HHERA have been incorporated into the HIA, as presented in Section 6.1.2.

A confidential report prepared for NWOMC indicates that the relationship between the health of their community and their traditional territories is a symbiotic one, and that one cannot be healthy without the other being healthy.

Community-specific information and perspectives for RLEF regarding the ways in which access to, and availability of, traditional foods functions as a health-related behavior was not available. The role of land-based practices, such as hunting, fishing, and plant harvesting, in supporting the health and well-being of the Indigenous communities described above were considered applicable to RLEF. That is, that these practices are widely understood to contribute to cultural continuity, strengthen family and community connections, and sustain relationships with the land, which are ultimately linked to Indigenous health (Earle 2011a; NCCIH 2016).

5.4.2 HEALTHY LIVING

Chronic health conditions represent an ongoing concern within Indigenous communities in the northern Ontario. Rates of diabetes-related hospital visits and diabetes-related deaths among Indigenous populations are approximately four times higher than the Ontario average (Attachment A). In contrast, data from the NWHU indicate lower reported rates of asthma and hypertension compared to provincial levels (Attachment A).

Despite similar levels of physical activity across all age groups and genders when compared with Ontario, NWHU reports self-reported obesity rates that are approximately twice the provincial average among individuals aged 45 and older in 2021 (Attachment A). When disaggregated by gender, this pattern is observed primarily among males in the NWHU region (Attachment A). Food security remains a key determinant of health for Indigenous communities in northern Ontario, with the average monthly cost of food in Sioux Lookout area First Nations estimated to be between 37% and 69% higher than the average monthly cost for municipalities elsewhere in northern Ontario (SLFNHA 2024a; Attachment A).

5.4.3 RELATIONSHIPS, FAMILY, AND CULTURAL HEALTH

As described above, the cultural importance of traditional activities (hunting, gathering, fishing) described in confidential reports prepared for Indigenous communities in the region (e.g., connection to family, knowledge transmission) were supplemented with primary and grey literature to establish the link between land-based practices, culture, and health.

Prevalence of gender-based violence or data on family relationships at the community level was not available. Characterization of baseline conditions estimated with secondary sources such as the NWHU Mental Health Survey 2022/2023 (NWHU and Yusuf 2023).

5.4.4 MENTAL WELLNESS AND SUBSTANCE USE

Mental health and substance-related disorders are consistently identified in local health reports as a priority area of concern and a large contributor to health service utilization in the region (SLFNHA 2024b; NWHU and Yusuf 2023; MNP LLP 2020). For example, when looking at the most common types of mental health and substance use assessments in Sioux Lookout area First Nations between 2015 and 2020, slightly over one third of assessments were substance-related or for addictive disorders (33.5%) (SLFNHA 2024b). Furthermore, both Sioux Lookout Band Members on- and off-reserve rates for hospitalization and emergency department visits related to mental health and substance use were generally higher than Ontario rates and rates for the NWHU (SLFNHA 2024b). Both NWHU and the SLFNHA report intentional injury rates (e.g., including self-harm, suicide attempts, and assault) that are approximately three to four times higher than Ontario averages, depending on the region and indicator (Attachment A). The Red Lake and Ear Falls 2020 Community Safety and Well-Being (CSWB) Plan further identifies substance use and mental health as top community priorities, noting that hospitalizations due to mental health conditions are higher in Red Lake and Ear Falls than provincial levels (MNP LLP 2020). In particular, youth and young adults in the region are experiencing higher rates of mental health challenges (e.g., hospitalizations and emergency departments related to self-injury and / or substance

use) than their Ontario counterparts (Mergler et al. 2023; MNP LLP 2020; NWHU and Yusuf 2023; SLFNHA 2018, 2024b). In a confidential report prepared for NWOMC, some community members also raised concerns that the increased population due to employment may result in changes such as increased drug and alcohol use that could impact communities and local infrastructure, including healthcare.

5.4.5 SOCIO-ECONOMIC CONDITIONS AND ACCESS TO SERVICES

The Red Lake and Ear Falls 2020 CSWB Plan (MNP LLP 2020) highlights that access to mental health services in these communities is limited and strained. Financial insecurity, unemployment and education was one of the key priorities for the Red Lake and Ear Falls CSWB Plan (MNP LLP 2020). Based on the CSWB scores ranking the key priority areas, poverty and financial insecurity had the fifth highest priority score, with unemployment or unstable employment as the sixth highest and insufficient education and development as the 9th highest priority score (MNP LLP 2020). Furthermore, a 2022 Northern Policy Institute report found that northern Ontario, including the District of Kenora, is experiencing high and increasing rates of homelessness closely linked to mental health and substance use challenges, including rising opioid related harms, with many homeless individuals identifying as Indigenous (Parsons 2022; Attachment A). In addition, results from the Great Bear Project Community Health Survey, showed that the majority of self-identified Indigenous respondents (83%; sample size (n) = 23) identified access to services as their top community value and indicated that it was “*Very Important.*” (Attachment A).

5.4.6 SUMMARY OF EXISTING CONDITIONS (INDIGENOUS HEALTH)

Overall, the baseline statistics and supporting qualitative evidence described above aim to summarize current health conditions as shaped by interrelated environmental, cultural, mental health, and socio-economic factors, with land-based practices, family and relationships, and cultural continuity identified as important indicators of health and wellness. This information should be considered a summary, with the full Baseline Health Profile provided in Attachment A. Baseline data informed the HIA by providing the contextual basis for characterizing existing health conditions and the GBA Plus approach (as described in Section 2.4.3.3). Therefore, where relevant and applicable, these data are presented throughout Section 6 under the Influence of Baseline Conditions sub-sections. However, it is recognized that observed trends in these outcomes reflect the effects of multiple structural, biological, and social determinants, and that it is difficult to make a definitive link between a health outcome and any single factor (Buse et al. 2022).

Therefore, available data summarized above and presented in Attachment A (e.g., food consumption, physical activity, feelings of depression, stress, chronic conditions, real or perceived health risks reflecting the level of chronic biological stress) were presented to establish baseline context rather than site-specific measurements.

As described in Section 5.1 and 5.2, it is acknowledged that community-specific health and wellness data for Indigenous communities is lacking nation-wide. Therefore, interpretation of the baseline conditions is subject to important limitations, as much of the available quantitative data are regional or proxy-based and in some cases may not be Indigenous- or community-specific. This limitation and lack of community-specific baseline health data is a contributing factor in the assessment of effects and confidence ratings identified in the HIA. Limitations and uncertainties are further described in Section 11.

6 ASSESSMENT (INDIGENOUS HEALTH)

Following established best-practices in the field, the HIA included an assessment of potential effects using available evidence (primary and secondary), established indicators, and a combination of quantitative and qualitative approaches, to identify Project effects on Indigenous health.

Table 6-1 and the following sub-sections describe the potential Project effects on Indigenous health and wellness as a result of the potential interactions between the Project and the LSA and RSA for biophysical and social determinants of health. The potential interactions and effects inform the selection and design of mitigations, which are detailed in Section 7, to reduce, avoid, and minimize potential adverse effects, and enhance potential beneficial effects.

This section describes the potential direct and indirect interactions between proposed Project-related activities during construction, operations and closure, and Indigenous health. A detailed overview of the Project's potential interactions with Indigenous health (classified under biophysical and social determinants) is presented in Table 6-1. Project activities are characterized as either having no interaction (no) or a potential interaction (yes). Project activities that result in no interaction were not considered further in the assessment. Project activities that were identified as a potential interaction are carried forward in the HIA to assess beneficial and adverse effects on Indigenous health.

Table 6-1: Potential Interactions Between Project Activities and Indigenous Health

Project Component / Activity	Change in Health
Construction Phase	
Site preparation activities	Yes
Establishment and operation of water management and treatment facilities	Yes
Open pit mining	Yes
Underground mining	Yes
Management of rock and unconsolidated materials in stockpiles	Yes
Establishment of onsite fish habitat and compensation measures	Yes
Establishment of onsite aggregate operations	Yes
Construction of the starter embankments for the TMF	Yes
Construction and operation of buildings and infrastructure	Yes
Waste management	Yes
Commissioning of the process plant	Yes
Power supply	Yes
Employment and expenditures	Yes
Operations Phase	
Underground mining	Yes
Mining of the LP Central pit	Yes
Management of rock and unconsolidated materials in stockpiles	Yes
Process plant operation	Yes
Management of desulphurized tailings in the TMF	Yes
Management of concentrate tailings and contact water in the VMF	Yes
Operation of water management and treatment facilities	Yes
Construction of a mine water pond	Yes
Operation and maintenance of buildings and infrastructure	Yes
Waste management	Yes
Power supply	Yes
Progressive reclamation activities	Yes
Employment and expenditures	Yes
Closure Phase	
Active closure	Yes
Passive closure	Yes
Final reclamation	Yes
Employment and expenditures	Yes

Notes:

Yes = Interaction exists

No = No interaction exists

TMF = Tailings Management Facility; VMF = Viggo Management Facility

The analysis that follows provides a phase-by-phase assessment of potential interactions for Indigenous health, based on geographic location, technical modelling, established evidence, community context, and identified concerns. Given the complex nature of health, effects from Project activities could result in both direct and indirect effects (both beneficial and adverse) to Indigenous health. Mitigation and enhancement strategies are summarized in each section below and a summary is provided in Table 7-1 and Table 7-2.

The following determinants were assessed as having potential interactions and carried forward for assessment in the HIA:

- **Biophysical Determinants of Health:**
 - Air
 - Multi-media Environmental Quality
 - Access and Availability of Water
 - Access and Availability of Traditional Food
 - Sensory Disturbances: Sound, Vibration, and Light
- **Social Determinants of Health:**
 - Economics (employment, income, education)
 - Housing
 - Access to Health and Social Services
 - Food Security
 - Mental Wellness and Personal Behaviours
 - Actual and Perceived Public Safety (Accidents and Malfunctions)
 - Safety of Indigenous Women and Girls.

These biophysical and social determinants of health were carried forward for assessment using both qualitative and quantitative approaches and include IK and information from TKLUS, where available. Given this is a holistic assessment of Indigenous health there are many instances where linkages between different determinants are important and / or where the information from upstream environmental, social, economic and cultural conditions are relevant to the assessment of potential effects on health. Therefore, a summary of the relevant findings from upstream pVCs and fVCs is summarized in Table 6-2, and referenced throughout Section 6. In light of this complex interplay of factors and the holistic nature of HIA, this section should be read in its entirety and not by isolating any one component. Each determinant is assessed in its own sub-section, with summary tables. Residual effects are then identified and assessed (Section 8) to identify an overall determination of the change in health for Indigenous Peoples (Impact Statement Sections 10 to 14; fVC). In addition, the conclusions (Section 10) present an overall discussion of holistic health weaving together the findings from the assessment of individual determinants of health.

Table 6-2: Summary of Potential Changes in Linked pVCs and fVCs

Linked Valued Component	Summary of Potential Changes Identified in Linked pVC / fVC
Air Quality	<p>As discussed in Impact Statement Section 7.2 (pVC Air Quality), the Project will result in emissions of air parameters from construction / active closure and operations activities. For both the construction / active closure and operations phases, predicted concentrations of air parameters from the Project are below provincial and federal air quality criteria at and beyond the leased claims boundary and air quality criteria at all points of reception.</p> <p><u>Key Mitigation Measures⁽¹⁾</u>: Mitigation measures include the implementation of a dust management plan, a blasting plan to control emissions of particulate matter and nitrogen oxides, an ambient air quality monitoring plan, and limiting vehicle speeds on-site will provide for active management of emissions from the Project.</p> <p><u>Predicted Change After Mitigation⁽¹⁾</u>: The modelled cumulative concentrations for all indicators for all averaging periods are below the respective Ambient Air Quality Criteria during the construction phase, operations phase and closure phase at the extent of the leased claims boundary and at PORs in the LSA.</p>
Sound	<p>As discussed in Impact Statement Section 7.3 (pVC Sound), the Project will result in changes to sound levels from construction, operations, and closure activities. Modelling sound levels from the Project indicates that, with the implementation of mitigation measures, sound levels will meet the provincial and federal guidelines at all points of reception in the LSA and RSA, during daytime and evening/ nighttime periods, for all Project phases. The change in % Highly Annoyed (%HA) meets Health Canada limit of 6.5%, which means that changes to sound levels are not expected to trigger noise complaints from PORs.</p> <p><u>Key Mitigation Measures⁽¹⁾</u>: Mitigation measures include various design features aimed at reducing sound levels, use of enclosures and exhausts for diesel and natural gas generators, use of suitable mufflers on all motorized equipment, regular maintenance of equipment, and the development of a noise management plan.</p> <p><u>Predicted Change After Mitigation⁽¹⁾</u>: Sound levels at all of the identified PORs are predicted to be below the federal and provincial criteria after application of mitigation measures. The change in %HA meets HC limit of 6.5%, which means that changes to sound levels are not expected to trigger noise complaints from PORs.</p>
Vibration	<p>As presented in Impact Statement Section 7.4 (pVC Vibration), blasting activities associated with the Project will result in vibration, and the predicted changes to air overpressure and peak particle vibration are below the Ontario Ministry of Environment, Conservation and Parks (MECP) limits at all modeled points of reception in the LSA and RSA. Two watercourses (i.e., Dixie Creek and Unnamed Watercourse 3) nearest to the blast areas will present a change due to blasting activities. However, mitigation will include the development and implementation of a blast management plan to guide blasting activities while minimizing vibration levels. These results were carried forward to the assessment of fish [Impact Statement Section 8 (fVC Fish and Fish Habitat)] and ultimately, no residual effects to fish communities were identified after the application of mitigation measures.</p> <p><u>Key Mitigation Measures⁽¹⁾</u>: Mitigation will include the development and implementation of a blast management plan to guide blasting activities while minimizing vibration levels.</p> <p><u>Predicted Change After Mitigation⁽¹⁾</u>: The predicted change to air overpressure and peak particle vibration are well below the provincial limits for all PORs and Fisheries and Oceans Canada (DFO) requirements related to vibration for protection of fish will be met.</p>

Linked Valued Component	Summary of Potential Changes Identified in Linked pVC / fVC
Groundwater Quantity	<p>As discussed in Impact Statement Section 7.5 (pVC Groundwater Quantity), after implementation of the proposed mitigation measures, there is a reduction of groundwater flows and levels during the construction and operations phases that is mitigated during closure. This temporary change during construction and operations will be reflected in some surface watercourses and waterbodies within or adjacent to the PA that will experience an overall reduction in groundwater contributions to baseflow to the watercourses and waterbodies, as mine dewatering will cause the LP Central pit, Viggo pit, and underground mine to act as local sinks for groundwater during the construction and operations phases. Water budget analysis shows that the net inflow from the groundwater system to lakes is expected to change by less than 2%, which is within the range of normal interannual variability, with the exception of Unnamed Waterbody 6 and Unnamed Watercourses 4 and 6A. After the filling of the underground, LP Central pit and VMF with water, groundwater flows and levels will recover to near baseline conditions.</p> <p><u>Key Mitigation Measures:</u> Mitigation measures will include mine site design to limit areas of contact water requiring management, use of collected contact water for ore processing to minimize requirement to source fresh water from groundwater, grouting to reduce inflows into the underground, installation of a sheet pile / grout wall to limit impacts of dewatering and accelerated refilling during closure.</p> <p><u>Predicted Change After Mitigation⁽¹⁾:</u> There is a temporary reduction of groundwater flows and levels during the construction and operations that is mitigated during closure phase. This temporary change during construction and operations will be reflected in some surface watercourses and waterbodies within or adjacent to the PA that will experience an overall reduction in groundwater contributions. Groundwater flows and levels will recover to near baseline conditions following refilling of underground, LP Central put and VMF through closure activities.</p>
Surface Water Flows and Levels	<p>As discussed in Impact Statement Section 7.6 (pVC Surface Water Flows and Levels), a receiver water balance model shows that observable changes in flow are constrained to the LSA with changes greater than 10% (threshold for change in flow) limited to a 5 km reach of Dixie Creek during operations. The change may result in a reduction in annual water levels by approximately 5 cm which is within natural variation limits. The change is temporary and reversible with flows and water levels restored at post-closure. Flows and levels in other watercourses and waterbodies showed lesser effects during all phases, except for some small unnamed watercourses and waterbodies which will be authorized and offset under the <i>Fisheries Act</i>.</p> <p><u>Key Mitigation Measures⁽¹⁾:</u> Mitigation measures will include collecting contact water across the Project, treatment of contact water and effluent prior to release, the development and implementation of a dust management plan to minimize dust emissions.</p> <p><u>Predicted Change After Mitigation⁽¹⁾:</u> There is a reduction of surface water flows and levels within the PA and parts of the LSA after implementation of the proposed mitigation measures, during the construction and operations and closure phases that is partially mitigated by closure-related activities. Some local hydrology changes are permanent, resulting from landscape changes from development. Estimated changes to flow and water level in the Chukuni River and further downstream are not observable during any Project phase.</p>

Linked Valued Component	Summary of Potential Changes Identified in Linked pVC / fVC
Water Quality	<p>As discussed in Impact Statement Section 7.7 (pVC Water Quality), a receiver water quality model shows that observable changes in water quality from baseline conditions are constrained to the LSA. All predicted concentrations for all modelling nodes are below water quality guidelines protective of aquatic life (WQG PAL), with the exception of cobalt in Unnamed Watercourse 1 during operations. During the closure phase (and post-closure), all modelled parameters are predicted to be less than WQG PAL, or equivalent to baseline conditions where baseline concentrations are greater than WQG PAL. Changes to overall water quality at the RSA boundary at Pakwash Lake outlet do not occur for all Project phases.</p> <p><u>Key Mitigation Measures⁽¹⁾</u>: None required with planned design and operation measures.</p> <p><u>Predicted Change After Mitigation⁽¹⁾</u>: Observable changes in water quality from baseline conditions are constrained to the LSA during all Project phases. In the operations phase, predicted concentrations for all modelled parameters are well below the identified water quality guidelines for protection of aquatic life, or equivalent to baseline conditions where baseline concentrations are greater than these guidelines (arsenic and phosphorus), with the exception of cobalt concentrations at a node in Unnamed Watercourse 1. During the closure phase (and post-closure), all modelled parameters are predicted to be less than water quality guidelines for protection of aquatic life, or equivalent to baseline conditions where baseline concentrations are greater than water quality guidelines for protection of aquatic life (arsenic and phosphorus).</p>
Vegetation Communities	<p>As discussed in Impact Statement Section 7.8 (pVC Vegetation Communities), tree clearing, vegetation removal, and ground disturbance during construction will result in changes in the amount of available vegetation communities within the PA. The removal of riparian, wetland, and upland communities within the PA results in approximate losses of 5.01%, 4.50%, and 6.41% respectively in the LSA, with decreases of less than 2% in the RSA. For instance, changes in groundwater and surface water resulting from the Project may affect the condition of adjacent vegetation and wetland communities and habitat during the construction, operation and closure of the Project, which may in turn affect those species that rely on the vegetation and wildlife habitat, thereby influencing access and availability of traditional foods. Although it is noted that changes to vegetation communities are expected to be localized to the PA. Mitigation will include minimizing the project footprint, progressive rehabilitation, and targeted management of invasive species. With the implementation of the design and mitigation measures, changes to vegetation communities are expected to be localized to the PA. Restoration and revegetation efforts during closure are anticipated to support the recovery of vegetation communities.</p> <p><u>Key Mitigation Measures⁽¹⁾</u>: Proposed design and mitigation measures, include minimizing the Project footprint, targeted management of invasive species and restoration and revegetation where feasible during operations and closure.</p> <p><u>Predicted Change After Mitigation⁽¹⁾</u>: With the implementation of the proposed design and mitigation measures, direct changes to vegetation communities after mitigation are expected to be localized to the PA. Indirect effects are expected to be confined to the PA and its immediate surroundings. Restoration and revegetation efforts during closure are anticipated to support the recovery of vegetation communities, with long-term positive outcomes for ecosystem function and diversity, although re-establishment is a long-term process.</p>

Linked Valued Component	Summary of Potential Changes Identified in Linked pVC / fVC
Wild Rice	<p>As discussed in Impact Statement Section 7.9 (pVC Wild Rice), wild rice was documented as part of baseline surveys within the PA in Unnamed Waterbody 1, and other locations in the LSA. A direct permanent loss of the Wild Rice at Unnamed Waterbody 1 will occur as a result of Project development. To mitigate these losses, Great Bear Resources has funded a Wild Rice Enhancement Project at the request of LSFN and WFN, which aims to address the decline in historic wild rice production on Wabauskang Lake. The project will develop potential enhancement options for implementation in 2026. The Wild Rice Enhancement Project is expected to offset potential effects on Wild Rice stand abundance caused by the Project in the broader geographical context.</p> <p><u>Key Mitigation Measures⁽¹⁾</u>: Great Bear Resources Project has funded a study by Northern Bioscience and Harris Ecological Consulting, upon the request of LSFN and WFN. The purpose of this study is to help address the loss of historic wild rice (Manoomin) production on Wabauskang Lake. Potential effects on wild rice are anticipated because of an overprint at Unnamed Waterbody 1 by Project infrastructure. The enhancement study is anticipated to offset potential effects on wild rice as a result of the Project. The wild rice enhancement location, on WFN reserve, has been recommended by the WFN and supported by LSFN. The study will develop potential enhancement options for implementation in 2026. In addition to habitat restoration, the project will incorporate education and knowledge-sharing on sustainable harvesting practices, supporting long-term stewardship by community members. This collaborative initiative could support broader wild rice revitalization projects in the future and could be shared with other Indigenous communities in the local area if there is interest, advancing the understanding, and recovery of this culturally and ecologically important plant. Together, these efforts will support a more holistic understanding of Wild Rice habitats, cultural values, and their continued importance to the region.</p> <p><u>Predicted Change After Mitigation⁽¹⁾</u>: The zone of changes to Wild Rice is predicted to be within Unnamed Waterbody 1, with mitigation proposed as an offset at the WFN reserve.</p>
Moose	<p>As presented in Impact Statement Section 7.10 (pVC Moose), fractional changes to moose density are expected but with the implementation of mitigation measures and project design (i.e., restoration and revegetation), there are no long-term declines in population of moose expected. Indirect effects are expected to be negligible and largely confined to the PA, resulting in no effects on changes to habitat quality. Some (~9.2 during construction and ~26 during operations) moose may be displaced from the PA, but models predict they will disperse to adjacent areas in the LSA. Regular Moose surveys will be conducted to monitor changes in density and distribution over time. Moose-specific density surveys to monitor populations against the wildlife management unit (WMU; or other provincial) targets.</p> <p><u>Key Mitigation Measures⁽¹⁾</u>: None required with planned Project design and operations.</p> <p><u>Predicted Change After Mitigation⁽¹⁾</u>: The removal of the PA results in a fractional change to habitat abundance and connectivity. No critical habitat types are eliminated at the regional scale, and overall habitat diversity and connectivity are maintained within the RSA. With the implementation of the proposed design and mitigation measures, changes to the abundance of Moose habitat are not expected after closure. There will be a change in the risk of mortality as wildlife - vehicle collisions are possible when roads and vehicular traffic are present and / or increased due to the Project during construction, operations, and closure. This will be limited after the active closure period and removed post-closure. Indirect effects to Moose during the construction, operations and closure phases, may extend into the LSA but cease after closure activities end.</p>

Linked Valued Component	Summary of Potential Changes Identified in Linked pVC / fVC
Other Wildlife and SAR	<p>As presented in Impact Statement Section 7.11 (pVC Other Wildlife) and Impact Statement Section 7.12 (pVC SAR), although modeling predicts marginal disturbance and direct habitat loss within the PA for some wildlife species, there are no population-level changes to any wildlife species as a result of the Project, including the Boreal Caribou which is a SAR. Overall, there are no Project features expected to jeopardize any wildlife species or populations.</p> <p><u>Key Mitigation Measures⁽¹⁾</u>: None required with planned Project design and operations.</p> <p><u>Predicted Change After Mitigation⁽¹⁾</u>: Habitat for other wildlife will be reduced within the PA from vegetation removal required for Project development, but habitat losses are low at a regional scale. The closure phase will directly increase functional other wildlife habitat which will continue to increase post-closure.</p> <p>There will be a change in the risk of mortality due to wildlife - vehicle collisions, which are possible when roads and vehicular traffic are present. This will be limited after the active closure period and removed post-closure.</p> <p>Direct habitat losses will occur within the PA during construction, but no critical SAR habitats will be eliminated, and overall habitat diversity will be maintained within the RSA. Therefore, there are no effects on the relative abundance of habitat after mitigation.</p> <p>There will be a change in the risk of mortality due to wildlife - vehicle collisions, which are possible when roads and vehicular traffic are present. This will be limited after the active closure period and removed post-closure.</p> <p>Indirect effects to SAR during the construction, operations and closure phases, may extend into the LSA but cease after closure activities end.</p>
Local and Regional Economy	<p>As presented in Impact Statement Section 7.16 (pVC Local and Regional Economy), in total, across all of Canada, the Project will create 113,130 person-years of employment and \$9.2 billion in labour compensation (including direct, indirect and induced effects) through all Project phases, and will increase gross domestic product by \$18.9 billion through direct, indirect, and induced effects (over the whole assessment period). In total, over the whole assessment period, the Project will generate \$6.3 billion in government revenues, of which the provincial government earns \$3.2 billion and local governments earn an additional \$720 million.</p> <p><u>Key Mitigation Measures⁽¹⁾</u>: None required with planned Project design and operations.</p> <p><u>Predicted Change After Mitigation⁽¹⁾</u>: The Project will have a net positive effect on the local and regional economy through employment and labour income, opportunities and income for local and regional businesses, and increased revenues to local and regional municipalities. The zone of changes is dominantly within the RSA. The remainder of the potential direct, indirect and induced economic effects are expected to occur in the rest of Ontario and Canada.</p>
Migratory Birds	<p>The potential effects on migratory birds are assessed in Impact Statement Section 9 (fVC Migratory Birds). Potential effects on migratory birds may result from Project-related activities such as vegetation removal; changes in air quality; change in risk of mortality for some species; and direct loss of habitat in the PA. The loss of migratory bird habitat is expected to be greatest during the construction phase of the Project as a result of vegetation removal and earth moving activities, with some rehabilitation occurring during the operations and closure phases. Habitat suitability models developed for the Project identified that no migratory bird would lose more than approximately 2% of their habitat within the RSA, and that most of the habitat within the RSA is suitable for many birds. With the implementation of mitigation measures, the Project is expected to have a minimal residual effect on the abundance of migratory bird habitat and Project-related effects on migratory birds are not significant.</p> <p><u>Key Mitigation Measures</u>: As described in Impact Statement Section 9 (fVC Migratory Birds), mitigation measures for migratory birds include but are not limited to minimizing vegetation clearing and wetland disturbance, following regulatory timing windows, and discouraging bird nesting</p>

Linked Valued Component	Summary of Potential Changes Identified in Linked pVC / fVC
	<p>within the PA when necessary. Measures will also address indirect effects by controlling dust, noise, and lighting using dust suppression, noise controls, and bird-friendly lighting designs, particularly during migration periods.</p> <p><u>Predicted Change After Mitigation:</u> As described in Impact Statement Section 9 (fVC Migratory Birds), there will be pathways to both direct and indirect effects to density and population of migratory birds from Project construction and operation. With the implementation of mitigation measures, the magnitude of the effect on migratory birds is low (Level I).</p>
Fish and Fish Habitat	<p>The potential changes to fish and fish habitat are assessed in Impact Statement Section 8 (fVC Fish and Fish Habitat). Site preparation activities for the mine site area including clearing, grubbing, bulk earthworks and the establishment of onsite road infrastructure interacts with fish and fish habitat. These activities will result in overprinting (infilling or excavation) fish habitat in portions of Unnamed Watercourse 1, Unnamed Watercourse 3 and Unnamed Watercourse 6, which will have a direct effect on fish habitat and fish communities. These land-based Project activities can result in pathways to potential effects due to a change in erosion from ground disturbance activities in the PA that could change concentrations of nutrients and suspended solids as well as changes in bank structure and thermal inputs in the surrounding waterbodies from vegetation clearing and ground disturbance which may affect fish habitat and fish health. The establishment of onsite fish habitat offsetting and compensation measures will interact with fish and fish habitat and result in pathways to potential effects due to direct overprinting and ground disturbance adjacent to fish habitat. The construction of a diversion embankment (east dam), excavation of a diversion pond (east pond) and construction of a new diversion channel to the origin of Unnamed Watercourse 6B-02 (east channel) will overprint existing fish habitat and will have a direct effect on fish habitat and fish communities. Ground disturbance and in-water works associated with this measure could result in erosion and sedimentation that could lead to a change in water quality and have an effect on fish health. The operation of this measure will result in increased flows to Unnamed Watercourse 6B-02 and will have a direct effect on fish habitat. In addition, the development of a pond complex in the floodplain of Dixie Creek that will be connected to Dixie Creek to provide alternate fish access to new habitat areas will require ground disturbance that could result in erosion and sedimentation leading to a change in water quality and an effect on fish health. Overall, loss of fish habitat; reductions in flow; alteration of fish habitat due to project activities and vibration; mobilization of suspended solids and potential for release of contaminants; etc. may result in changes to fish and fish habitat. With such an authorization under the <i>Fisheries Act</i> and related offsetting and compensation in place, the loss of fish habitat will be fully mitigated such that no residual effects remain.</p> <p><u>Key Mitigation Measures:</u> As described in Impact Statement Section 8 (fVC Fish and Fish Habitat), mitigation measures include but are not limited to a Fisheries Management Plan, Erosion and Sediment Control Plan, Fish Habitat Offsetting and Compensation Plan (FHOCP; Impact Statement Appendix L-2; WSP 2025b), Fish Rescue Plan, and environmental monitoring.</p> <p><u>Predicted Change After Mitigation:</u> As described in Impact Statement Section 8 (fVC Fish and Fish Habitat), as required by federal legislation and policy, the change to 21.74 ha of fish habitat will be counterbalanced with 25.21 ha of fish habitat offsetting and compensation measures (considered mitigation in the context of the Impact Assessment) as a component of the Project. Therefore, with the implementation of mitigation measures, including the site wide integrated water management and treatments system and the FHOCP, residual effects to fish and fish habitat are not predicted.</p>

Notes:

1 Information related to key mitigation measures and predicted change after mitigation was taken directly from Indigenous Peoples sections (Impact Statement Section 10 to 14; fVC)

cm = centimetre; fVC = federal valued component; FHOCP = Fish Habitat Offsetting and Compensation Plan; ha = hectare; %HA = percent highly annoyed; km = kilometre; LSA = Local Study Area; LSFN = Lac Seul First Nation; MECP = Ontario Ministry of the Environment, Conservation and Parks; PA = Project Area; POR = point of reception; pVC = pathway valued component; RSA = Regional Study Area; SAR = species at risk; WFN = Wabauskang First Nation; WQG PAL = water quality guideline for the protection of aquatic life.

The approach used in the assessment section included characterizing potential effects from Project activities on Indigenous health and wellness, with incremental changes compared to baseline conditions. This allowed for characterization of potential effects to take into account existing environmental, social, economic and cultural conditions that are currently experienced by Indigenous communities, and identify whether Project activities will result in a residual change after mitigations during construction and operations phases. For closure, the assessment assumed that Project activities cease and the Mine proceeds into the closure phase and post-closure. In order to assess potential effects to Indigenous health, the approach outlined in the Health Canada (2024a) interim HIA guidance, the methodology outlined in Section 2 of this report, and the methodology described in Impact Statement Section 6, were applied within the HIA. Additional detail on specific analytical approaches used in the assessment of potential effects is provided in Section 6.1 and 6.2 below, and in the HHERA Report (Impact Statement Appendix N-1; WSP 2026a).

This section of the HIA includes key components related to the assessment of potential effects on Indigenous health from changes to biophysical and social determinants of health. The assessment for each determinant is organized into the following sub-sections:

- **Biophysical Determinants of Health** (Section 6.1) / **Social Determinants of Health** (Section 6.2)
- **Health Linkages:** describes in general terms, how this determinant has the potential to directly and / or indirectly affect human health
- **Existing Conditions:** describes the existing conditions relevant to the assessment of that determinant; this may include baseline health data (Attachment A), or existing conditions information from upstream environmental, social, economic and cultural conditions that are relevant to health
- **Potential Effects:** details the assessment of potential effects for each determinant, including the evidence used in the assessment, assessment of potential effects (beneficial and adverse) for all project phases, and a summary of potential effects, including affected populations and GBA Plus considerations
- **Evidence for Assessment:** a description of the evidence relied upon for the assessment of potential effects is provided including information from upstream pVC and fVC sections, HHERA results, IK, results from upstream assessments within the Indigenous Peoples sections (Impact Statement Sections 10 to 14; fVC), primary and grey literature, and influence of baseline conditions, as applicable for each determinant
- **Construction:** assessment of potential effects on Indigenous health during the constructions phase; any unique effects identified for an individual Indigenous community are discussed, where applicable
- **Operations:** assessment of potential effects on Indigenous health during the operations phase; any unique effects identified for an individual Indigenous community are discussed, where applicable
- **Closure:** assessment of potential effects on Indigenous health during the closure phase; any unique effects identified for an individual Indigenous community are discussed, where applicable
- **Mitigation and Enhancement Measures (per determinant):** this section summarizes the mitigation and / or enhancement measures identified for each determinant based on the assessment of potential effects, and provides a rationale for its inclusion / influence
- **GBA Plus Considerations:** GBA Plus considerations for each determinant of health, including analysis of intersectionality, is described as per the methodology in Section 2.4.3.3
- **Summary of Potential Effects:** a summary of the potential effects on Indigenous health at the individual determinant level is provided, including the direction of effect, scale, affected populations, GBA Plus and summary of mitigation and enhancement measures

- **Residual Effects (Section 8):** based on the results from the assessment of potential effects for each determinant of health, an overall determination of effect on Indigenous health is made, including identification of potential residual effects, where applicable.

Collectively, these sections summarize the findings for each determinant of health (biophysical and social) individually, for the purpose of identifying potential mitigations and formatting a collective evidence base for the assessment of changes to health (Indigenous Peoples) for each community.

6.1 BIOPHYSICAL DETERMINANTS OF HEALTH

The following sections describe the assessment of changes to biophysical determinants of health, including changes to air quality, multi-media environmental quality, access and availability of water and traditional foods, and sensory disturbances (sound vibration and light). For changes to air, multi-media environmental quality and access and availability of traditional foods, the potential effects assessment relies on the findings of the HHERA; while a summary of HHERA inputs, assumptions, methodology and results are provided herein, for a complete and detailed account of the HHERA, see Impact Statement Appendix N-1 (WSP 2026a). In addition, a Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies (WSP 2026b) is included as Impact Statement Appendix T. The results of the assessment of mercury from both the HHERA and Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies have been incorporated into the HIA in Section 6.1.2.

Project activities may emit chemical parameters into air (through fugitive dust, vehicle exhaust and direct facility emissions) and water (through permitted emissions and runoff). Consequently, the Project may result in changes in environmental quality (air, soil, water, sediment, traditional foods [wild game, fish, plants]). Human and / or ecological receptors (i.e., wildlife [birds and mammals], aquatic life [aquatic plants and invertebrates, amphibians, fish] and terrestrial plants and invertebrates) around the Project may be exposed to POPCs originated from the Project present in environmental media through inhalation, ingestion, incidental ingestion, dermal contact, and ingestion of food items which have taken up POPCs from abiotic media (i.e., air, soil, water, sediment) and biotic media (i.e., plants and animals). The HHERA, which consists of a human health risk assessment (HHRA) and an ecological risk assessment (ERA; including both a terrestrial and aquatic ERA), evaluates cumulative exposure via relevant pathways to determine potential health risks from the Project. The HHERA evaluates exposures and associated risks for baseline (i.e., existing conditions) and for each Project phase (i.e., construction, operations and closure).

All parameters have the potential to cause adverse effects. However, the severity of effect (risk) depends on the receptor being exposed, the route, dose and duration of exposure and the inherent toxicity of the parameter. The three components (receptor, exposure pathways and parameter at concentrations sufficient to result in adverse effects) must be present for the possibility of an unacceptable risk to occur, as illustrated in Figure 6-1.

The HHERA process involves four fundamental steps, problem formulation, exposure assessment, toxicity assessment and risk characterization. Each of these steps is summarized below and illustrated in Figure 6-2.

Figure 6-1: Conceptual Diagram Illustrating the Factors Required for a Health Risk to Occur

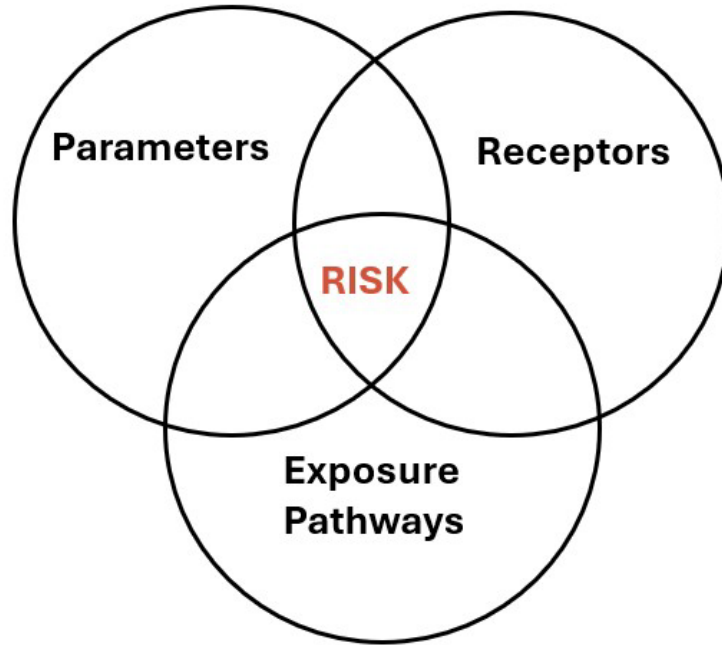
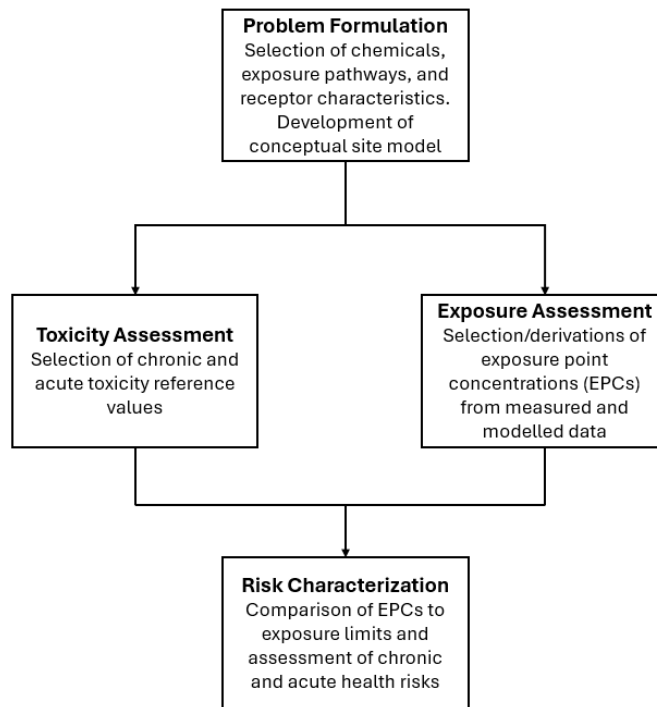


Figure 6-2: Conceptual Diagram Illustrating the HHERA Process



Problem Formulation

The problem formulation is the initial screening and decision-making step which includes three key aspects: identification of POPCs, characterization of receptors that could be exposed to the POPCs and characterizing the exposure pathways by which exposure to the POPCs may occur. The problem formulation identifies which receptor-POPC-exposure pathway combinations require further quantitative analysis and which do not.

POPCs are identified by comparing concentrations (i.e., measured and / or predicted) of parameters in environmental media to screening criteria protective of human health and ecological health. Receptors are identified based on the identification of persons (human health receptors) or non-human individual, species, population, community, habitat or ecosystem (ecological receptors) with the greatest potential to be adversely affected by POPC exposures originating from the Project in the LSA and RSA. The receptors selected for evaluation are based on current and future use of the area around the Project and are intended to represent a range of possible exposure scenarios. Exposure pathways are identified based on reasonable yet conservative cases that consider how each of the receptors identified for assessment in the HHERA may be exposed to POPCs from the Project.

Exposure Assessment

The exposure assessment is conducted for the relevant receptor-POPC-exposure pathway combinations identified in the problem formulation. This step involves the determination of exposure point concentrations (EPCs) for each parameter in the various environmental media, either by direct measurement or predictive modelling. The EPCs are used directly, or to estimate the dose of the POPC received by receptors for each exposure pathway, as applicable. The dose of a parameter depends on its concentration in various media (e.g., soil, sediment, air, water, and food), the amount of time that a receptor might be in contact with these media, and the physiological characteristics of the receptor (e.g., ingestion rates, inhalation rates, body weights, and dietary preferences). The total estimated intake of POPCs for a receptor is calculated via the sum of intakes from each exposure pathway identified in the problem formulation.

Toxicity Assessment

The toxicity assessment is completed for the relevant POPCs identified in the problem formulation and involves the identification of the toxic endpoints for each. It involves the determination of either: a) a maximum dose or concentration of each parameter to which a receptor can be exposed without an appreciable amount of adverse health effect occurring (threshold dose or concentration); or b) the relationship between dose and incidence or severity of adverse effect (dose-response identification). In most cases the toxicity assessment involves the selection of a benchmark or toxicity reference value (TRV) recommended by an appropriate regulatory agency. For human health, sources for TRVs include Health Canada, Environment and Climate Change Canada (ECCC), MECP or the Canadian Council of Ministers of the Environment (CCME). For ecological health, sources for TRVs include Federal Contaminated Sites Action Plan and CCME. In cases where a regulatory published TRV is not available, a TRV is identified from an evaluation of the most current state of science, based on a review of peer-reviewed study manuscripts presenting scientific data. Both the type of health effect (e.g., cancer and non-cancer) and the pathway by which a receptor is exposed to the parameter (e.g., ingestion, inhalation) are considered when selecting appropriate benchmarks or TRVs.

Risk Characterization

The risk characterization step involves qualitatively and / or quantitatively evaluating the potential risks for the receptor-POPC-exposure pathway combinations identified in the problem formulation step. In the risk characterization, the results of the exposure assessment are compared with the findings of the toxicity assessment to determine whether there is potential for POPCs to pose adverse human or ecological health effects. The calculated risk estimates are compared to a benchmark or TRV to determine the level of acceptability.

For human health, risk estimates for non-carcinogenic (i.e., threshold) POPCs are expressed as a hazard quotient (HQ). When considering multiple exposure pathways through cumulative exposure including background exposures, an HQ of less than 1.0 indicates that exposures would not be expected to result

in adverse human health effects (Health Canada 2024b). For carcinogenic (i.e., non-threshold) POPCs, risk estimates are expressed as incremental lifetime cancer risk (ILCR), as recommended by Health Canada (2024b). ILCR values were compared to a target risk value of 1 in 100,000 (i.e., 1E-05) (Health Canada 2024b). For diesel particulate matter (DPM), in addition to calculating ILCRs, Health Canada (2016b) recommends an approach to provide an estimate of additional lung cancer mortality (ALCM) associated with additional DPM emissions related to the Project for chronic exposure. The estimated ALCM values are typically calculated for each Project phase, and as a total incremental ALCM calculated as the sum of the ALCM for all the Project phases that were assumed to emit DPM. The ALCM values are compared against a benchmark value of 1, representing an incremental cancer risk of 1 in 100,000.

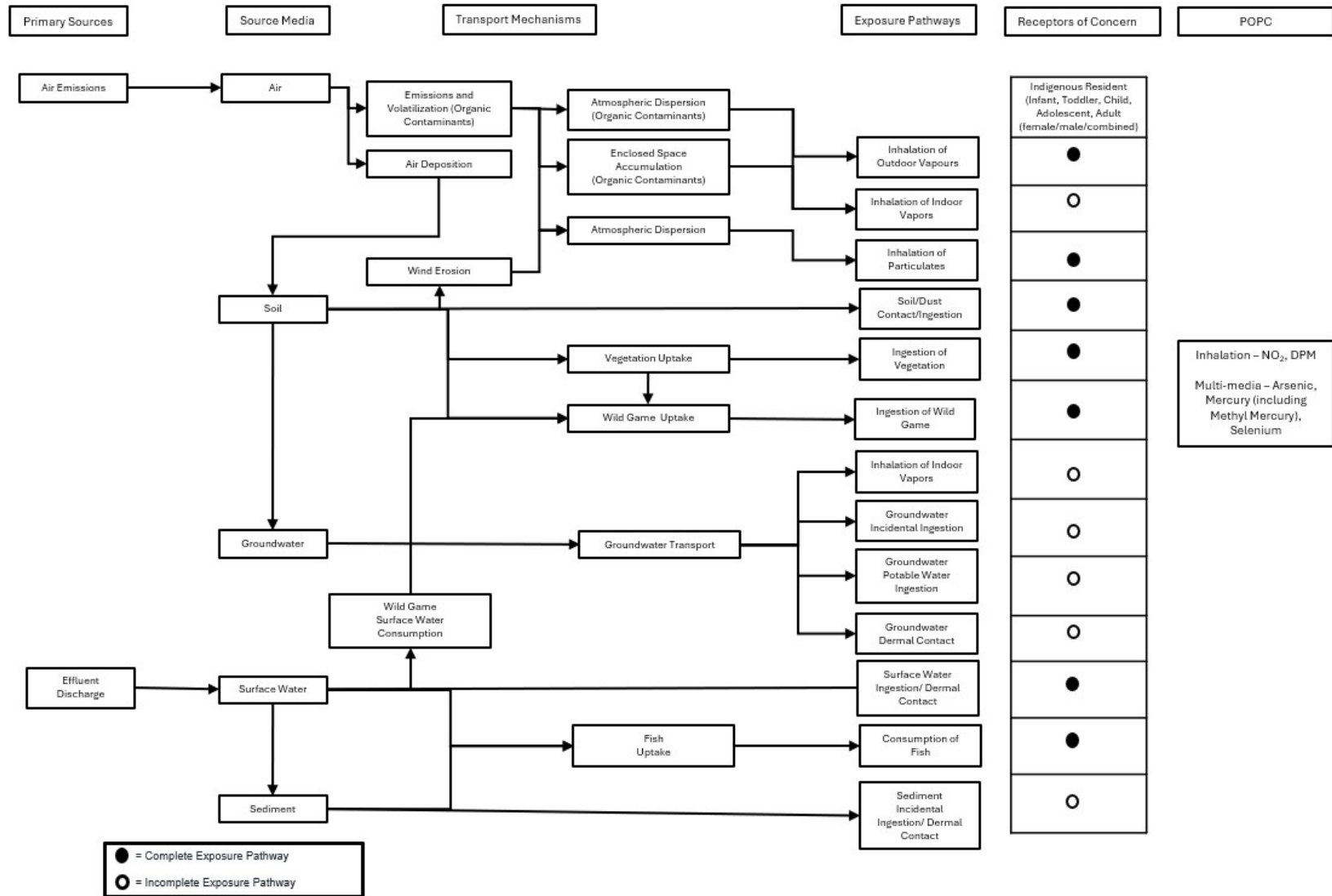
For ecological health, risk estimates were expressed as HQs for the POPCs and compared to a target risk value of 1.0 because baseline or background exposures were included in the ERA.

Given that conservative assumptions are used by regulatory authorities in the development of the TRVs, risk estimates greater than target risk values (i.e., HQ of 1, ILCR of 1E-05) do not necessarily indicate that adverse health effects will occur, but that the likelihood that an adverse effect will increase as the value rises above the target risk value.

An uncertainty assessment is another step which runs in parallel to the other steps in the HHERA process. Uncertainty is an inherent aspect of the risk assessment process due to necessary assumptions regarding the Project site, receptor characteristics and mathematical modelling. Uncertainties may arise from a number of areas due to some inherent lack of precision about the true value of a parameter (e.g., body weight, inhalation rate, ingestion rate). Uncertainties are accounted for by assuming conservative receptor and exposure scenarios to exaggerate exposures and help avoid underestimation of risks.

Full details of the regulatory context, methodology, assumptions and results of the HHERA are presented in Impact Statement Appendix N-1 (WSP 2026a). Conceptual site models for the HHERA identifying the relevant POPCs, receptors and exposure pathways for human health are presented in Figure 6-3 .

Figure 6-3: Conceptual Site Mode for HHERA – Human Health



6.1.1 AIR QUALITY

This section includes an assessment of Indigenous health from changes in air quality, including health linkages, relevant existing conditions, potential effects (construction, operations and closure), mitigation and enhancement measures and GBA Plus considerations.

6.1.1.1 HEALTH LINKAGES

The following section describes the generic exposure pathways and scenarios by which health can be influenced by air quality. The linkages described here are not specific to one sector or community, instead, this section provides an overview of the relevance of individual environmental media as determinants of Indigenous health.

Air quality has both direct and indirect effects on human health. It is well-established in scientific literature that poor air quality has the potential to result in a variety of negative health outcomes, particularly for certain vulnerable groups. Specifically, age (i.e. children and the elderly), pre-existing conditions (i.e. individuals with heart and lung disease) and socio-economic status (i.e. proximity of housing to emissions sources, pre-existing health status) have been found to increase susceptibility to poor air quality (US EPA 2024). Air pollution is a general term used to describe gaseous, liquid and solid pollutants that may be present in the air as a result of either human activity or natural sources. Natural sources of air pollution include wind-blown dust, forest fire smoke, volcanic ash and gases, and methane from organic matter decomposition (NIEHS 2024). There are also many anthropogenic sources of air pollution, including vehicular and equipment exhaust, industrial processing or global anthropogenic emissions, and fuel use for home heating.

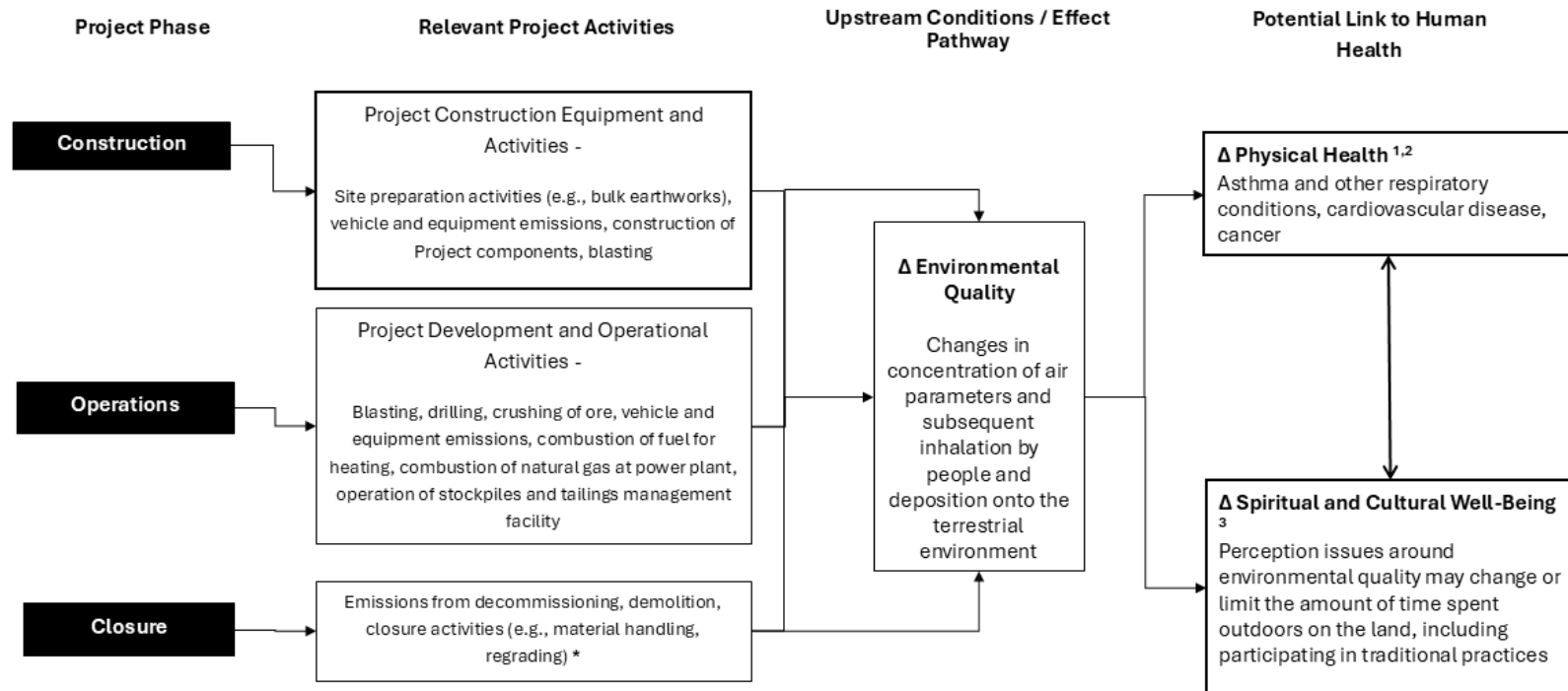
Industrial developments, including mining, is another example of a potential source of air pollution. During mining activities (e.g., excavation, material transport), potentially contaminant-impacted dust and particulates can be released into the air, influencing air quality, which may result in potential health consequences for exposed individuals (i.e. humans in close proximity to mining activity) (Kunak Air 2023). Common air pollutants can include but are not limited to carbon oxides, nitrogen oxides (NO_x), sulfur oxides (SO_x), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and metals (NIEHS 2024). Airborne dust, also known as particulate matter (PM), can affect human health, particularly when the particles are smaller than 10 microns (PM₁₀) as these particulates can infiltrate into the human respiratory system (Health Canada 2021; Morakinyo et al. 2016).

As with many other environmental stressors, air pollution represents an important risk factor for many health conditions. Air pollution primarily affects humans via the inhalation exposure pathway (i.e., inhaling parameters from air into the lungs, through the respiratory system) (NIEHS 2024). The public health concerns most commonly linked to very high levels of air pollution include respiratory disease, cardiovascular disease, and cancer (Health Canada 2021; NIEHS 2024). Additionally, PM can also transport other substances, including various biological compounds, such as pathogens or pollen, as well as organic chemicals, heavy metals, or acids, potentially leading to various health concerns, if humans are exposed (Morakinyo et al. 2016). As with any given parameter, the health risk is dependent on the level and duration of the exposure.

An effect pathway diagram showing potential Project activities during all phases, relevant changes / exposure pathways and health and wellness effects is provided in Figure 6-4 to graphically depict the potential linkages between the Project and human health outcomes. These diagrams show the potential pathways of exposure or change in upstream conditions that may result in changes to health; however, the assessment of potential effects (Section 6.1.1.3) identifies specific pathways where changes are predicted to occur.

Figure 6-4: Effect Pathway Diagram for Air Quality

Air Quality



Δ Potential for effect
 Indicates 'a potential change in'
 * Notable sources of air parameter emissions are not expected after Active Closure

Sources:
 1 – Health Canada 2021; 2 – Morakinyo et al. 2016; 3 – Salerno et al. 2021

6.1.1.2 EXISTING CONDITIONS

This section provides a summary of existing conditions relevant to Indigenous health from changes in air quality. The available baseline (existing conditions) data for Indigenous health, including physical health and wellness (e.g., chronic conditions, communicable diseases, demographics), health-related behaviours (e.g., food consumption, physical activity, substance use) and mental wellness (depression, stress / anxiety, perception of risk) are provided in the Baseline Health Profile (Attachment A) and should be viewed for detail. In addition, a description of existing conditions for air quality is provided in the following Impact Statement Sections:

- Air Quality (Existing Conditions): Impact Statement Section 2.4 (Environmental Setting – Air Quality) and Impact Statement Section 7.2 (pVC Air Quality – Existing Conditions).

A brief description of existing conditions related to air quality is presented below to provide context for the assessment of biophysical determinants of health. In addition, the HHERA includes baseline (existing conditions) data for identified POPCs in air in order to show the incremental effect of the Project on baseline; these results are provided below in the assessment of potential effects for all Project phases (Impact Statement Appendix N-1; WSP 2026a). Collectively, the information from the upstream pVC and the HHERA baseline data provided the existing conditions related to air quality.

Air

Air quality baseline data were used to characterize the local and regional ambient air quality prior to construction and operations of the Project. Baseline ambient air quality at the Property is influenced by natural sources, such as pollen from vegetation and wildfire-related air pollutants, as well as anthropogenic sources, such as traffic, construction, heating of buildings, wind-blown particulate from exposed areas, mining, and power generation in the local area. Air quality is also influenced by transboundary transport of parameters in air from outside the local area into the local area. During construction and operations of the Project, the main sources of air emissions are expected to include fugitive dusts and Criteria Air Parameters (also called Criteria Air Contaminants) such as nitrogen dioxide (NO₂), sulphur dioxide (SO₂), carbon monoxide (CO), ozone (O₃), suspended particulate matter (SPM), PM₁₀, particulates less than 2.5 micrometres in diameter (PM_{2.5}), DPM, and metals from fuel combustion.

An onsite baseline air monitoring program was undertaken from July 2022 to August 2024 to characterize existing conditions in the LSA (measuring SPM, PM₁₀, PM_{2.5}, metals, NO₂, SO₂, VOCs, PAHs, DPM, silica, and dustfall). The baseline field program confirmed that baseline air concentrations were below respective air quality screening criteria (i.e., ambient air quality criteria [AAQCs]). As an example, the 24-hour 90th percentile SPM concentration for the program was 18% of its AAQC, the highest metal of interest was cadmium at 4% of its 24-hour AAQC, and the highest baseline concentration relative to its AAQC was benzene at 76% of its annual AAQC. The full ambient air baseline dataset is provided in the Air Quality Assessment (Impact Statement Appendix D; WSP 2025a).

Desktop research on regional air quality was also conducted. Data from the ECCC National Air Pollutant Surveillance (NAPS) stations in Thunder Bay and Pickle Lake, Ontario, and Winnipeg, Manitoba were reviewed in order to compare conditions on site to regional conditions. Discrete concentrations of PM_{2.5} measured on site were reasonably consistent with the regional NAPS stations, while continuous concentrations measured on site were higher than regional NAPS stations. Passive and continuous NO₂ levels on site were much lower than regional NAPS stations. Passive SO₂ levels on site were similar to the Winnipeg NAPS station, while continuous levels were slightly higher than the Winnipeg NAPS station.

Data was preferentially and primarily collected on the Project site to develop a robust and representative existing conditions dataset. Side-by-side comparisons of the onsite methods and ECCC NAPS data for each air parameter was also conducted. These urban NAPS stations will overestimate air concentrations on site as they are influenced by urban sources (e.g., traffic, industry and residential heating) and are considered to be a conservative baseline; this is particularly true where the 90th percentile of a measured dataset are used. The only regional data used in the modelling exercise were for CO and O₃; all other air parameters use data collected on site. Although O₃ is monitored and regulated as an indicator of air quality in Canada, there are no anticipated sources of ozone associated with the Project. Ozone formed

from the release of NO₂ and VOCs is not expected to have an appreciable effect on air quality in the LSA and RSA.

While existing conditions for air quality are presented above, it is noted that baseline human health risk results were identified in the HHERA inhalation assessment (Impact Statement Appendix N-1; WSP 2026a). As discussed in this section, the HHERA inhalation assessment evaluated parameters in air against screening criteria selected using a different hierarchy than Impact Statement Section 7.2 (pVC Air Quality), and considered different toxicological endpoints (e.g., carcinogenic or non-carcinogenic effects). Baseline health risks to human health were evaluated in the HHERA inhalation assessment through the calculation of HQs for non-carcinogenic parameters; for carcinogen parameters, baseline ILCRs were not calculated as risk assessment guidance requires ILCR estimates to reflect Project-related impacts only. These results are presented in the assessment of potential effects for all Project phases (Section 6.1.1.3).

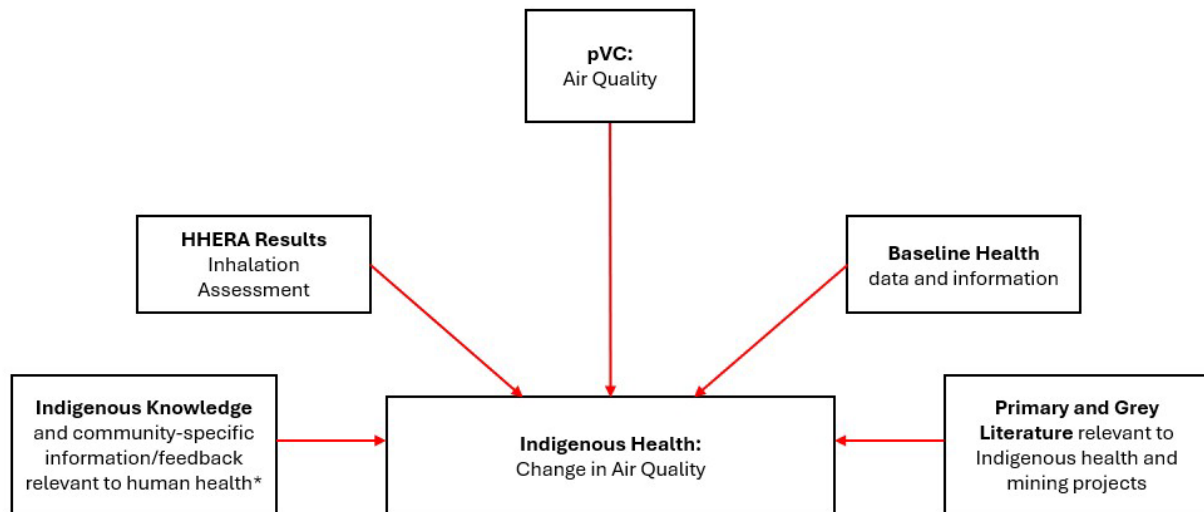
6.1.1.3 POTENTIAL EFFECTS

The following sections provide the inputs, assumptions, results from upstream analyses, Project information, primary and grey literature, and other evidence that supports the assessment of changes in air quality in the context of Indigenous health. The assessment of potential effects first presents the available evidence, acknowledging any limitations and assumptions, followed by an assessment by Project phase (i.e., construction, operations and closure). Finally, a summary of the assessment findings is presented with a discussion regarding mitigation and / or enhancement measures, and GBA Plus considerations.

EVIDENCE FOR ASSESSMENT

The evidence used in the assessment of potential effects to Indigenous health from changes in air quality, included (i) findings from relevant upstream valued components (pVCs and fVCs); (ii) results from the HHERA; (iii) primary and grey literature sources, (iv) IK and community-specific information, and (v) baseline health information (Figure 6-5).

Figure 6-5: Inputs for Air Quality



Note: additional linkages between individual inputs are not shown
 * Where relevant and available

Each of these sources of information and evidence are further described in the sections below. Collectively, this body of evidence informed the assessment of potential effects described for each Project phase (i.e., construction, operations and closure).

Upstream Valued Components (pVCs)

The assessment of potential effects for the linked pVCs are important in that they identify predicted changes in those upstream conditions that, in turn, have the potential to affect Indigenous health via changes in air quality. A summary of the assessment, key mitigation measures, and predicted change after mitigation identified in the pVCs and fVCs linked to Indigenous health, including Air Quality, is provided in the Section 6 (Table 6-2).

One upstream pVC (Air Quality) was used as an input in the assessment of potential effects to Indigenous health from changes in air quality. The air quality assessment identified that predicted air quality concentrations from the Project were below the applicable air quality screening criteria. Air quality and human exposure was also evaluated in the HHERA inhalation assessment to identify potential risks to health (Impact Statement Appendix N-1, WSP 2026a), the results of which are summarized below (see HHERA Results below).

It is noted that while the Air Quality pVC identified that predicted concentrations of air parameters from the Project were below applicable air quality criteria for emissions limits, the HHERA inhalation assessment evaluated parameters in air against screening criteria selected using a different hierarchy and considered toxicological endpoints (e.g., carcinogenic or non-carcinogenic effects) for human health. For example, the Air Quality pVC selected air quality screening criteria primarily from provincial agencies to comply with Ontario Regulation 419/05 standards required to obtain the provincial Environmental Certificate of Approval (ECA). Where criteria were absent, screening was not required; however, the HHERA approach slightly differs. Air quality criteria selected in the HHERA inhalation assessment were obtained from various provincial, federal and state agencies for the applicable averaging periods, and were preferentially selected based on sources with supporting documentation, those based on more current studies or studies that were more relevant to human health.

HHERA Results

As detailed in the HHERA (Impact Statement Appendix N-1; WSP 2026a), the human health component of the assessment considered exposure from all applicable, complete exposure pathways (i.e., environmental media which would be impacted by Project activities for which a human exposure route exists). The HHERA included an inhalation assessment to evaluate the potential effects to Indigenous health associated with changes to air quality from Project activities.

The HHERA inhalation assessment evaluated the following:

- **Receptors:** Indigenous Resident – This receptor was considered representative of Indigenous individuals who are assumed to reside in the LSA or RSA year-round for their entire lifetime
- **POPCs:** NO₂ and DPM. Concentrations of other Project parameters were below air quality screening criteria protective of human health; therefore, no further assessment was needed for those parameters
- **Exposure pathways:** Inhalation of outdoor air associated with airborne emissions from Project activities.

As described in detail in the HHERA, the maximum predicted air quality concentrations for each Project phase were compared against human health-based screening criteria for both short-term / acute (1-hour and 24-hour) and long-term / chronic (i.e., annual) averaging periods. Air quality screening criteria from multiple federal, provincial and international agencies were reviewed for the 1-hour, 24-hour and annual averaging periods, and appropriate health-based air quality screening criteria were selected based on a hierarchy of primary and secondary sources. Air Quality guidelines are designed to protect the general population including sensitive individuals with or without compromised health (e.g., asthmatic children or the elderly with compromised health). Based on this screening process, NO₂ was retained as a POPC for the 1-hour (acute) averaging period, and DPM was retained as a POPC for the 1-hour (acute) and annual (chronic) averaging period for further evaluation in the HHERA inhalation assessment. DPM was retained based on baseline and predicted concentrations greater than its carcinogenic screening criterion for the annual averaging period and was therefore retained for the evaluation of carcinogenic effects in the chronic inhalation assessment. In summary, the HHERA inhalation assessment evaluated potential health

risks from acute non- carcinogenic exposures to NO₂ and DPM (based on 1-hour concentrations), and chronic carcinogenic exposures to DPM. These POPCs were retained for all Project phases.

Full details and rationale for the selection of air quality criteria, screening process, identification of POPCs for the HHERA inhalation assessment and the inhalation modeling, are provided in the HHERA (Impact Statement Appendix N-1; WSP 2026a). Potential human health risks related to inhalation for each Project phase are summarized in the construction, operations and closure sections below.

Based on information provided in confidential reports for Indigenous communities in the region, Indigenous people view on health as a holistic balance, therefore, potential effects to health associated with air quality should be interpreted in the context of the interconnectedness of physical, mental, emotional and spiritual health. With respect to Métis, both Indigenous and Western knowledge is important to holistically draw findings (i.e., narratives, experiences, information and data) from these different ways of knowing (PHAC 2018). Consideration of Indigenous people's connection with the land, their views, way of life and IK was considered throughout the HIA, and it is acknowledged that these aspects are deeply personal and vary widely across individuals, families and communities. For these reasons, there is no single approach that can be taken to quantify these considerations across all determinants of health, which is why these important aspects were woven into the narrative and acknowledged qualitatively. It is acknowledged that any change to the environment may be perceived by some Indigenous people as unacceptable and potentially affecting their way of life. It is acknowledged that quality of environmental media is only one factor that contributes to overall Indigenous health and wellness.

Primary and Grey Literature

The health effects related to air parameters such as NO₂ and DPM have been reviewed from primary and grey literature. NO₂ is a highly reactive gas that is primarily emitted into the air from combustion such as the burning of fuel; therefore, the highest concentrations of NO₂ are typically associated with transportation-related sites (US EPA 2025). DPM is a component of diesel exhaust and is primarily made up of soot particles, carbon, ash, PAHs, metallic abrasion particles, sulphates, and silicates, where almost all the particulates are respirable as they are fine or ultra fine (CCOHS 2025). Both NO₂ and DPM can be inhaled deeply into the lungs. A summary of possible health effects associated with each of these POPCs is provided below. Potential health effects are exposure and duration-dependent; whether any of the following effects could occur is dependent on the results of the HHERA inhalation assessment.

Health effects that might be experienced by healthy individuals following acute exposure to NO₂ include respiratory effects, cardiovascular effects, and mortality (US EPA 2016). While a causal relationship between NO₂ exposure and cardiovascular or total mortality effects have been found, a causal relationship between NO₂ exposure and asthma exacerbation has been established based on consistent evidence from multiple, high-quality controlled human exposure studies (US EPA 2016). Individuals (particularly in children and elderly) with pre-existing respiratory conditions such as asthma or chronic obstructive pulmonary disorder (COPD), and those who spend substantial amounts of time near fuel combustion sources such as construction workers or truck drivers, may be at higher risk to develop health effects from NO₂ exposure (Health Canada 2016a). Clinical studies (Goodman et al. 2009; US EPA 2016) have shown that NO₂ concentrations less than 190 micrograms per cubic metre (µg/m³) (100 parts per billion) observed no consistent and significant documented reproducible evidence of adverse health effects among healthy individuals or susceptible individuals (asthmatics) following short-term exposure. It is noted that study results are variable and are indistinguishable from background or control groups.

With respect to DPM, short-term health effects can include coughing and irritation of the respiratory tract, including allergic reactions that cause asthma or worsening pre-existing conditions (CCOHS 2025). Evidence from controlled human exposure studies were reviewed to determine the critical effect and point of departure (POD) for short-term exposures to DPM (Health Canada 2016b). The majority of the toxicological evidence evaluated respiratory and cardiovascular health effects and studies with health and / or mildly asthmatic subjects measured increases in airway resistance at 100 µg/m³ for a 2-hour exposure period (Health Canada 2016b; Mudway et al. 2004 ; Riedl et al. 2012 ; Stenfors et al. 2004) and reported respiratory inflammation in healthy subjects exposed to 100 µg/m³ DPM for a 2-hour exposure (Behndig et al. 2006, 2011; Health Canada 2016b; Stenfors et al. 2004). In terms of long-term effects,

DPM is considered a carcinogen and exposure has been linked to lung cancer, and possibly even bladder cancer (CCOHS 2025).

Indigenous Knowledge and Community-specific Information

This section presents IK that was received from some of the local Indigenous communities, supplemented by other relevant community-specific information that was publicly available, for incorporation into the assessment of Indigenous health.

The HHERA included an Indigenous Resident receptor, selected to represent a general Indigenous population. Exposure from Project-related air emissions could occur at the maximum point of impingement (MPOI) and at several points of reception (PORs) within the LSA and RSA through the inhalation of outdoor air. The MPOI was selected as a theoretical point where maximum air emissions are predicted outside of the PA and represents the highest predicted ground-level concentrations. The PORs represent locations at which short-term and long-term exposure from air quality could occur (e.g., recreational areas, cabins, traditional food harvesting areas). Initial Air Quality PORs were identified by the Air Quality discipline (WSP 2025a) and Additional PORs were identified by the HHERA discipline (Impact Statement Appendix N-1; WSP 2026a) using IK and information from TKLUS reports (e.g., mapping, information on cultural and traditional land-based activities, etc.). The air quality PORs considered in the HHERA inhalation assessment are summarized below:

- **Initial Air Quality PORs:** PORs 1-29 were selected by the Air Quality discipline (Impact Statement Appendix D-2; WSP 2025a) and consist of primarily long-term stay locations (e.g., cottage, cabin, lodge, camp), with the exception of POR1, which is a short-term stay storage area
- **Additional PORs:** PORs 30-41 were selected in the HHERA to represent additional areas that were either identified in available confidential TKLUS reports or were identified to account for the potential for exposure on water bodies not otherwise identified in TKLUS reports. PORs 30-38 and 40 consist of primarily short-term stay TKLUS locations (e.g., fishing area, gathering area, cultural area) identified through TKLUS reports or chosen to represent exposure on water bodies. POR 39 is an overnight stay location. For completeness and to represent a worse-case area in Red Lake, POR41 was added near Red Lake as a long term stay location within the RSA.
- **MPOI:** a non-static location called the Maximum Point of Impingement was assessed, which represents the highest predicted ground level air concentrations anticipated along the Leased Claims Boundary of the PA. It is noted that human receptors (e.g., Indigenous Resident) in the LSA are not expected to spend an appreciable amount of time at the MPOI and, therefore, the short-term and long-term stay and TLKUS locations represented by PORs more accurately represent potential exposure.

It was conservatively assumed that the Indigenous Resident was present 100% of their time at each long-term (chronic) POR and up to 24 hours of their time at each short-term (acute) POR, which included locations identified as part of the IK. A detailed discussion of the inclusion of IK in the HIA is provided in Section 4.4 above, and in the HHERA (Impact Statement Appendix N-1; WSP 2026a).

Relevant Baseline Health Information

Baseline conditions related to air quality are discussed in Existing Conditions, Section 6.1.1.2. There are a variety of health conditions and wellness indicators that may be influenced by exposure to air emissions. Existing health information can be found in the Baseline Health Profile (Attachment A). Existing conditions related to air quality provide an indication of current environmental conditions that may already be influencing baseline health status of communities in the region. These existing conditions provide an understanding of current environmental exposures, in order to identify potential Project related effects on Indigenous health.

The Baseline Health Profile (Attachment A) provides publicly available Indigenous health data published by various sources and agencies, including the SLFNHA and NWHU. The SLFNHA serves 33 First Nation communities in the Sioux Lookout region in Ontario, Canada, including LSFN and WFN. The NWHU serves the communities within the Project LSA and RSA, including LSFN, WFN, ANA, NWOMC, the Municipality of Red Lake and the Township of Ear Falls.

As described in Attachment A, one of the top five reasons for visits to the 17 nursing stations in the Sioux Lookout Area included respiratory conditions. Among adults aged 20 and older, 10% of hospital admissions and 9% of emergency department visits in the area were due to respiratory system conditions. Respiratory system issues were among the leading causes of emergency visits and / or hospitalizations for infants, children and youth. They accounted for 37% of emergency visits among infants (<1 year old), 30% of emergency visits and 34% of hospitalizations among preschoolers (ages one to five), and 21% of hospitalizations among children aged six to ten. Infants, preschool children, and children from the Sioux Lookout Area First Nations are hospitalized more often than the Ontario average (SLFNHA 2018; Attachment A).

For specific respiratory conditions such as asthma, the prevalence in NWHU has remained below the Ontario provincial rate. From 2012 to 2021, the hospitalization rates for asthma among females in the NWHU fluctuated considerably, above the provincial rate in several years, while rates among males consistently remained below the provincial average (Attachment A).

Overall, Indigenous communities in the region may currently be experiencing higher rates of respiratory system concerns than the rest of the province, including for specific respiratory conditions such as asthma for specific demographics. Asthma prevalence appears to be a concern among females based on hospitalization rates over the past decade (2012 to 2021), while rates among males were below the provincial average (Attachment A).

CONSTRUCTION

The construction phase of the Project is expected to occur over a three-year period and will include site preparation, infrastructure development and mobilization of the construction workforce. Activities during construction include, but are not limited to, open pit and underground mining, management of rock and unconsolidated materials in stockpiles, and construction of buildings and infrastructure.

As stated in Impact Statement Section 7.2 (pVC Air Quality), air quality during construction may be influenced by changes in particulate, silica, metals, NO₂, SO₂, CO, DPM, VOCs, PAHs and other air parameters due to emissions from the operation of equipment (e.g., generators), material handling, and the use of unpaved surfaces associated with site preparation activities, construction and development of mine infrastructure (including blasting) and operation of the construction camp. Additionally, emissions from the operation of a concrete batch plant, cemented rockfill plant, and paste plant may interact with air quality; however, these changes were not specifically identified as unique activities for the Project.

Project interactions with air could result in elevated concentrations of POPCs in outdoor air, which can subsequently be inhaled by Indigenous people. The HHERA evaluated potential human health risks from POPCs from the inhalation of outdoor air as part of the HHERA inhalation assessment. The results of the HHERA inhalation assessment are presented below in Table 6-3 and Table 6-4, with full details provided in the HHERA (Impact Statement Appendix N-1; WSP 2026a).

Table 6-3: Acute Non-Carcinogenic Risk Estimates (Hazard Quotients) for Indigenous Receptor

POPC	Exposure Period	Receptor Group	Baseline	Project-Alone ⁽²⁾		Project + Baseline ⁽²⁾		POR with Max HQ
				Construction / Active Closure ⁽¹⁾	Operations	Construction / Active Closure ⁽¹⁾	Operations	
NO ₂ ⁽³⁾	1-Hour	MPOI	0.06	0.64	0.87	0.70	0.93	N/A
NO ₂ ⁽³⁾	1-Hour	Initial Air Quality POR	0.06	0.56	0.57	0.62	0.63	POR1
NO ₂ ⁽³⁾	1-Hour	Additional POR	0.06	0.63	0.64	0.70	0.70	POR33 - Construction / Active Closure POR39 - Operations
DPM	1-Hour	MPOI	0.046	2.8	2.9	2.9	2.9	N/A
DPM	1-Hour	Initial Air Quality POR	0.046	0.46	0.42	0.51	0.47	POR21
DPM	1-Hour	Additional POR	0.046	0.23	0.22	0.28	0.27	POR39

Notes:

- 1 Air emissions associated with the Project during active closure are assumed to be the same as during construction.
- 2 Air emissions associated with the Project are assumed to be 0 during post-closure (following Project decommissioning)
- 3 The CCME CAAQS for NO₂ is based on the maximum average of predicted 98th percentile results from three consecutive years (CCME 2025). The matching statistic was selected as the EPC for NO₂ for the MPOI and each POR for each Project phase. This is consistent with the approach applied by the Air Quality assessment (Impact Statement Section D-2; WSP 2025a).

CAAQS = Canadian Ambient Air Quality Standards; CCME = Canadian Council of Ministers of the Environment; DPM= diesel particulate matter; MPOI= maximum point of impingement; N/A = not applicable; NO₂= nitrogen dioxide; POPC= parameter of potential concern; POR= point of reception.

Gray shade and bold = HQ is above risk target of 1.

Table 6-4: Chronic Carcinogenic Risk Estimates (Incremental Lifetime Cancer Risks and ALCM) for Indigenous Receptor

POPC	Exposure Period	Receptor Group	Construction / Active Closure ⁽²⁾	Operations	Total ILCR ^(1,3)	POR with Maximum ILCR	Total ALCM ⁽⁴⁾
DPM	Annual	Initial Air Quality POR	1.2E-06	4.3E-06	5.5E-06	POR4	0.08 to 0.80
DPM	Annual	Additional POR	1.7E-06	4.9E-06	6.6E-06	POR39	0.09 to 0.95
Acceptable ILCR or ALCM			<1.0E-05		N/A		1

Notes:

- 1 Incremental lifetime cancer risk is based on a lifespan of 80 years.
- 2 Air emissions associated with the Project during active closure are assumed to be the same as during construction.
- 3 Air emissions associated with the Project are assumed to be 0 during post-closure (following Project decommissioning).
- 4 Total ALCM is the sum of the ALCM for the construction, operations and closure phases that were assumed to emit DPM.

ALCM = additional lung cancer mortality; DPM = diesel particulate matter; ILCR= incremental lifetime cancer risk; N/A = Not applicable; POPC = parameter of potential concern; POR= point of reception

Gray shade and bold = ILCR is above risk threshold of 1 in 100,000 (1.0E-05) or ALCM is above the target risk threshold of 1 in 100,000 (i.e., 1).

As shown in Table 6-3 above, the HHERA inhalation assessment reported HQs above the target HQ of 1 for DPM only at the MPOI during the construction phase for Project Alone and Project+Baseline. As shown in the tables above, HQs for short-term NO₂ exposure were below the target HQ of 1 and estimated ILCRs and ALCMs for chronic DPM exposure were below the target ILCR of 1.0E-05 and target ALCM of 1. As such, potential risks associated with short-term NO₂ and chronic DPM exposure in air were negligible.

The MPOI is a theoretical point that is a non-static location, where maximum air concentrations are predicted outside of the Project property boundaries, in close proximity to the PA. As the MPOI is a conservative assumption that varies and is typically used for the human health worst-case scenario, individuals are not likely to be exposed to concentrations that relate to exposures above the risk target (i.e., HQ above 1). The HHERA inhalation assessment reported that although HQs above the target HQ of 1 were identified at the MPOI, the frequency of these instances was low during construction / active closure (i.e., 0.13% at the MPOI), which equates to less than 24 hours (i.e., 1 day) of HQs above the target in a year.

With respect to DPM, the majority of the toxicological evidence is related to respiratory and cardiovascular health effects. Health Canada (2016b) has reviewed results from controlled human exposure studies to establish the critical effect POD for short-term exposures to DPM and observed increases in airway resistance in mildly asthmatic individuals and respiratory inflammation in healthy individuals exposed to 100 µg/m³ DPM based on short-term exposure (Mudway et al. 2004; Behndig et al. 2006, 2011; Riedl et al. 2012; Stenfors et al. 2004; as cited in Health Canada 2016b). This concentration was selected as the critical effect and POD. The maximum predicted 1-hour concentration of DPM for Project+Baseline (i.e., construction / active closure) was 28.3 µg/m³, which was below the POD of 100 µg/m³. Therefore, potential risks to the Indigenous Resident from Project-related DPM exposure during construction were considered to be low, given that the predicted concentrations were below the POD of 100 µg/m³, the predicted frequency of DPM concentrations above targets was low (less than 1 day / year), conservative assumptions were used in the air quality assessment, the assumption that all PM_{2.5} vehicle combustion was related to DPM is conservative, and people are not expected to be at the MPOI for extended periods that would constitute risk.

Overall, Project activities are not anticipated to pose risks to the Indigenous Resident from exposure to POPCs in air during construction. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. Given the HHERA process considers conservative assumptions related to the amount of time people are assumed to be present outdoors (i.e., 100% of their time), adverse health effects to Indigenous people are not expected from acute or chronic exposure to Project-related changes in air quality (i.e., NO₂ and DPM levels) during construction.

While Indigenous health is not expected to be directly affected by Project interactions with air quality during construction, it is important to acknowledge that Indigenous views on wellness are holistic and include complex connections to the environment and all living things. It is possible that perception issues related to air quality may indirectly change or limit the amount of time spent outdoors by Indigenous communities during the 3 years construction is expected to occur. Avoidance of outdoor activities during construction could reduce engagement in traditional land use practices for some individuals. The effect of changes in traditional land use on Indigenous health is assessed via multi-media environmental quality (Section 6.1.2) and access and availability of traditional foods (Section 6.1.4).

Mitigation measures and monitoring plans are expected to be protective of Indigenous health during construction. For example, as discussed in Impact Statement Section 7.2 (pVC Air Quality), Great Bear Resources plans to actively manage emissions from the Project through the implementation of mitigations such as a dust management plan, ambient air quality monitoring plan, and limitation of on-site vehicle speeds to prevent dust generation. While the HHERA did not identify adverse effects to Indigenous people's health from Project activities via the inhalation of outdoor air, these measures are expected to continue mitigating potential effects from exposure during construction. Given the HHERA is based on predicted data, additional measures were proposed to monitor air quality parameters based on health-based benchmarks applied in the HHERA inhalation assessment in order to validate assumptions, if needed. Data sharing agreements with local Indigenous communities, and support of Indigenous

environmental monitoring programs were also identified. A list of mitigation and enhancement measures for air quality are presented in Section 6.1.1.4 and for the HIA overall in Section 7.

Overall, direct effects on Indigenous health from changes to air quality as a result of Project activities during construction are not anticipated; however, mitigation and enhancement measures for air quality presented in Section 6.1.1.4 are required to validate assumptions and promote Indigenous participation in environmental monitoring and data sovereignty.

OPERATIONS

The operations phase is anticipated to extend over a 26-year period. As discussed in Impact Statement Section 7.2 (pVC Air Quality), the source of the Project interactions during operations are associated with the operation of the mine and related infrastructure (e.g., generators), processing of ore and management of rock and tailings, and operation of a concrete batch plant, cemented rockfill plant, and paste plant.

Potential changes to air quality are expected to continue during operations. NO₂ and DPM were also identified as POPCs during the operations phase and carried forward into the HHERA inhalation assessment (Impact Statement Appendix N-1; WSP 2026a). The results of the HHERA inhalation assessment for the operations phase are presented below, with full details in the HHERA (Impact Statement Appendix N-1; WSP 2026a). The results of the HHERA inhalation assessment are presented in Table 6-3 and Table 6-4, with full details provided in the HHERA (Impact Statement Appendix N-1; WSP 2026a).

As shown in Table 6-3, the HHERA inhalation assessment reported HQs above the target HQ of 1 for DPM only at the MPOI during the operations phase for Project Alone and Project+Baseline. Potential risks associated with short-term NO₂ exposure or chronic DPM exposure in air were negligible.

As previously mentioned, the MPOI is a theoretical point where maximum air concentrations are predicted outside of the Project property boundaries to represent a worst-case scenario; therefore, individuals are not likely to be exposed to concentrations that would result in HQs above the target HQ of 1 and result in potential risks to human health. The HHERA inhalation assessment reported that although HQs above the target HQ of 1 were identified at the MPOI, the frequency of these instances was low during operations (i.e., 0.15% at the MPOI), which equates to less than 24 hours (1 day) of HQs above the target in a year.

The findings for DPM during operations are similar to construction. Adverse risks to health for the Indigenous Resident based on short-term exposure are not expected as the maximum predicted 1-hour concentration of DPM for Project+Baseline (i.e., during operations) was 28.6 µg/m³, which was below the critical effect and POD of 100 µg/m³ for which the majority of DPM toxicological studies have observed increases in airway resistance (Mudway et al. 2004; Behndig et al. 2006, 2011; Riedl et al. 2012; Stenfors et al. 2004; as cited in Health Canada 2016b). Potential risks to the Indigenous Resident from Project-related DPM exposure during operations were considered to be low given the predicted concentrations are below the POD of 100 µg/m³, the predicted frequency of DPM concentrations above targets are low (less than 1 day / year), conservative assumptions were used in the air quality assessment, the assumption that all PM_{2.5} vehicle combustion was related to DPM is conservative, and people are not expected to be at the MPOI for extended periods that would constitute risk.

As such, Project activities are not anticipated to pose risks to the Indigenous Resident from exposure to POPCs in air during operations. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. While physical health is not expected to be directly affected by Project interaction with air quality during operations, perception issues related to air quality may affect the amount of time spent outdoors by Indigenous communities during the 26-period of operations. This could result in a change in engagement in outdoor activities including traditional land use practices for some individuals. Mitigation measures and monitoring plans are expected to be protective of Indigenous health during operations. A list of mitigation and enhancement measures for air quality are presented in Section 6.1.1.4 and for the HIA overall in Section 7.

Overall, direct effects on Indigenous health from changes to air quality as a result of Project activities during operations are not anticipated; however, mitigations and enhancements presented in Section

6.1.1.4 are required to validate assumptions and promote Indigenous participation in environmental monitoring and data sovereignty.

CLOSURE

Activities during the active closure period, which is expected to occur over a three-year period immediately after operations cease, were assumed to be similar to those during the construction phase. Similar mining and construction equipment are utilized during this period, but on a much smaller scale. The passive closure period includes occasional maintenance, limited use of mining and construction equipment, and a short final close out and reclamation period where water treatment infrastructure will be removed.

As discussed in Impact Statement Section 7.2 (pVC Air Quality), air quality during closure may be influenced by emissions from the operation of equipment, material handling, and the use of unpaved surfaces associated with demolition and removal activities. The passive and final closure periods during the closure phase consist predominantly of monitoring activities, with occasional maintenance and limited equipment use, and accordingly, was not specifically assessed for effects to air quality.

As active closure uses similar mining and construction equipment but on a much smaller scale, the potential for air quality effects is adequately captured by the construction and operations phase assessments, and therefore was not quantitatively assessed, as detailed in Impact Statement Section 7.2 (pVC Air Quality). Similarly, the HHERA inhalation assessment (Impact Statement Appendix N-1; WSP 2026a) evaluated the active closure phase as part of the assessment of construction effects; therefore, risk results (i.e., HQs, ILCRs, ALCMs) for the active closure phase were considered the same as the construction phase. Notable sources of air parameter emissions were not expected after active closure. Given that potential adverse effects on Indigenous health were not expected during construction and operations, changes to air quality during active closure, passive closure, close-out, or post-closure, are also not expected. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. It is also noted that when Project activities have ceased, perception issues related to air quality will diminish.

6.1.1.4 MITIGATION AND ENHANCEMENT MEASURES

Table 6-5 outlines the key mitigation and enhancement measures recommended based on the assessment of changes to air quality. These mitigation and enhancement measures are anticipated to apply across all Project phases unless otherwise specified. General mitigation measures for closure activities that relate to Indigenous health are also included.

Table 6-5: Mitigation and Enhancement Measures for Air Quality

Mitigation and Enhancement Measures for Air Quality	Rationale
<p><u>Environmental Management Committee:</u> Great Bear Resources will work with the environmental management committee(s) and interested Indigenous members throughout the duration of the Project (all phases), to facilitate ongoing communications, sharing and integration of Indigenous knowledge and environmental information, and share and evaluate Project approvals, adaptive management and monitoring plans, and address emerging issues and interests identified by Indigenous Nations. ⁽¹⁾</p>	<p>Key aspects of the environmental management committee(s) related to Indigenous health are that: (1) it includes Indigenous members and (2) the committee will continue to operate for the duration of the Project. The committee is expected to mitigate against perception issues associated with environmental degradation and mistrust and is supportive of self-determination in addressing Indigenous issues. Collectively, these are expected to help mitigate against adverse mental health and community cohesion concerns.</p>
<p><u>Air Quality Monitoring:</u> Air quality monitoring for the Project will include constituents and related health-based benchmarks (e.g., NO₂ and DPM [as PM_{2.5}]) until assumptions are validated, to trigger action, if needed.</p>	<p>While the HHERA inhalation assessment results do not indicate an effect to human health from the Project, including human health-based constituents and benchmarks in air quality monitoring plans is important to validate assessment assumptions, provide evidence regarding the effectiveness of mitigation measures, and assist in mitigating community perception issues related to safety, environmental quality and health.</p>
<p><u>Environmental Data Sharing Agreements:</u> GBR will share environmental monitoring data (air, water, fish) with Indigenous communities that request it on an annual basis and provide opportunities (including funds) to conduct their own reviews.</p>	<p>Providing environmental monitoring data, in a timely manner, to interested Indigenous communities is anticipated to promote transparency and relationship-building, while provision of funding for communities to conduct their own reviews, analyses and / or assessments using the data will empower and resource Indigenous communities. This measure is anticipated to mitigate against mental wellness and community cohesion effects, related to perception issues, lack of trust, and environmental quality concerns, over time.</p>

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC). fVC = federal valued component; GBR = Great Bear Resources; DPM = diesel particulate matter; HHERA = human health and ecological risk assessment; HIA = Health Impact Assessment; NO₂ = nitrogen dioxide; PM_{2.5} = particulate matter less than 2.5 micrometres; pVC = pathway valued component. The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2) are in place as planned.

6.1.1.5 GBA PLUS CONSIDERATIONS

In accordance with Health Canada guidance (Health Canada 2024a), the HIA takes an equity approach to assessing potential effects by examining the potential distribution of effects across different sub-populations within the Indigenous communities. This section highlights how Indigenous identity intersects with the other GBA Plus identity factors described below. Table 6-6 applies a GBA Plus lens that treats Indigenous identity as a central identity factor, and the other identity factors described below are discussed within this context. At the bottom of this table there is a section highlighting key intersectionality considerations, Indigenous identity is at the center of this qualitative analysis.

It is important to note that while this section identified subgroups that have the potential to experience effects uniquely from changes to air quality, the analysis should be considered in the context of the potential effects assessment findings. For example, since the HHERA inhalation assessment found no effects to Indigenous health from Project activities during construction, operations or closure, the analysis below does not suggest otherwise, rather it identifies populations that could be disproportionately affected and also discusses the potential health effects, or lack thereof, as identified in the assessment.

Table 6-6: GBA Plus and Equity Considerations – Air Quality

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Gender	Even	Available evidence suggests that gender-specific differences in exposure or sensitivity to air quality are not expected.
Age	Even	Available evidence suggests that exposure or sensitivity to parameters in air does not vary by life stage.
Physical Ability	Disproportionate (Individuals with chronic health conditions)	Individuals with pre-existing lung or heart conditions (such as asthma, COPD) are at the highest risk of potential effects related to poor air quality (US EPA 2016; CCOHS 2025). Based on the findings of the HHERA inhalation assessment, the Project is not expected to affect Indigenous health through Project-related changes in air quality; therefore, effects to GBA Plus subgroups are not expected.
Socioeconomic Status	Even	Available evidence does suggest that socio-economic status is not expected to have an impact on exposure to air quality parameters.
Mental Ability	Even	Available evidence does suggest that mental health status is not expected to have an impact on exposure to air quality parameters.
Intersectional Analysis:	Intersectional effects that can compound vulnerabilities around air quality are not expected due to the findings of the assessment on Indigenous health. It is acknowledged that Indigenous identity intersects with the identity factors listed above.	

Notes:

COPD = chronic obstructive pulmonary disease; GBA Plus = Gender Based Analysis Plus; HHERA = human health and ecological risk assessment.

6.1.1.6 SUMMARY OF POTENTIAL EFFECTS: AIR QUALITY

The following is a summary of the findings from the assessment of potential effects to Indigenous health based on changes to air quality (Table 6-7). The specific mitigation and enhancement measures based on the assessment of changes to air quality, including a description and rationale, are described in Section 6.1.1.4.

Table 6-7: HIA Potential Effects Summary: Air Quality

Criteria	Description	Characterization
Health Determinant	Identify the determinant of health being assessed	<ul style="list-style-type: none"> Air Quality (Biophysical Determinant of Health)
Direction of Potential Effect	Describe whether the potential effect may be beneficial or adverse	<ul style="list-style-type: none"> Adverse: the potential effect on human health may be adverse, thereby diminishing conditions that support Indigenous health. However, the determination of actual effects is based on the HHERA findings.
Scale of Potential Effect for this Determinant (post-mitigation)	Describes the expected scale of the Project-related effect to Indigenous health for this determinant	<ul style="list-style-type: none"> Negligible: there is limited to no effect on Indigenous health expected as a result of Project activities for this determinant following implementation of mitigation measures. The HHERA inhalation assessment did not identify adverse effects on Indigenous health from Project-related changes to air quality. Perception issues may change or limit participation in outdoors activities for some individuals.
Affected Populations (Indigenous Communities)	Refers to the distribution of the effects across Indigenous communities and includes equity considerations	<ul style="list-style-type: none"> Assessment findings (i.e., Project-related changes) are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.

Criteria	Description	Characterization
GBA Plus	Identify relevant GBA Plus considerations for this determinant	<ul style="list-style-type: none"> There are groups that may experience effects differently for this determinant. However, based on the assessment findings, the Project is not expected to affect Indigenous health through Project-related changes to air quality; therefore, effects to GBA Plus subgroups are not expected. Details are discussed in the air quality GBA Plus section (Section 6.1.1.5).
Mitigations and Enhancements	Additional measures listed based on the assessment of potential effects for this determinant ⁽²⁾	<ul style="list-style-type: none"> Additional measures, beyond what is included in the other pVC and fVC sections of the Impact Statement are listed below for air quality with further details provided in Section 6.1.2.4 and a list of health measures is provided in Section 7: <ul style="list-style-type: none"> Environmental Management Committee ⁽¹⁾ Air Quality Monitoring Environmental Data Sharing Agreements

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC)

2 Assumes measures included in upstream pVC and fVC sections of the Impact Statement are implemented.

ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); HHERA = Human Health and Ecological Risk Assessment; HIA = Health Impact Assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; pVC = pathway valued component; RLEF = Indigenous peoples living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

While these findings are specific to this determinant of health (air quality), an overall determination of the potential for residual effects for Change to Health (fVC Indigenous Peoples) is provided in Section 8.

6.1.2 MULTI-MEDIA ENVIRONMENTAL QUALITY

This section includes an assessment of Indigenous health from changes in multi-media environmental quality, including health linkages, relevant existing conditions, potential effects (construction, operations and closure), mitigation and enhancement measures and GBA Plus considerations.

6.1.2.1 HEALTH LINKAGES

The following section describes the generic exposure pathways and scenarios by which health can be influenced by multi-media environmental quality (i.e. soil, sediment, groundwater, surface water and traditional foods). Each medium can influence health individually, and collectively as a factor of total environmental media exposure. The linkages described here are not specific to one sector or community, instead, this section provides an overview of the relevance of individual environmental media as determinants of Indigenous health.

It is noted that assessment of changes to multi-media environmental quality is focused on soil, surface water and traditional foods quality. Changes in access and availability to water is assessed in Section 6.1.3, and access and availability to traditional foods is assessed in Section 6.1.4.

Soil and Sediment

Soil makes up the top layer of the Earth within which terrestrial plants root, and typically consists of a mixture of materials (i.e., organic matter, clay, sand, silt) and sediment is a form of soil which has eroded and deposited into the bottom of a water body (CCME 2006; ECCC 2016). There are various pathways through which soil and sediment quality can influence human health. Individuals can be exposed to parameters present in soil through ingestion (e.g., consumption of crops, backyard garden produce and / or traditional foods which have taken up parameters from soil; or incidental ingestion of soil), inhalation of soil particulates in air, and absorption through dermal contact with skin (Steffan et al. 2018). Similarly, humans can be exposed to sediment through incidental ingestion and dermal contact during bathing or recreational activities (i.e., swimming, fishing) in surface water bodies, or ingestion of food items which have taken up contaminants from sediment (e.g., consumption of aquatic plants such as wild rice).

Overall, depending on the varying properties of the soil and / or sediment, as well as the intensity and duration of exposure, exposure to parameters in soil and / or sediment by humans, plants, and wildlife is linked to human health and wellness via several direct and indirect pathways. The health outcomes associated with these exposures is highly dependent on the particular parameters present in the soil and / or sediment.

Many elements that are considered essential to human, animal and plant life are found in soil and sediment and can be absorbed by plants and subsequently eaten by humans and animals (Brevik and Burgess 2014; Committee on Minerals and Toxic Substances in Diets and Water for Animals 2005). As such, soils and sediments with high nutrient availability support robust plant development and bolster dietary intake of essential elements for humans and animals which ingest these plants, and for humans who ingest animals which have eaten the plants, all of which is beneficial for human health (Combs 2005; Committee on Minerals and Toxic Substances in Diets and Water for Animals 2005). Good quality soils and sediments are paramount for good quality food production. Conversely, soils and sediments that are degraded through various means, such as erosion, nutrient depletion, and contamination, potentially create unsafe food and pose potential risks to food security (Brevik and Burgess 2014). In this manner, soil and sediment quality is linked to food security. Further discussion of food security is provided in Section 6.2.4.

Sources of soil contamination include both natural processes and anthropogenic sources and can directly impact soil (i.e., application or spills onto soil) or indirectly impact soil if parameters from groundwater adsorb to soil, or surface water runoff seeps into soil. Natural deterioration of rocks, and anthropogenic activities such as mining (i.e., byproducts and waste), smelting (i.e., emissions and waste), landfills (i.e., waste, electronic waste), water treatment plants (i.e., sewage), fuel combustion (i.e., exhaust fumes and home heating) and agriculture (i.e., pesticides, fertilizers) can result in contamination of soils with heavy metals and organic parameters (Brevik and Burgess 2014; Steffan et al. 2018). Sediment contamination can result from erosion of impacted soil into surface waterbodies, or from direct contamination of the above soil contamination sources onto or into surface waterbodies and sediment. Parameters found in sediments have the potential to be transported or be re-distributed within water systems if sediments are disturbed or dislodged from the bottom of water bodies through natural or non-natural processes (ECCC 2016). These parameters can then be released, impacting water quality, and potentially affecting the health of people or organisms that come into contact with the water body (ECCC 2016).

Importantly, soils are instrumental in natural groundwater filtration processes including physically blocking the movement of contaminants and adsorption of parameters to soil particles, and play host to microorganisms which can biodegrade certain contaminants (Helmke and Losco 2013), as cited in Brevik and Burgess 2014). Sediment can similarly adsorb contaminants in surface water and facilitate organic decomposition processes (i.e., abiotic and biotic degradation processes). As such, while these mechanisms in soil and sediment can improve the quality of groundwater and surface water, groundwater and surface water contamination represent a contamination source for soils and sediment.

Groundwater

Groundwater is water that flows through underground formations called aquifers, where it fills the space between sand and gravel, crevices, or solutions in various types of rocks and soil. Groundwater is a major source of freshwater and is withdrawn from aquifers to sustain our drinking water and food supply (ECCC 2013). Humans can be exposed to groundwater through a variety of direct and indirect exposure pathways, including ingestion as drinking water, incidental ingestion (i.e. via splashing) and dermal contact with groundwater for household use (ECCC 2013). Groundwater is also commonly used in agriculture (e.g., livestock watering, irrigation) (ECCC 2013) and subsequently taken up into food items (e.g., meat, plants). Many essential nutrients can be found naturally in groundwater and depending on the concentration at which certain nutrients are present, these can be either protective against certain health conditions or increase risk of several health conditions, such as cardiovascular diseases (Gianfredi et al. 2017; Xie et al. 2023). If not managed properly, groundwater parameters from anthropogenic sources, such as heavy metals, organic parameters, nitrogen parameters, biogens from human sewage, can be a risk factor for the health of communities and for the natural environment (Li et al. 2021).

Groundwater and surface water exist in a continuous cycle of exchange between each other (ECCC 2013; Water Resources Mission Area 2019). Surface water infiltrates and replenishes underlying groundwater aquifers and groundwater is discharged over time back into surface water (ECCC 2013; Water Resources Mission Area 2019).

Surface Water

Surface water is any body of water above ground, including streams, rivers, lakes, wetlands, reservoirs, and creeks. Humans can be exposed to surface water through a variety of direct and indirect exposure pathways including ingestion as drinking water, incidental ingestion (i.e., via splashing), ingestion of foods which have been impacted by parameters in surface water, and by dermal contact via bathing in surface water, household or occupational use of surface water, or through recreational activities. Vicinity and access to a surface water body, occupation, socio-economic status, age, gender and culture influence an individual's likelihood of exposure to surface water (UNEP 2021; White et al. 2020). Poor surface water quality can lead to human health consequences if individuals ingest or are exposed to contaminated water or to aquatic food sources that have been exposed to contaminants in water (Belle et al. 2023; UNEP 2021). Surface water quality can also impact the health of fish and aquatic ecosystems, potentially leading to socio-economic consequences such as loss of livelihood, which is evaluated in the assessment of changes to access and availability of traditional foods in Section 6.1.4.

Sources of surface water contamination include agricultural, sewage and wastewater runoff (UNEP 2021). Mining activities can be a source of surface water pollution, if not managed properly, as contaminants from mine tailings can enter surface water systems through various environmental transport mechanisms including effluent discharge, subsurface infiltration, airborne dispersal and deposition, stormwater runoff, seepage through soil layers, or groundwater migration (Belle et al. 2023). Mitigation and management measures are critical in the mining sector for management of surface water quality.

Traditional Foods

Traditional foods (sometimes referred to as country foods or wild foods) are subsistence foods that can include land animals, fish and seafood, birds, plants, and berries, which are collected through traditional practices (i.e., hunting, fishing, gathering) (Government of B.C. 2022). Traditional food diets have beneficial implications for nutritional health, because these diets contain high levels of essential nutrients (Batal et al. 2021b; McCartan et al. 2020). Evidence suggests that the polyunsaturated fatty acids, such as omega-3 fatty acids docosahexaenoic acid and eicosapentaenoic acid, from fish and fish oils, which are commonly found in northern Indigenous traditional diets, promote greater cardiovascular health (Earle 2011a; FNHA n.d.; McCartan et al. 2020). Fish and seafood contribute to food and nutrition security due to their natural high content of omega-3 fatty acids (protective of cardiovascular health), protein, and several essential minerals (i.e., selenium; protective of cancer, autoimmune and thyroid diseases) and vitamins (i.e., A, D; role in maintenance of bone and immune health) far and above micronutrients available from other traditional or commercial food sources (Earle 2011a; FNHA n.d.; Marushka et al. 2021; McCartan et al. 2020). Additionally, traditional food diets have been shown to increase vitamins (i.e., A and D) and nutrients (i.e., iron, magnesium, protein, and folic acid) intake, and to reduce the rates of diabetes, obesity and other diet-related diseases (Batal et al. 2021a; FNHA n.d.; Kuhnlein et al., 2001). Fish is a key component of traditional diets among many First Nations communities in Canada and is widely consumed (Marushka et al. 2021). Based on data collected in support of the FNFNES in Ontario, which included input from 18 First Nations communities in Ontario, Chan et al. (2014) reported the three species consumed at the highest volume for various categories. Across Ontario, based on FNFNES respondents, the most commonly consumed traditional foods included: walleye / pickerel, lake whitefish and trout (for fish); moose, deer and rabbit (for game meat); moose liver, moose kidney and deer liver (for game organs); Canada goose, ducks and partridge (for birds); and blueberries, corn and strawberries (for plants). When considering FNFNES respondents in Ecozone 1 (Boreal Shield / Subarctic) specifically, the species consumed in the highest volumes were reported to be: walleye / pickerel, lake whitefish and northern pike (for fish); moose, deer and rabbit (for game meat); moose liver, moose kidney and caribou liver (for game organs); Canada goose, partridge and duck (for birds); and blueberries, raspberries and wild rice (for plants).

Additionally, traditional food practices are beneficial to health via opportunities for physical activity. For example, one study (Samson and Pretty 2006) estimated that Innu people, an Indigenous group from eastern Quebec and Labrador, engaged in traditional activities in the country exert approximately 12.5 to 50 megajoules of energy per day compared to 0.8 to 2.1 megajoules expended when residing in the village. They also report that the transition from a traditional lifestyle of moving through the land to hunt, gather, and trap, to a more sedentary life living in permanent villages and settlements, has been linked to a decline in physical and mental health (Samson and Pretty 2006).

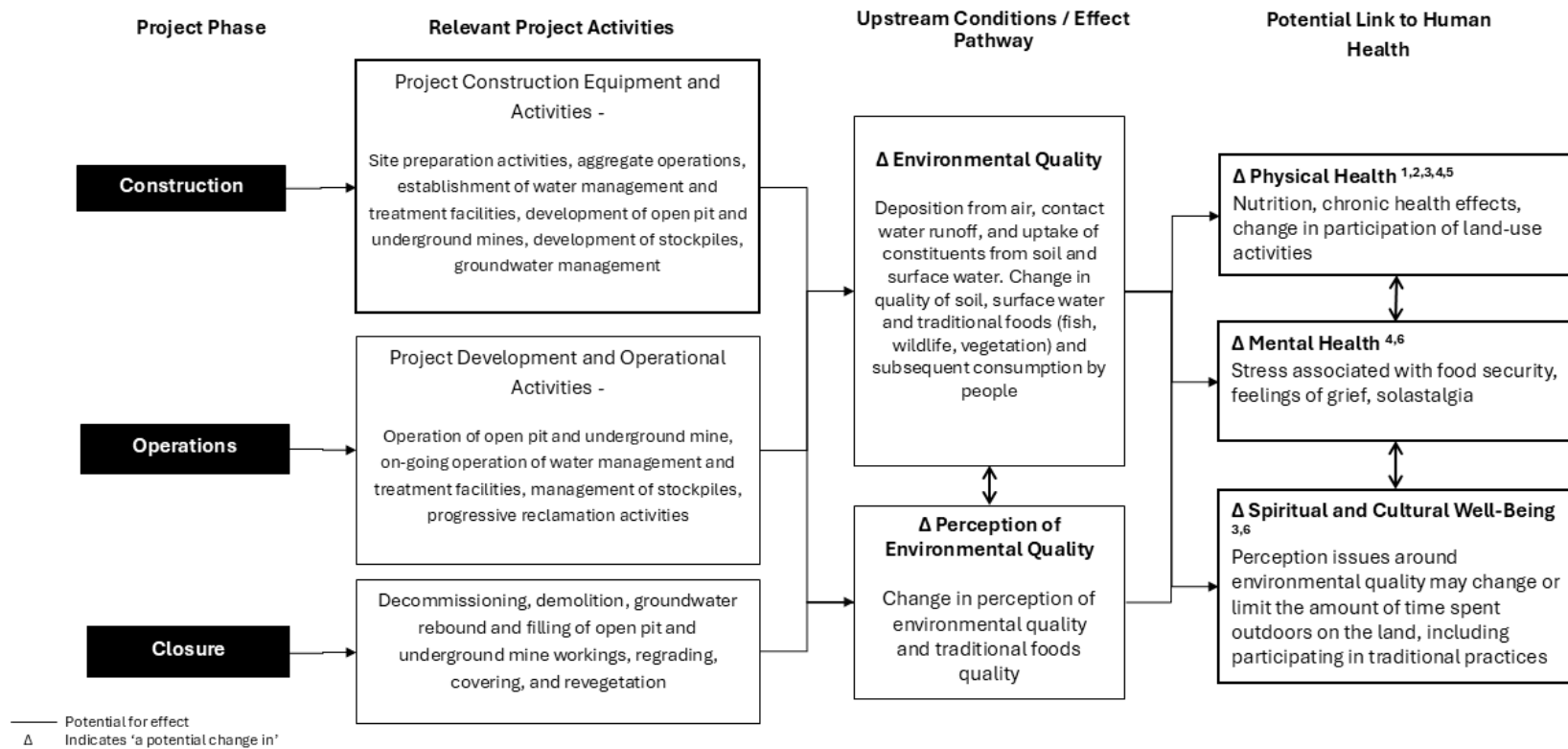
The willingness and frequency of traditional food intake among Indigenous populations globally is changing, as many factors have influenced consumption patterns, such as concerns of contaminants in the food chain (Earle 2011a; McCartan et al. 2020). In particular, both the participation in subsistence activities and hunting lifestyles, as well as the amount of traditional foods that are being consumed, have been declining over time as they are increasingly being replaced with commercially produced western foods which are higher in fat and sugar (Earle 2011a; Samson and Pretty 2006). Factors related to access to traditional foods are discussed in Section 6.1.4. In addition to changes in access to traditional foods, the quality of traditional foods that are harvested and consumed has also changed (Batal et al. 2021a). In general, previous studies found that Indigenous people have reported that there were *“changes in the health or quality of traditional food species including physical deformities (e.g., moose with water bubbles between their joints and hair loss), reduced animal size (e.g., fish are smaller), and taste and other sensory changes (e.g., Arctic char flesh is paler),”* (Shafiee et al. 2022). These barriers, which may have influenced consumption patterns, are also linked to other determinants of health, such as food security, economics, and community cohesion (see Sections 6.2.4, 6.2.1, and 6.2.4.6). For example, costs associated with equipment necessary for fishing and hunting, and transportation costs to appropriate locations were reported to be prohibitive obstacle to traditional food practices for many Indigenous people surveyed in food security studies (Banerji et al. 2023; Skinner et al. 2013). These barriers can affect nutrient intake and have implications for community health (Marushka et al. 2021). Economic resources limit both the quantity and quality (of market foods) available to an individual and / or family.

Importantly, Indigenous people who use traditional food sources may be exposed to parameters at concentrations elevated above human health-based criteria, should they be present in the environment, through consumption of these food sources (Earle 2011a). Resource extraction (i.e., mining, forestry), agriculture (i.e., pesticide use) and other activities (i.e., firefighting chemicals) can release parameters to air, water and / or soil which can be taken up by traditional foods and may result in exposure by Indigenous people through their diets. Overall, traditional food systems contribute to the cultural identity, social cohesion, and nutritional wellness of Indigenous communities, all of which are intricately tied to each other and to their overall health and community wellness (Earle 2011a). While not quantifiable in the same manner as nutrition, traditional food collection and consumption also plays an important role in spiritual and cultural health (Batal et al. 2021a; Samson and Pretty 2006).

An effect pathway diagram showing potential Project activities during all phases, relevant changes / exposure pathways and health and wellness effects is provided in Figure 6-6 to graphically depict the potential linkages between the Project and human health outcomes. The diagram shows the potential pathways of exposure or change in upstream conditions that may result in changes to health; however, the assessment of potential effects (Section 6.1.2.3) identifies specific pathways where changes are predicted to occur.

Figure 6-6: Effect Pathway Diagram for Multi-media Environmental Quality

Multi-media Environmental Quality



Sources:
1 – Batalet al. 2021a; 2 – Batalet al. 2021b; 3 – Earle et al. 2011a; 4 – Ninomiya et al. 2023; 5 – UNEP 2021; 6 – Salerno et al. 2021

6.1.2.2 EXISTING CONDITIONS

This section provides a summary of existing conditions relevant to Indigenous health from changes in multi-media environmental quality. The available baseline (existing conditions) data for Indigenous health, including physical health and wellness (e.g., chronic conditions, communicable diseases, demographics), health-related behaviours (e.g., food consumption, physical activity, substance use) and mental wellness (depression, stress / anxiety, perception of risk) are provided in the Baseline Health Profile (Attachment A) and should be viewed for detail. In addition, a description of existing conditions for each environmental media is provided in the following Impact Statement Sections and appendices:

- **Soil Quality (Existing Conditions):** Attachment A2 (Soil and Traditional Food Sampling Program) of the HHERA (Impact Statement Appendix N-1; WSP 2026a)
- **Sediment Quality (Existing Conditions):** Attachment A1 of the HHERA (Impact Statement Appendix N-1; WSP 2026a) and Fisheries Resources Baseline Report (Impact Statement Appendix L-1; WSP 2025c)
- **Groundwater Quality (Existing Conditions):** Impact Statement Section 2.8 (Environmental Setting – Groundwater), Impact Statement Section 7.5 (pVC Groundwater Quantity – Existing Conditions) and Impact Statement Section 7.7 (Water Quality – Existing Conditions)
- **Surface Water Quality (Existing Conditions):** Impact Statement Section 2.10 (Environmental Setting – Water Quality) and Impact Statement Section 7.7 (pVC Water Quality – Existing Conditions)
- **Traditional Foods Quality (Existing Conditions):** Attachment A (Baseline Data), Attachment A2 (Soil and Traditional Food Sampling Program) and Attachment A4 (Baseline Data from Other Sources) of the HHERA (Impact Statement Appendix N-1; WSP 2026a), Fisheries Resources Baseline Report (Impact Statement Appendix L-1 ; WSP 2025c) and Impact Statement Section 8.4 (fVC Analysis of Change to Fish and Fish Habitat – Existing Conditions).

A brief description of existing conditions related to multi-media environmental quality is presented below to provide context for the assessment of biophysical determinants of health. In addition, the HHERA includes baseline (existing conditions) data for identified POPCs in environmental media in order to show the incremental effect of the Project on baseline; these results are provided below in the assessment of potential effects for all Project phases (Impact Statement Appendix N-1; WSP 2026a). Collectively, the information from the upstream pVCs and the HHERA baseline data provided the existing conditions related to availability and access of water.

Soil Quality

Soil sampling was carried out as part of the Soil and Traditional Foods Sampling Program completed in 2023 specifically to support the HHERA (Impact Statement Appendix N-1 [Attachment A2]; WSP 2026a). Surficial soil samples (co-located with vegetation samples) were collected and analyzed for metals and PAHs at 20 locations within the PA. Specific soil sampling locations were selected based on the availability of the target vegetation and opportunistic sampling conducted during fieldwork for other sampling programs.

Measured baseline soil concentrations of POPCs were screened and evaluated in the HHERA and are incorporated into the risk results presented in the potential effects assessment for all Project phases in Section 6.1.1.3.

To review the baseline (existing conditions) soil data in detail, see Attachment A2 of the HHERA (Impact Statement Appendix N-1; WSP 2026a).

Sediment Quality

As reported in the Fisheries Resources Baseline Report (Impact Statement Appendix L-1; WSP 2025c), sediment sampling was conducted by WSP between 2022 and 2024 by WSP Canada Inc. (WSP) to characterize baseline sediment quality in the LSA. Surficial sediment samples were collected from the

following waterbodies: Dixie Creek, Genessee Lake, Chukuni River, Pakwash Lake, and other unnamed waterbodies and watercourses. Sediment samples were analyzed for metals parameters.

As detailed in the HHERA (Impact Statement Appendix N-1; WSP 2026a), sediment concentrations are not anticipated to change substantially as a result of the Project as the majority of predicted surface water quality concentrations during construction and operations phases are within baseline ranges, with the predicted surface water quality concentrations within baseline ranges during post-closure (Receiver Water Quality Modelling Report [Impact Statement Appendix K-3; WSP 2025d]). Further, runoff is being controlled, collected and treated throughout the Project to mitigate changes to the surrounding aquatic environment. As such, sediment quality is not anticipated to be impacted by the Project and sediment predictions were not modelled (i.e., it was assumed that there would not be a material change in sediment quality and the incremental change from the Project was assumed to be zero). Further, based on the recreational activities anticipated within the LSA and RSA (e.g., wading along the shoreline or swimming), and the characteristics of the waterbodies in the area (i.e., lakes in the region are generally deep) contact with sediment is expected to be minimal. While some small lakes and creeks located within the vicinity of the Project may be shallow enough or have near-shore areas where people could come into contact with sediment, exposure is expected to be for small periods of time and limited to contact with the soles of the feet (i.e., standing for bathing, wading). As stated in the HHERA, the assessment of potential human health risks from potential Project impacts to soil and surface water are considered to be protective of potential human exposure to sediment and were not directly assessed in the HHERA and HIA. Full details are provided in the HHERA (Impact Statement Appendix N-1; WSP 2026a).

Groundwater Quality

A search of available water well records from the MECP online Water Well Information System indicates that there are no water supply wells on the Property. The water supply wells are north of the Property, to the northwest, close to Boyden Creek, or north and northeast close to Gullrock Lake, and lie on far sides of groundwater divides from aspects of the Project that are likely to affect groundwater. As such, it was determined that there are no groundwater water wells (including drinking water wells) present within the LSA and RSA which will be affected by the Project and groundwater quality was not further assessment in the HIA and HHERA directly, however the potential influence of groundwater quality on surface water quality was captured through surface water modelling. Groundwater quantity is included as a pVC because it is a natural component which can be important to other ecosystem elements including surface water, wetlands and the aquatic ecosystem, is of provincial regulatory interest and was identified of interest during engagement. Existing conditions related to groundwater quantity are further discussed in Section 6.1.3.2 in relation to access and availability of water as a determinant of health.

Surface Water

Water quality has been sampled in Project watercourses and waterbodies since 2020 with over 600 samples collected between 2020 and 2024 for analyses of physicochemical parameters (such as temperature, pH, dissolved oxygen and conductivity) as well as nutrients, anions, cyanides, metals and metalloids (including mercury and methylmercury). Mercury analyses were conducted by both standard procedures and ultra-low detection procedures. The sampling for surface water quality baseline database incorporated natural variability (i.e., seasonality) and sampling locations were strategically selected to represent areas that may be directly or indirectly affected by the Project, as well as representative upstream and downstream locations. Sampling sites were also chosen to capture spatial variability and account for variability in natural influences (e.g., geology, anoxic environments and riverine versus lake systems). A total of 37 stations were monitored across Dixie Creek, Chukuni River, Genessee Lake, Dixie Lake, Pakwash Lake, Gullrock Lake and unnamed watercourses and unnamed waterbodies.

Overall, monitoring results indicate that baseline surface water quality is typical of what would be expected in the vicinity of proposed mining developments in northern Ontario, including circumneutral to slightly acidic pH, low concentrations of nitrogen species (ammonia, nitrate and nitrite), and low concentrations of anions and total dissolved solids. Unnamed watercourses are highly seasonally variable as would be expected for shallow, ephemeral, wetland-influenced waters typical to this area of northern Ontario.

Existing conditions (i.e., baseline) for surface water quality for incorporation into the HHERA are based on modelled baseline conditions provided by the Water Quality discipline as presented in the Receiver Water Quality Modelling Report (Impact Statement Appendix K-3; WSP 2025d). Surface water concentrations were also predicted for each Project phase on a monthly time scale (i.e., construction, operations and closure) and post-closure, water quality node and provided by the Water Quality discipline. Full details are provided in Attachment A and Attachment B of the HHERA (Impact Statement Appendix N-1; WSP 2026a).

Predicted baseline+Project surface water concentrations from the Receiver Water Quality Modelling Report (Impact Statement Appendix K-3; WSP 2025d) were screened and evaluated in the HHERA and are incorporated into the risk results presented in the potential effects assessment for all Project phases in Section 6.1.2.3. The full predicted baseline surface water concentrations applied in the HHERA are presented in Attachment B of the HHERA (Impact Statement Appendix N-1; WSP 2026a)

Traditional Foods Quality

Sampling of plant tissue was carried out as part of the Soil and Traditional Foods Sampling Program completed in 2023 specifically in support of the HHERA (Impact Statement Appendix N-1 [Attachment A2]; WSP 2026a). Plant tissue samples (co-located with soil samples) were collected and analyzed for metals and PAHs at 21 locations within the PA. Plant species of interest were identified based on their importance as food for Indigenous consumption (e.g., berries, Labrador tea, wild rice) informed by IK. When species identified in the IK sources were not available at a given sampling location, alternative plant types that are known to be consumed by people were collected. For full details and the baseline dataset relied upon in the HHERA for plants, see Attachment A2 of the HHERA (Impact Statement Appendix N-1; WSP 2026a).

Wild game tissue samples analyzed as part of the Soil and Traditional Foods Sampling Program were collected from animal organs donated by a local trapper. Seven samples of organ meat (i.e., six livers and one heart) from ruffed grouse (five livers, one heart) and spruce grouse (one liver) were donated for parameter analysis; no muscle tissue samples were provided. The donated samples were analyzed for metals and PAHs. The collected organ samples were of insufficient sample size, tissue type and species variety to accurately characterize baseline game tissue concentrations in the LSA and RSA. Therefore, site-specific game organ meat samples were not used for the characterization of baseline conditions for the HHERA. Instead, baseline game meat concentrations were obtained from the FNFNES (Chan et al. 2014; 2021). FNFNES data was obtained from wild game tissue samples donated from several Indigenous groups within the subarctic Boreal Shield, the same ecozone as the Project. These data were considered an accurate and best available representation of baseline game meat concentrations for the HHERA. For full details and the baseline dataset relied upon in the HHERA for wild game, see Attachments A2 and A4 of the HHERA (Impact Statement Appendix N-1; WSP 2026a).

A baseline fisheries resource sampling program was conducted between 2022 and 2024 by WSP, as presented in the Fisheries Resources Baseline Report (Impact Statement Appendix L-1; WSP 2025c), which included fish tissue sampling and analysis of large-bodied fish (individual samples) and small-bodied fish (composite samples). The fish tissue sampling was conducted in various waterbodies in the LSA including Chukuni River, Dixie Creek, Genesee Lake, Pakwash Lake, and several unnamed waterbodies and watercourses. Sentinel species retained for analysis were determined at the time of field sampling, based on presence and abundance of the species within each sample location, and considering permitting allowances. Large-bodied sentinel fish species retained for tissue analysis included cisco, lake whitefish, northern pike, silver redhorse, walleye, white sucker, and yellow perch. Composite samples of brook stickleback, central mudminnow, finescale dace, Iowa darter, lake chub, northern redbelly dace, spottail shiner, and yellow perch. Fish tissues were submitted for analysis of total metals, methylmercury and moisture content. For full details of how the baseline fisheries resource sampling program data was relied upon in the HHERA as a baseline dataset for fish, see Attachment A2 of the HHERA (Impact Statement Appendix N-1; WSP 2026a).

Mercury in fish has been identified as a community concern and a focused topic within the planning stages of the Impact Statement with additional focus on valued species of fish that are present in the LSA and RSA

(e.g., northern pike, walleye and lake whitefish), including as identified through confidential IK reports. Accordingly, a Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies is provided in Impact Statement Appendix T (WSP 2026b). Additional data records were secured from the provincial fish contaminants dataset (Ontario Data Catalogue) that have collected total mercury in tissue samples over a broader regional and historical range for three species (northern pike, walleye and lake whitefish). At a broadscale comparison, mercury in fish is considerably lower in the Project RSA and Chukuni River drainage than adjacent drainages. This is also reflected in the data collected for the Project from the LSA. A decline in observable fish health in recent decades was noted in a confidential IK report prepared for WFN, identifying abnormal skin conditions, deformities and change in smell.

Measured baseline wild game, fish and plants concentrations of POPCs were evaluated in the HHERA and are incorporated into the risk results presented in the potential effects assessment for all Project phases in Section 6.1.1.3.

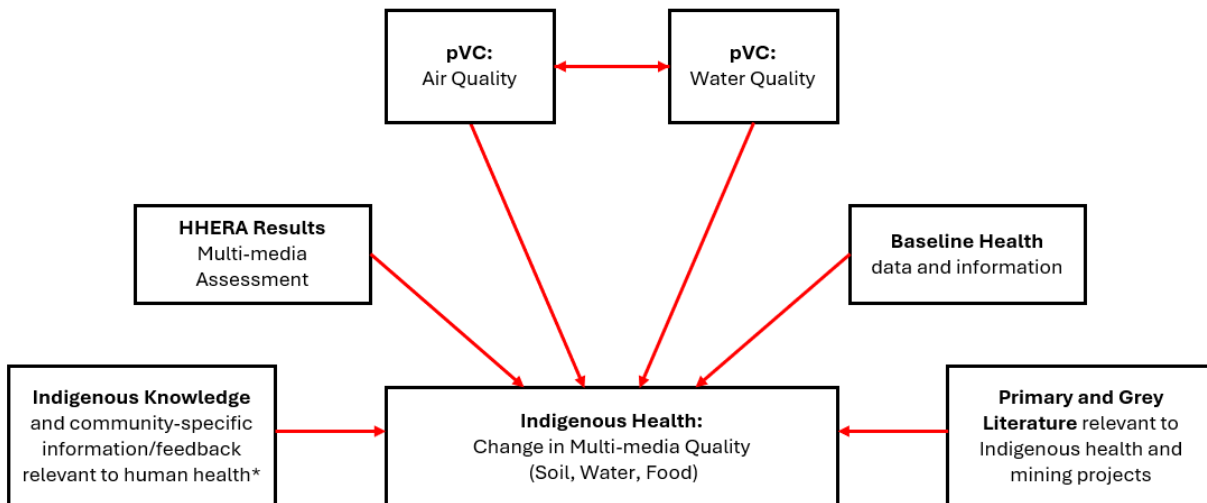
6.1.2.3 POTENTIAL EFFECTS

The following sections provide the inputs, assumptions, results from upstream analyses, Project information, primary and grey literature, and other evidence that supports the assessment of changes in multi-media environmental quality in the context of Indigenous health. The assessment of potential effects first presents the available evidence, acknowledging any limitations and assumptions, followed by an assessment by Project phase (i.e., construction, operations and closure). Finally, a summary of the assessment findings is presented with a discussion regarding mitigation and / or enhancement measures, and GBA Plus considerations.

EVIDENCE FOR ASSESSMENT

The evidence used in the assessment of potential effects to Indigenous health from changes in multi-media environmental quality included (i) findings from relevant upstream valued components (pVCs and fVCs); (ii) results from the HHERA; (iii) primary and grey literature sources; (iv) IK and community-specific information; and (v) baseline health information (Figure 6-7).

Figure 6-7: Inputs for Multi-media Environmental Quality



Note: additional linkages between individual inputs are not shown
* Where relevant and available

Each of these sources of information and evidence are further described in the sections below. Collectively, this body of evidence informed the assessment of potential effects described for each Project phase (i.e., construction, operations and closure).

Upstream Valued Components (pVCs)

The assessment of potential effects for the linked pVCs are important in that they identify predicted changes in those upstream conditions that, in turn, have the potential to affect Indigenous health via changes in multi-media environmental quality. A summary of the predicted changes identified in the pVCs linked to Indigenous health, including Air Quality and Water Quality, are provided in Section 6 (Table 6-2).

The upstream pVCs indicated that Project activities are anticipated to result in airborne emissions and discharge and / or migration of contact water. Deposition from airborne emissions onto soil, surface water and vegetation can result in changes to these media. Discharge / migration of Project contact water can also result in changes to surface water quality. Traditional foods (i.e., plants, wild game, fish) can uptake Project parameters from soil (via incidental ingestion or direct contact), surface water (via ingestion as drinking water or direct contact), or food (via ingestion of food items which have taken up parameters from soil and surface water). Humans can also be exposed to Project parameters in soil (via incidental ingestion, dermal contact and inhalation of soil particulates) and surface water (via ingestion as drinking water and dermal contact), or through ingestion traditional foods which have taken up Project-related parameters present in environmental media (i.e., soil, surface water, traditional foods). These potential exposures were evaluated in the HHERA multi-media assessment to identify potential risks to health (Impact Statement Appendix N-1; WSP 2026a), the results of which are discussed below (see HHERA Results below).

It is noted that multi-media environmental quality is related to access and availability of traditional foods, as the potential health benefits of a traditional food diet (see Section 6.1.2.1) are limited by the ability of an individual to access traditional foods of sufficient quality. The assessment of change to access and availability of traditional foods is presented in Section 6.1.4. Further, it is noted that Impact Statement Section 7.5 (pVC Groundwater) and Impact Statement Section 7.6 (pVC Surface Water Flows and Levels) address potential Project interactions with groundwater quantity and surface water flows and levels, respectively. Groundwater quantity and surface water flows and levels (i.e., water quantity and flow volume) are not considered to directly impact human health, however, changes to these pVCs can impact aquatic habitat and therefore also impact access and availability of traditional foods. Changes in access and availability to water is assessed in Section 6.1.3, and traditional foods access and availability is assessed in Section 6.1.4.

The assessment of surface water quality provided in Impact Statement Section 7.7 (pVC Water Quality) focused on the comparison of surface water POPCs to criteria protective of aquatic life (e.g., fish) and not human health. Potential effects considered in Impact Statement Section 7.7 (pVC Water Quality) are included in the current assessment of change in multi-media environmental quality, since Project interactions with the potential to impact surface water quality in relation to aquatic life are the same interactions which could impact surface water quality in relation to human health. The evaluation of surface water quality in comparison to human health-based criteria was carried out as part of the HHERA (Impact Statement Appendix N-1; WSP 2026a) and is discussed below in relation to multi-media environmental exposure (see HHERA Results below).

HHERA Results

As detailed in the HHERA (Impact Statement Appendix N-1; WSP 2026a) the human health component of the assessment considered exposure from the applicable, complete exposure pathways (i.e., environmental media which would be impacted by Project activities for which a human exposure route exists). The HHERA included two human health assessments, namely an inhalation assessment and a multi-media assessment. The results of the HHERA inhalation assessment are considered and interpreted in relation to Indigenous health from Project-related changes to air quality in Section 6.1.1 (Air Quality).

The HHERA multi-media assessment evaluated the following:

- **Receptors: Indigenous Resident** – This receptor was considered representative of Indigenous individuals who are assumed to reside in and harvest traditional foods in the LSA or RSA year-round for their entire lifetime. All life stages prescribed by Health Canada (2024b) were modelled

for this receptor. Two types of Indigenous Residents were assessed to capture exposures from varying levels of traditional foods consumption:

- Indigenous Resident (Heavy Consumer): The heavy consumer Indigenous resident was based on a receptor that consumes high amounts of traditional foods (i.e., 95th percentile consumption rates)
- Indigenous Resident (Average Consumer): The average consumer Indigenous resident was based on a receptor that consumes average amounts of traditional foods (i.e., mean consumption rates) and was considered to represent the general Indigenous population
- For the assessment of non-carcinogens (i.e., threshold) POPCs, the toddler lifestage (the most sensitive life stage due to their exposure rates relative to body weight) and adult lifestage were evaluated; and a woman of childbearing age was also evaluated given the potential presence of developmental toxicants (i.e., mercury).
- For the assessment of carcinogens (i.e., non-threshold) POPCs, a composite receptor was evaluated which incorporates exposure through all lifestages: infant, toddler, child, teen, and adult (or Elder).
- **POPCs:** Arsenic, mercury, selenium. Other Project parameters were below screening criteria protective of human health.
 - Arsenic (retained based on concentrations elevated above human health soil quality criteria)
 - Mercury (retained based on bioaccumulative potential and expressed concern from Indigenous communities)
 - Selenium (retained based on bioaccumulative potential in the aquatic environment).
- **Exposure pathways:**
 - Direct contact with soil (incidental ingestion, dermal contact, inhalation of soil particulates)
 - Direct contact with surface water (ingestion as drinking water, incidental ingestion, dermal contact)
 - Indirect contact with soil and surface water via uptake of parameters from soil and surface water into traditional foods (ingestion of garden produce, traditional plants, wild game, fish).

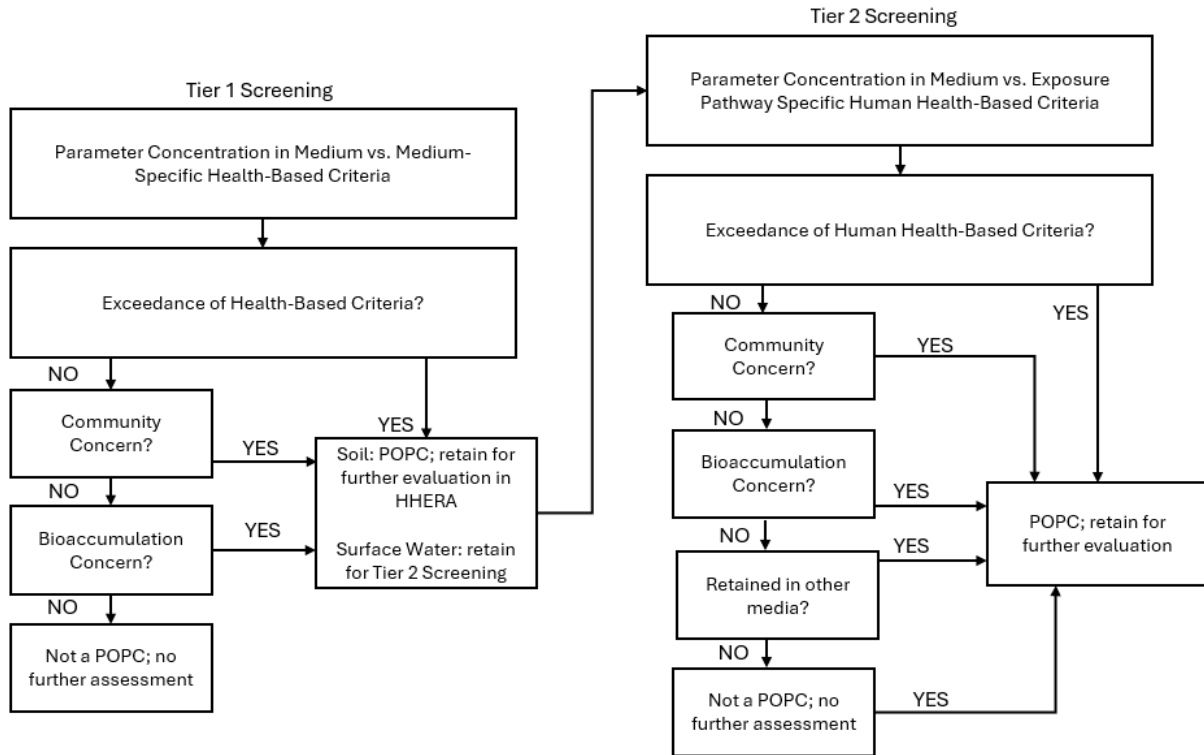
For soil, as described in detail in the HHERA multi-media assessment, the predicted overall maximum soil concentrations were compared against human health-based screening criteria. Based on this screening process, arsenic was retained as a POPC and was included for further evaluation in the HHERA multi-media assessment. Additionally, mercury was retained as a POPC based on both community concerns and bioaccumulation potential, and selenium was retained as a POPC based on bioaccumulation potential in the aquatic environment. These POPCs were retained for all Project phases. No further screening for soil was required, as discussed in the HHERA (Impact Statement Appendix N-2; WSP 2026a).

For surface water, an initial screening process (referred to as a Tier 1 screening in the HHERA) compared the predicted maximum monthly surface water quality concentrations of the applicable water quality nodes considered in the HHERA (see HHERA for details [Impact Statement Appendix N-1; WSP 2026a]) against human health-based drinking water screening criteria, as it was assumed that drinking water was conservatively sourced from surface water. A further pathway-specific screening (referred to as a Tier 2 screening in the HHERA) was completed which compared the predicted maximum annual concentration at each individual water quality node to both human health-based drinking water screening criteria and incidental ingestion screening criteria (i.e., incidental ingestion from swimming, bathing). Based on this screening process, no parameters were predicted to have surface water concentrations above health-based criteria. However, arsenic was conservatively retained as a POPC for the multi-media assessment based on identified arsenic soil concentrations above human health soil screening criteria. Although it did not screen above human health criteria, mercury was retained as a POPC based on both community concerns and bioaccumulation potential. As the organic form of mercury, methylmercury, is the most toxic

form of mercury and is bioaccumulative in aquatic organisms (e.g., fish) that can be consumed by humans, both mercury (i.e., inorganic) and methylmercury were carried forward in the HHERA multi-media assessment. Selenium was similarly retained as a POPC based on bioaccumulation potential in surface water, despite its concentrations measuring below human health screening criteria. These POPCs were retained for assessment in all Project phases.

An overview of this screening process is presented in Figure 6-8 below.

Figure 6-8: POPC Screening Process for HHERA



While the multi-media assessment focused on the determination of risks from total exposure, the model used for the assessment identified which individual environmental medium (i.e., fish, wild game, surface water) was the primary contributor to potential risk for each POPC.

Groundwater and sediment exposure pathways were considered to be incomplete for an Indigenous Resident in the context of the Project. Full details and rationale are provided in the HHERA (Impact Statement Appendix N-1; WSP 2026). As stated above, air quality was evaluated in the HHERA inhalation assessment, the results of which are presented in Section 6.1.1. Deposition from emissions in air onto soil, surface water and vegetation was captured in the HHERA multi-media assessment. Multi-media human health risks for each Project phase are summarized in the construction, operations and closure sections below.

As discussed in Section 6.1.1.3, Indigenous communities in the region view on health as a holistic balance, therefore, potential effects to health associated with multi-media environmental quality should be interpreted in the context of the interconnectedness of physical, mental, emotional and spiritual health. . It is acknowledged that any change to the environment may be perceived by some Indigenous people as unacceptable and potentially affecting their way of life, and that environmental multi-media quality is only one factor that contributes to overall Indigenous health and wellness.

Primary and Grey Literature

Changes in multi-media environmental quality as the result of industrial activities (i.e., mining) are closely linked to human health both due to interruptions to important nutritional, social, economic and cultural benefits associated with traditional food practices, and due to potential adverse health effects from elevated exposure to environmental parameters.

Potential health effects associated with exposure to elevated concentrations of metals in surface water, soil, and traditional foods are parameter specific. As detailed above, arsenic, mercury, methylmercury and selenium were identified as POPCs for human health through the HHERA. A summary of possible health effects associated with each of these POPCs is provided below. Potential health effects are exposure and receptor-dependent; whether any of the following effects could occur is dependent on the results of the HHERA.

In general, ingestion of elevated levels of inorganic arsenic are associated with gastrointestinal effects, haematological effects, cardiac abnormalities, and paraesthesia, and at extreme concentrations can result in death (ATSDR 2007). Chronic ingestion of inorganic arsenic can result in skin irritation and dermatological changes including skin darkening and development of wartlike growths. In children, long-term exposure to inorganic arsenic has been associated with lowered IQ scores. Inorganic arsenic is also a known carcinogen (ATSDR 2007). Exposure to both inorganic and organic mercury is associated with neurological and renal effects (Agency for Toxic Substances and Disease Registry 2024). Organic mercury (i.e., methylmercury) exposure at high concentrations is associated with motor function effects and cognitive impacts including learning and memory deficits. Fetal exposure to methylmercury is associated with birth defects (ATSDR 2024). While selenium is an essential element, exposure to high concentrations via ingestion can result in gastrointestinal effects, and chronic ingestion is associated with selenosis which is characterized by hair loss, nail brittleness and paraesthesia (ATSDR 2003). As with any given pollutant, the health risk is dependent on the duration and the intensity of the exposure.

As presented in Section 6.1.2.1, traditional food diets have beneficial implications for nutritional health, because these diets contain high levels of essential nutrients (Batal et al., 2021b; McCartan et al. 2020). Evidence suggests that traditional food diets promote greater cardiovascular health (i.e., omega-3 fatty acids), protective action against some cancers, autoimmune and thyroid diseases (i.e., selenium), and play a significant role in maintenance of bone and immune health (i.e., vitamins A, D) far and above micronutrients available from other traditional or commercial food sources. Consumption of traditional foods have also been shown to reduce the rates of diabetes, obesity and other diet-related diseases (Domingo et al. 2021; Earle 2011a; FNHA n.d.; Marushka et al. 2021; McCartan et al. 2020).

In general, where potentially adverse effects from the consumption of traditional foods are identified through human health assessments (e.g., HHERAs), consumption advisories are a commonly recommended mitigation measure. A literature review completed by Knopper and Mey (2011) found that when co-developed with input from Indigenous communities, clearly defined and understood restrictions on consumption of traditional foods can be effective in reducing exposure to parameters of concern present in food items. However, consumption advisories were also found to be associated with interruptions to cultural continuity (i.e., loss of intergenerational knowledge), psychological stress, social, economic impacts, and nutritional impacts from decreased participation in traditional food practices (McAuley and Knopper 2011).

Indigenous Knowledge and Community-specific Information

This section presents IK that was received from some of the local Indigenous communities, supplemented by other relevant community-specific information that was publicly available, to identify where and how IK was incorporated into the assessment of Indigenous health.

IK and community-specific elements were included in the HHERA. For example, the HHERA included an Indigenous Resident receptor, selected to represent both general Indigenous populations (Average Consumer) and heavy traditional food users (Heavy Consumer), while evaluating sensitive populations (i.e., toddler lifestage, adult female). The HHERA also considered the specialized diets and lifestyles of Indigenous populations, including the reliance on wild game, fish and plants as food sources. Traditional food consumption by an Indigenous Resident was characterized using Indigenous-specific data from

FNFNES (Chan et al. 2021, 2014) to capture traditional food consumption rates from Indigenous communities in Ontario. The HHERA multi-media assessment considered traditional food species ingested by local Indigenous communities. Species identified through available IK and TKLUS reports were used to validate the selection of species included in the HHERA multi-media assessment. A detailed discussion is provided in Section 4.4 above, and in the HHERA (Impact Statement Appendix N-1; WSP 2026a). It is recognized that the species considered in the multi-media assessment do not represent the full range of species consumed by local Indigenous communities; however, species selected for the assessment included a combination of those identified in the IK and TKLUS reports received, and information available from FNFNES for Ontario (Chan et al. 2014, 2021). It is also noted that a wide range of species, beyond what would be considered for human consumption alone, was assessed through the ERA ecological multi-media assessment (Impact Statement Appendix N-1, WSP 2026a).

It is acknowledged that perception of multi-media environmental quality may vary between Indigenous communities based on community-specific land-based practices, previous or current use of the PA / LSA / RSA and historical context. Historical industrial activity in the region has influenced existing (baseline) conditions in the region. For further details, please refer to the HHERA (Impact Statement Appendix N-1; WSP 2026a) and Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies (Impact Statement Appendix T; WSP 2026b). Perception of multi-media environmental quality, regardless of measured changes in quality, can have indirect repercussions on Indigenous health and wellness, as discussed in Section 6.2.4.6 and Section 6.2.5.6.

Relevant Baseline Health Information

Baseline conditions related to multi-media environmental quality are discussed in Existing Conditions, Section 6.1.2.2. Given the complex and varied interactions between exposure to different environmental media and human health, there are a variety of health conditions and wellness indicators (e.g., chronic conditions, nutrition and diet) that may be influenced by different environmental exposures. Existing health information can be found in the Baseline Health Profile (Attachment A). Existing conditions related to multi-media environmental quality provide an indication of current environmental conditions that may already be influencing baseline health status of communities in the region. These existing conditions provide an understanding of current environmental exposures, in order to identify potential Project related effects on Indigenous health.

The Baseline Health Profile (Attachment A) provides publicly available Indigenous health data published by various sources and agencies, including the SLFNHA and NWHU. As presented in Attachment A, a report titled Learning from Our Ancestors: Mortality Experience of First Nations in Northern Ontario (1992–2014), published by the SLFNHA examines mortality and chronic health conditions among members of 59 First Nations communities in Northern Ontario. While this report may be slightly outdated, it reflects the most recently available data on mortality at this level (i.e., specific to local First Nations). The report subjects are members of Mamow Ahyamowen communities, which represent a partnership of 11 First Nations health service organizations representing 78 communities across Northern Ontario. 59 communities participated in this analysis including ANA and LSFN (Mamow Ahyamowen 2020). The report found that members of Mamow Ahyamowen communities are more likely to die before retirement age (65 years old) than the overall Ontario population, with the average age at death among Mamow Ahyamowen communities being 54 years old compared to 74 years old for Ontario. The most common causes of death among Mamow Ahyamowen community members between 1992 and 2014 were injuries, circulatory, cancer, and diabetes related deaths. Mamow Ahyamowen communities have more deaths due to injuries and diabetes than Ontario overall, whereas circulatory and cancer deaths showed similar rates to Ontario overall. More people in Mamow Ahyamowen communities tend to have diabetes when they die compared to Ontario overall and women were more likely to have a history of diabetes when they die compared to men (Attachment A).

Overall, based on available data, baseline health status of Indigenous communities in the region is below provincial averages for diabetes (Attachment A).

CONSTRUCTION

The construction phase of the Project is expected to occur over a three-year period and will include preparation of the site and the construction of mine infrastructure. Activities during construction include, but are not limited to, open pit and underground mining, management of rock and unconsolidated materials in stockpiles, and construction of buildings and infrastructure.

As stated in Impact Statement Section 7.2 (pVC Air Quality), Project interactions which could potentially effect soil, surface water and traditional foods as a result of deposition from airborne emissions include emissions from the operation of equipment, material handling, and the use of unpaved surfaces associated with site preparation, construction and development of mine infrastructure and operation of the construction camp. Additionally, operation of a concrete batch plant, cemented rockfill plant, and paste plant interacting with air quality, not specifically identified as unique activities for the Project, are anticipated to interact with soil, surface water and traditional foods as a result of deposition from airborne emissions during construction.

As stated in Impact Statement Section 7.7 (pVC Water Quality), Project interactions which could potentially effect surface water and traditional foods quality during construction include erosion and sedimentation effects to local water features, fugitive dust emissions and subsequent deposition on surface water features, changes to existing catchment area and associated catchment loading to surface water features, and blasting residue impacting runoff and dewatering water quality associated with site preparation activities, development and construction of mine infrastructure, mining of the Viggo pit, management of stockpiles, operation of aggregate operations, water management and treatment facilities, and dewatering activities.

Project interactions with soil and / or surface water could result in elevated concentrations of POPCs in these media which can result in direct contact by Indigenous people (e.g., incidental ingestion, ingestion, dermal contact and / or inhalation of soil particulates), and / or can be taken up by plants and animals, and subsequently ingested by Indigenous people. The HHERA evaluated potential human health risks from direct contact with soil (incidental ingestion, dermal contact, inhalation of soil particulates), surface water (ingestion of drinking water, incidental ingestion, dermal contact), and ingestion of traditional foods which were assumed to have taken up POPCs from soil and / or surface water as part of the multi-media assessment. The results of the human health multi-media assessment are presented in Table 6-8, Table 6-9, Table 6-10 and Table 6-11 below, with full details provided in the HHERA (Impact Statement Appendix N-1; WSP 2026a).

Table 6-8: Maximum Non-Carcinogenic Risk Estimates (Hazard Quotients) for Indigenous Receptor (Average Consumer, Toddler)

POPC	Baseline	Project + Baseline				Project Alone			
		Construction	Operations	Closure	Post Closure	Construction	Operations	Closure	Post Closure
Inorganic Arsenic	3.4	3.4	3.4	3.3	3.3	0.0084	0.012	0.013	0.0083
Inorganic Mercury ⁽¹⁾	0.30	0.30	0.32	0.32	0.30	0.0012	0.020	0.020	0.0022
Methylmercury ⁽¹⁾	1.9	1.9	1.9	1.9	1.9	0.0063	0.049	0.052	0.013
Selenium	0.11	0.11	0.11	0.11	0.12	0.0037	0.0058	0.0088	0.024

Notes:

1 Inorganic mercury and methylmercury risk estimates were calculated as the sum of HQs for fish and surface water pathways (estimated from the Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies report [Impact Statement Appendix T; WSP 2026b) and HQs for other assessed exposure pathways (estimated from the HHERA multi-media assessment [Impact Statement Appendix N-1; WSP 2026a]).

For Baseline and Project + Baseline, HQ values > 1.0 are shaded and **bolded**.

For Project Alone, HQ values > 0.2 are shaded and **bolded**.

HHERA = Human Health and Ecological Risk Assessment; HQ = hazard quotient; POPC = parameter of potential concern.

Table 6-9: Maximum Non-Carcinogenic Risk Estimates (Hazard Quotients) for Indigenous Receptor (Heavy Consumer, Toddler)

POPC	Baseline	Project + Baseline				Project Alone			
		Construction	Operations	Closure	Post Closure	Construction	Operations	Closure	Post Closure
Inorganic Arsenic	4.6	4.6	4.5	4.4	4.3	0.018	0.020	0.020	0.010
Inorganic Mercury ⁽¹⁾	1.0	1.0	1.1	1.1	1.0	0.0032	0.073	0.074	0.0062
Methylmercury ⁽¹⁾	6.8	6.8	6.9	6.9	6.8	0.019	0.18	0.18	0.041
Selenium	0.44	0.45	0.45	0.47	0.47	0.014	0.021	0.035	0.085

Notes:

1 Inorganic mercury and methylmercury risk estimates were calculated as the sum of HQs for fish and surface water pathways (estimated from the Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies report [Impact Statement Appendix T; WSP 2026b) and HQs for other assessed exposure pathways (estimated from the HHERA multi-media assessment [Impact Statement Appendix N-1; WSP 2026a]).

For Baseline and Project + Baseline, HQ values > 1.0 are shaded and **bolded**.

For Project Alone, HQ values > 0.2 are shaded and **bolded**.

HHERA = Human Health and Ecological Risk Assessment; HQ = hazard quotient; POPC = parameter of potential concern.

Table 6-10: Non-Carcinogenic Risk Estimates (Hazard Quotients) for the Adult Female Indigenous Receptor (Average and Heavy Consumer)

Receptor	POPC	Baseline	Project + Baseline				Project Alone			
			Construction	Operations	Closure	Post Closure	Construction	Operations	Closure	Post Closure
Indigenous Resident (Average Consumer)	Inorganic Mercury ⁽¹⁾	0.21	0.21	0.21	0.21	0.21	0.00088	0.016	0.016	0.0015
	Methylmercury ⁽¹⁾	0.97	0.97	1.0	1.0	0.97	0.0047	0.027	0.028	0.0091
Indigenous Resident (Heavy Consumer)	Inorganic Mercury ⁽¹⁾	0.56	0.57	0.60	0.60	0.56	0.0020	0.040	0.040	0.0041
	Methylmercury ⁽¹⁾	3.5	3.6	3.7	3.6	3.5	0.013	0.10	0.10	0.032

Notes:

1 Inorganic mercury and methylmercury risk estimates were calculated as the sum of HQs for fish and surface water pathways (estimated from the Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies report [Impact Statement Appendix T; WSP 2026b) and HQs for other assessed exposure pathways (estimated from the HHERA multi-media assessment [Impact Statement Appendix N-1; WSP 2026a]).

For Baseline and Project + Baseline, HQ values > 1.0 are shaded and **bolded**.

For Project Alone, HQ values > 0.2 are shaded and **bolded**.

HHERA = Human Health and Ecological Risk Assessment; HQ = hazard quotient; POPC = parameter of potential concern.

Table 6-11: Carcinogenic Risk Estimates (Incremental Lifetime Cancer Risks) for Indigenous Receptor (Average Consumer and Heavy Consumer, Lifetime Composite)

Receptor	POPC	Construction	Operations	Closure	Post Closure	Total ILCR
Indigenous Resident (Average Consumer)	Inorganic Arsenic	1.8E-08	1.5E-07	1.8E-08	1.2E-07	3.1E-07
Indigenous Resident (Heavy Consumer)		4.2E-08	3.3E-07	3.5E-08	2.1E-07	6.8E-07

Notes:

ILCR values > 10E-05 are shaded and **bolded**.

ILCR = incremental lifetime cancer risks; POPC = parameter of potential concern.

As presented in Table 6-8 and Table 6-9, the human health multi-media assessment identified non-carcinogenic risks (i.e., HQs above the target HQ of 1.0) from exposure to inorganic arsenic for both the average and heavy consumer Indigenous resident (toddler) for baseline and when accounting for Project+Baseline for the construction phase. When accounting for Project-Alone contributions, HQs were below the target HQ of 0.2 for construction and are considered negligible. This indicated that Project+Baseline HQs above the target HQ of 1 are associated with the background conditions (i.e., baseline) rather than the Project, and the Project is not expected to increase arsenic-related human health risks for the average consumer or heavy consumer Indigenous resident living, working, and recreating in the LSA and RSA during construction. For the Indigenous resident, the maximum HQs were observed for the toddler life stage (most sensitive life stage for non-carcinogenic exposure to arsenic) and surface water exposure (i.e., ingestion as drinking water, incidental ingestion, dermal contact) was the primary exposure pathway. Surface water exposure accounted for approximately 83% of the arsenic HQs for the average consumer toddler Indigenous resident, and approximately 62% of the arsenic HQs for the heavy consumer toddler Indigenous resident. Surface water exposure represents a conservative assumption in the HHERA as surface water in the RSA and LSA was assumed to be the only source of drinking water for Indigenous resident receptors.

Arsenic was additionally assessed as a carcinogen as presented in Table 6-11. The calculated ILCR values for the lifetime composite Indigenous resident receptor were below the target ILCR of $1.0E-05$ (i.e., 1-in-100,000) for both the average and heavy consumer Indigenous resident for the construction phase, and for the total ILCR for an 80-year lifetime. As such, unacceptable carcinogenic risks are not expected from the Project.

For the assessment of mercury, a Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies (Impact Statement Appendix T; WSP 2026b) was conducted to evaluate potential risks to human health associated with fish and surface water consumption, based on predicted changes in fish tissue mercury and methylmercury concentrations resulting from treated effluent discharge from the Project. For both Indigenous resident receptors (average and heavy consumer), baseline HQ values for inorganic mercury and / or methylmercury often were greater than the target HQ of 1, indicating potential health risks under existing conditions, which is reflected in the existing local fish consumption advisories from MECP. However, Project-related contributions were calculated to be negligible, with Project-related HQ values below the target HQ of 0.2. It should be noted that the Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies report focused only on exposure pathways of ingestion of fish and surface water. Therefore, the HHERA multi-media assessment of mercury focused on exposures from other media, and the HHERA multi-media HQs were combined with the HQs calculated in the Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies to estimate total mercury related HQs from the sources of exposure related to the Project site.

For inorganic mercury, as presented in Table 6-8, for the average consumer Indigenous resident (toddler) baseline and Project+Baseline HQs were below the applicable target HQ of 1 for these assessment cases, and Project-Alone HQs were below the applicable target HQ of 0.2. Therefore, Project-related risks are considered to be negligible for the average consumer from exposure to inorganic mercury. For the heavy consumer (toddler), as presented in Table 6-9, predicted maximum HQs were equal to the target HQ of 1 for baseline and Project+Baseline, and below the target HQ of 0.2 when accounting for Project-Alone contributions, and considered negligible for construction. The maximum HQs were observed for the toddler lifestage (most sensitive lifestage for non-carcinogenic exposure to inorganic mercury) and the primary exposure pathway contributing to the HQs was ingestion of fish, accounting for approximately 96% of HQs for the heavy consumer toddler Indigenous resident. For inorganic mercury, a female adult (of child-bearing age) was also evaluated to represent sensitive populations for exposure to developmental toxicants. As presented in Table 6-10, for the adult female baseline and Project+Baseline HQs were below the target HQ of 1, and Project-Alone HQ values were below the target HQ of 0.2. As such, the Project is not expected to increase inorganic mercury-related health risks for the average consumer or heavy consumer Indigenous Resident living, working, and recreating in the LSA and RSA during construction.

As presented in Table 6-8 and Table 6-9, the human health multi-media assessment identified non-carcinogenic risks (i.e., HQs above the target HQ of 1.0) from exposure to methylmercury for both the average and heavy consumer Indigenous resident (toddler) for baseline and when accounting for Project+Baseline for the construction phase. When accounting for Project-Alone contributions, HQs were below the target HQ of 0.2 for construction and are considered negligible. This indicated that Project+Baseline HQs above the target HQ of 1 are associated with the background conditions (i.e., baseline) rather than the Project. For methylmercury, a female adult (of child-bearing age) was also evaluated to represent sensitive populations for exposure to developmental toxicants. As presented in Table 6-10, the baseline and Project+Baseline HQ for the adult female life stage was above the target HQ of 1 for the heavy consumer but lower than for the toddler heavy consumer (Table 6-8, Table 6-9). The baseline and Project+Baseline HQs for the average consumer were below 1.0. When accounting for Project-Alone contributions, maximum methylmercury HQ values for the adult female were below the target HQ of 0.2 for both heavy and average consumers. Therefore, Project-Alone HQs are considered negligible. Exposure to methylmercury via dietary consumption pathways, specifically fish ingestion, was the primary (i.e., >95%) exposure pathway contributing to HQs. The Project is not expected to increase methylmercury-related human health risks for the average consumer or heavy consumer Indigenous Resident living, working, and recreating in the LSA and RSA during construction.

No risks were identified for selenium for the average or heavy consumer Indigenous resident based on HQs for baseline and Project+Baseline which were below the target HQ of 1.0 or Project-Alone, which were below the target HQ of 0.2. Therefore, the Project is not expected to increase selenium-related human health risks for the average consumer or heavy consumer Indigenous Resident living, working, and recreating in the LSA and RSA during construction.

Overall, multi-media environmental quality is influenced by a number of interrelated factors that both directly and indirectly affect downstream environmental conditions. Multi-media environmental quality is directly linked to health as humans are exposed to parameters in soil, surface water and traditional foods via numerous direct and indirect exposure pathways. Potential health effects associated with exposure to elevated concentrations of POPCs in soil, surface water, and traditional foods are parameter specific and can be related to exposure dose (i.e., concentration, frequency and duration). The available evidence from upstream pVCs and HHERA results indicated that for the multi-media POPCs, health risks from Project activities are not anticipated during construction. While baseline (i.e., existing conditions) risks were identified for some POPCs, incremental risks from Project activities are negligible. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.

While physical health is not expected to be directly affected by Project interactions with multi-media environmental quality during construction, it is important to acknowledge that Indigenous people in the region view health as a holistic balance including complex connections to the environment and all living things. Potential effects to health associated with multi-media environmental quality should be interpreted in the context of the interconnectedness of physical, mental, emotional and spiritual health. It is possible that perception issues related to environmental quality may change or limit the consumption of traditional foods by local Indigenous communities during construction. Traditional food diets contain high levels of essential nutrients (Batal et al. 2021b; McCartan et al. 2020). Evidence suggests that traditional food diets promote greater cardiovascular health, have protective action against some cancers, autoimmune and thyroid diseases, support maintenance of bone and immune health and can decrease incidence of diabetes, obesity and other diet-related diseases (Batal et al 2021a; FNHA n.d.; Kuhnlein et al., 2001; Marushka et al. 2021). Traditional food practices are also beneficial to health via opportunities for physical activity (Samson and Pretty 2006). Additionally, traditional food systems contribute to the cultural identity, social cohesion, and nutritional wellness of Indigenous communities, all of which are intricately tied to each other and to their overall Indigenous health and community wellness (Earle 2011a). While not quantifiable in the same manner as food quality and nutrition, traditional food collection and consumption also plays an important role in spiritual and cultural wellness (Batal et al. 2021a; Samson and Pretty 2006).

Mitigation measures and monitoring plans are expected to be protective of Indigenous health during construction. For example, as discussed in the assessment of Current Use of Lands and Resources for Traditional Purposes (CULRTP) (Impact Statement Sections 10 to 14; fVC Indigenous Peoples), Great Bear Resources supports Indigenous-led monitoring and is currently funding a community-based Chukuni Watershed Aquatic Monitoring Program, where Nations will collect, compile, analyze and interpret their own data throughout all phases of the Project. This program is expected to have a beneficial effect on participating Indigenous communities, enhancing knowledge transfer, community cohesion, perceptions of environmental quality and safety, and promote overall wellness through time spent on the land. Another program that will be provided to employees and their families is the Annual Fitness and Mental Health Benefit fund (\$500 per annum) which will provide funding that can be used for purchasing equipment needed for harvesting (hunting, fishing, foraging) traditional foods. In addition, given the HHERA is based on predicted data, environmental quality (air, water, fish) monitoring programs will include those POPCs identified in the HHERA for human health for comparison to human health medium-specific criteria applied in the HHERA multi-media assessment, in order to validate assumptions. Data sharing agreements with local Indigenous communities, and support of Indigenous environmental monitoring programs were also identified. A list of mitigation and enhancement measures for multi-media environmental quality are presented in Section 6.1.2.4 and for the HIA overall in Section 7.

Overall, direct effects on Indigenous health from changes to multi-media environmental quality as a result of Project activities during construction are not anticipated; however, mitigations and enhancements presented in Section 6.1.2.4 are required to minimize potential indirect effects related to perception of environmental quality to avoid disruption to traditional food practices.

OPERATIONS

The operations phase is anticipated to extend over a 26-year period. Similar interactions as the construction phase will continue. As stated in Impact Statement Section 7.2 (pVC Air Quality), Project interactions which could potentially effect soil, surface water and traditional foods as a result of deposition from airborne emissions are the same as those expected for construction. The source of the interactions during operations are associated with operation of the mine and related infrastructure, and processing of ore and management of rock and tailings, and operation of a concrete batch plant, cemented rockfill plant, and paste plant. As stated in Impact Statement Section 7.7 (pVC Water Quality), Project interactions which could potentially affect surface water quality during operations include discharge of treated Project contact water to Chukuni River, fugitive groundwater seepage to surface water features, treatment and discharge of domestic sewage to the Chukuni River, and fugitive dust emissions and subsequent deposition on surface water features.

The results of the HHERA multi-media assessment for the operations phase are presented in Table 6-8, Table 6-9, Table 6-10 and Table 6-11 in the discussion of construction above, with full results provided in the HHERA (Impact Statement Appendix N-1; WSP 2026a). The results of the human health multi-media assessment for the operations phase resulted in the same conclusions described above for construction, with HQs for operations calculated as essentially equal to or below HQs calculated for construction.

As presented in Table 6-8 and Table 6-9, non-carcinogenic risks (i.e., HQs above target HQ 1.0) were identified from exposure to inorganic arsenic for both the average and heavy consumer Indigenous resident (toddler) for baseline and Project+Baseline for operations, with surface water exposure as the primary contributing pathway (approximately 83% of the HQs for average consumer toddler Indigenous resident; approximately 62% of the HQs for heavy consumer toddler Indigenous resident [same as construction]). However, when accounting for Project-Alone contributions, HQs were below the target HQ of 0.2 for operations and considered negligible. This indicated that Project+Baseline HQs above the target HQ of 1 are associated with the background conditions (i.e., baseline) rather than the Project, and the Project is not expected to increase arsenic-related human health risks for the average consumer or heavy consumer Indigenous resident living, working, and recreating in the LSA and RSA during construction. Carcinogenic effects from inorganic arsenic are the same as described for the construction phase wherein the calculated ILCR values for the composite receptor was below the target ILCR of 1.0E- 05 (i.e., 1-in-100,000) for both the average and heavy consumer Indigenous resident for the operations phase and for the total 80-year lifetime composite. As such, unacceptable carcinogenic risks are not expected from the Project.

In the HHERA, multi-media assessment HQs for mercury (inorganic and methylmercury) were combined with the HQs calculated in the Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies to estimate total mercury related HQs from the sources of exposure related to the Project site. These total HQs are presented in Table 6-8, Table 6-9 and Table 6-10. For inorganic mercury, as presented in Table 6-8, for the average consumer Indigenous resident (toddler) baseline and Project+Baseline HQs were below the applicable target HQ of 1 for these assessment cases, and Project-Alone HQs were below the applicable target HQ of 0.2. As such, risks for the average consumer were considered to be negligible during operations. For the heavy consumer Indigenous resident (toddler), as presented in Table 6-9, the HQ was above the target HQ of 1 for Project+Baseline, driven by the ingestion of fish exposure pathway (accounting for approximately 96% of HQs; same as construction). However, when accounting for Project-Alone contributions, the HQ was below the target HQ of 0.2 for the heavy consumer for operations and considered negligible. As presented in Table 6-10, for the average and heavy consumer adult female baseline and Project+Baseline HQs were below or equal to the target HQ of 1, and Project-Alone HQ values were below the target HQs of 0.2. The female adult was evaluated to represent sensitive populations for exposure to developmental toxicants. As such, this indicates that Project+Baseline HQs above the target HQ of 1 are associated with the background conditions (i.e., baseline) rather than the Project, and the Project is not expected to increase inorganic mercury-related health risks for the average consumer or heavy consumer Indigenous Resident living, working, and recreating in the LSA and RSA during construction.

As presented in Table 6-8 and Table 6-9, non-carcinogenic risks (i.e., HQs above target HQ (1.0)) were identified from exposure to methylmercury for the heavy consumer Indigenous resident (toddler) for baseline and Project+Baseline for operations, with dietary consumption pathways, specifically fish ingestion as the primary exposure pathway contributing to HQs (i.e., >95%; same as construction). However, when accounting for Project-Alone contributions, HQs were below the target HQ of 0.2 for operations and considered negligible. As presented in Table 6-10, baseline and Project+Baseline HQs for the adult female life stage were below or equal to the target HQ of 1 for the average consumer and above the target HQ of 1 for the heavy consumer, but lower than HQs for the toddler (Table 6-8, Table 6-9). When accounting for Project-Alone contributions, methylmercury HQ values for the adult female were below the target HQ of 0.2. This indicated that Project+Baseline HQs above the target HQ of 1 are associated with the background conditions (i.e., baseline) rather than the Project, and the Project is not expected to increase methylmercury-related human health risks for the average consumer or heavy consumer Indigenous resident living, working, and recreating in the LSA and RSA during construction.

No risks were identified for selenium for the average or heavy consumer Indigenous resident based on HQs for baseline, Project+Baseline or Project-Alone for operations. Therefore, the Project is not expected to increase selenium-related human health risks for the average consumer or heavy consumer Indigenous Resident living, working, and recreating in the LSA and RSA during construction.

Consistent with the construction phase, for the multi-media POPCs, baseline (i.e., existing) conditions are driving risk for human health. The incremental Project risks for each phase are below the target HQ of 0.2 applicable for Project-Alone contributions, representing a negligible change from baseline risks. For carcinogenic effects of inorganic arsenic, ILCR values are below the target threshold of $1E-05$ (i.e., 1-in-100,000). As such, Project activities are not anticipated to pose risks to the Indigenous Resident during operations. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.

While physical health is not expected to be directly affected by Project interactions with multi-media environmental quality during operations, it is important to acknowledge that Indigenous people in the region view health as a holistic balance which includes complex connections to the environment and all living things. Potential effects to health associated with multi-media environmental quality should be interpreted in the context of the interconnectedness of physical, mental, emotional and spiritual health. It is possible that perception issues related to environmental quality may change or limit the consumption of traditional foods by local Indigenous communities during operations. Mitigation measures and monitoring plans are expected to be protective of Indigenous health during operations. These measures include, but are not limited to, Indigenous environmental monitoring programs and data-sharing agreements. A list of

mitigation and enhancement measures for multi-media environmental quality are presented in Section 6.1.2.4 and for the HIA overall in Section 7.

As such, direct effects on Indigenous health from changes to multi-media environmental quality as a result of Project activities during operations are not anticipated; however, mitigations and enhancements presented in Section 6.1.2.4 are required to minimize potential indirect effects related to perception of environmental quality to avoid disruption to traditional food practices.

CLOSURE

Activities during the active closure period, which is expected to occur over a three-year period immediately after operations cease, are similar to those during the construction phase. Similar mining and construction equipment are utilized during this period, but on a much smaller scale. The passive closure period includes occasional maintenance, limited use of mining and construction equipment, and a short final close out and reclamation period where water treatment infrastructure will be removed.

As stated in Impact Statement Section 7.2 (pVC Air Quality), Project interactions which could potentially effect soil, surface water and traditional foods as a result of deposition from airborne emissions are the same as those expected for construction, with interactions during closure associated with demolition and removal activities. As stated in Impact Statement Section 7.7 (pVC Water Quality), Project interactions which could potentially effect surface water and subsequently traditional food quality during closure include discharges from contact water, fugitive groundwater seepage to surface water features, erosion and sedimentation from reclamation activities, and dust deposition on local water features.

The results of the HHERA multi-media assessment for the operations phase are presented in Table 6-8, Table 6-9, Table 6-10 and Table 6-11 in the discussion of construction above, with full results provided in the HHERA (Impact Statement Appendix N-1; WSP 2026a). The results of the human health multi-media assessment for closure and post-closure resulted in the same conclusions described previously for construction and operations. For the POPCs (inorganic arsenic, inorganic mercury, methylmercury, inorganic selenium), baseline (i.e., existing conditions) drive risk for human health. The incremental Project risks for each phase are below the target HQ of 0.2 applicable for Project-Alone contributions, representing a negligible change from baseline HQs. The ILCRs values are below the target ILCR of 1E-05 (i.e., 1-in-100,000) for carcinogenic effects of inorganic arsenic. This indicated that Project+Baseline HQs above the target HQ of 1 are associated with the background conditions (i.e., baseline) rather than the Project, and the Project is not expected to increase human health risks for the average consumer or heavy consumer Indigenous resident living, working, and recreating in the LSA and RSA during construction from exposure to inorganic arsenic, inorganic mercury, methylmercury, inorganic selenium during closure or post closure. Collectively, these HHERA findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.

The overall intent of the Closure Plan is to restore the Project to a naturalized condition. As described in the CWB assessment (fVC Indigenous Peoples), confidence in land and water quality will remain a key determinant of recovery, influencing whether members resume harvesting and other traditional practices in reclaimed areas. Over the long term, reclamation and revegetation activities may gradually restore access to traditional lands and support cultural revitalization if trust in environmental outcomes is rebuilt. In this manner, concerns related to perception of environmental quality may diminish overtime.

6.1.2.4 MITIGATION AND ENHANCEMENT MEASURES

Table 6-12 outlines the key mitigation and enhancement measures recommended based on the assessment of changes to multi-media environmental quality. These mitigation and enhancement measures are anticipated to apply across all Project phases unless otherwise specified. General mitigation measures for closure activities that relate to Indigenous health are also included.

Table 6-12: Mitigation and Enhancement Measures for Multi-media Environmental Quality

Mitigation and Enhancement Measures for Multi-media Environmental Quality	Rationale
<p><u>Environmental Management Committee:</u> GBR will work with the environmental management committee(s) and interested Indigenous members throughout the duration of the Project (all phases), to facilitate ongoing communications, sharing and integration of Indigenous knowledge and environmental information, and share and evaluate Project approvals, adaptive management and monitoring plans, and address emerging issues and interests identified by Indigenous Nations. ⁽¹⁾</p>	<p>Key aspects of the environmental management committee(s) related to Indigenous health are that: (1) it includes Indigenous members and (2) the committee will continue to operate for the duration of the Project. The committee is expected to mitigate against perception issues associated with environmental degradation and mistrust and is supportive of self-determination in addressing Indigenous issues. Collectively, these are expected to help mitigate against adverse mental health and community cohesion concerns.</p>
<p><u>Environmental Monitoring:</u> Environmental monitoring programs for surface water and aquatics will include constituents and related health-based benchmarks as considered in the health assessment (such as arsenic, mercury, methylmercury and selenium). Aquatics sampling programs will also include ongoing sampling and testing of fish quality in species identified for human consumption (i.e., walleye / pickerel, lake whitefish, northern pike, trout) as captured.</p>	<p>The HHERA multi-media assessment results do not indicate an effect to human health from the Project, including human health-based constituents and benchmarks in water and aquatic / fish monitoring programs is important to validate assessment assumptions, provide evidence regarding the effectiveness of mitigation measures, and assist in mitigating community perception issues related to safety, environmental quality and health.</p>
<p><u>Environmental Data Sharing Agreements:</u> GBR will share environmental monitoring data (air, water, fish) with Indigenous communities that request it on an annual basis and provide opportunities (including funds) to conduct their own reviews.</p>	<p>Providing environmental monitoring data, in a timely manner, to interested Indigenous communities is anticipated to promote transparency and relationship-building, while provision of funding for communities to conduct their own reviews, analyses and / or assessments using the data will empower and resource Indigenous communities. This measure is anticipated to mitigate against mental wellness and community cohesion effects, related to perception issues, lack of trust, and environmental quality concerns, over time.</p>
<p><u>Indigenous Environmental Monitoring Programs:</u> GBR is committed to involving Indigenous communities in environmental monitoring activities throughout all phases of the Project, including opportunities for participation in the collection and sharing of environmental monitoring information and results.</p>	<p>This Indigenous initiative is expected to have a positive effect on participating Indigenous communities, enhancing knowledge transfer and community cohesion. It is also expected to mitigate against adverse perceptions of environmental quality and safety and promote overall physical and mental health and wellness through time spent on the land.</p>

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC). fVC = federal valued component; GBR = Great Bear Resources; HHERA = Human Health and Environmental Risk Assessment; HIA = Health Impact Assessment; pVC = pathway valued component.

The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2) are in place as planned.

6.1.2.5 GBA PLUS CONSIDERATIONS

In accordance with Health Canada guidance (Health Canada 2024a), the HIA takes an equity approach to assessing potential effects by examining the potential distribution of effects across different sub-populations within the Indigenous communities. This section highlights how Indigenous identity intersects with the other GBA Plus identity factors described below. Table 6-13 applies a GBA Plus lens that treats Indigenous identity as a central identity factor, and the other identity factors described below are discussed within this context. At the bottom of this table there is a section highlighting key intersectionality considerations, Indigenous identity is at the center of this qualitative analysis.

It is important to note that while this section identified subgroups that have the potential to experience effects uniquely from changes to multi-media environmental quality, the analysis should be considered in the context of the potential effects assessment findings. For example, since the HHERA multi-media assessment found no effects to Indigenous health from Project activities during construction, operations or closure, the analysis below does not suggest otherwise, rather it identifies populations that could be disproportionately affected and also discusses the potential health effects, or lack thereof, as identified in the assessment.

Table 6-13: GBA Plus and Equity Considerations – Multi-media Environmental Quality

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Gender	Disproportionate (Females [of child-bearing age]) ⁽¹⁾	Gender-specific differences in exposure or sensitivity to multi-media environmental quality were accounted for in the HHERA through the evaluation of a female (of child-bearing age) in the assessment of exposure to development toxicants (i.e., methylmercury). A TRV for methylmercury which is protective of a female of child-bearing age was applied in the HHERA multi-media assessment (Health Canada 2025). Based on the findings of the HHERA multi-media assessment, the Project was not expected to affect Indigenous health through Project-related changes to multi-media environmental quality; therefore, effects to GBA Plus subgroups are not expected as a result of Project-related changes.
Age	Disproportionate (Youth)	Exposure or sensitivity to parameters in multi-media environmental quality may vary by life stage based on the parameter. For methylmercury and selenium, Health Canada recommends TRVs based on age (Health Canada 2025). Appropriate, age-specific TRVs were applied in the HHERA multi-media assessment. Based on the findings of the HHERA multi-media assessment, the Project was not expected to affect Indigenous health through Project-related changes to multi-media environmental quality; therefore, effects to GBA Plus subgroups are not expected.
Physical Ability	Even	Available evidence does not suggest unique exposure pathways or health risks from multi-media environmental quality based on physical ability.
Socioeconomic Status	Even	Socio-economic status is not expected to have an impact on exposure to multi-media environmental quality parameters given the local context and findings of the HHERA multi-media assessment.
Mental Ability	Even	Mental health status is not expected to have an impact on exposure to multi-media environmental quality parameters.
Intersectional Analysis:	Intersectional effects which can compound vulnerabilities around multi-media environmental quality are not expected due to the findings of the assessment on Indigenous health. It is acknowledged that Indigenous identity intersects with the identity factors listed above.	

Notes:1 Interpretation of the gender identity factor for multi-media environmental quality GBA Plus analysis is limited to biological females. This is consistent with the basis of the TRVs used in the HHERA, which are derived based on biological female physiology (e.g., females of child-bearing age).
 GBA Plus = Gender Based Analysis Plus; HHERA = Human Health and Ecological Risk Assessment; TRV = toxicity reference value.

6.1.2.6 SUMMARY OF POTENTIAL EFFECTS: MULTI-MEDIA ENVIRONMENTAL QUALITY

The following is a summary of the findings from the assessment of potential effects to Indigenous health based on changes to multi-media environmental quality (Table 6-14). The specific mitigation and enhancement measures based on the assessment of changes to multi-media environmental quality, including a description and rationale, are described in Section 6.1.2.4.

Table 6-14: HIA Potential Effects Summary: Multi-Media Environmental Quality

Criteria	Description	Characterization
Health Determinant	Identify the determinant of health being assessed	<ul style="list-style-type: none"> Multi-media Environmental Quality (Soil, Water, Traditional Foods) (Biophysical Determinant of Health)
Direction of Potential Effect	Describe whether the potential effect may be beneficial or adverse	<ul style="list-style-type: none"> Adverse: the potential effect on human health may be adverse, thereby diminishing conditions that support Indigenous health. However, the determination of actual effects is based on the HHERA findings.
Scale of Potential Effect for this Determinant (post-mitigation)	Describes the expected scale of the Project-related effect to Indigenous health for this determinant	<ul style="list-style-type: none"> Negligible: there is limited to no effect on Indigenous health expected as a result of Project activities for this determinant following implementation of mitigation measures. The HHERA multi-media assessment did not identify adverse effects on Indigenous health from Project-related changes to multi-media environmental quality. Perception issues may change or limit participation in traditional food consumption for some individuals.
Affected Populations (Indigenous Communities)	Refers to the distribution of the effects across Indigenous communities and includes equity considerations	<ul style="list-style-type: none"> Assessment findings (i.e., Project-related changes) are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.
GBA Plus	Identify relevant GBA Plus considerations for this determinant	<ul style="list-style-type: none"> There are groups that may experience effects differently for this determinant. However, based on the assessment findings, the Project is not expected to affect Indigenous health through Project-related changes to multi-media environmental quality; therefore, effects to GBA Plus subgroups are not expected. Details are discussed in the multi-media environmental quality GBA Plus section (Section 6.1.2.5).
Mitigations and Enhancements	Additional measures listed based on the assessment of potential effects for this determinant ⁽²⁾	<ul style="list-style-type: none"> Additional measures, beyond what is included in the other pVC and fVC sections of the Impact Statement are listed below for multi-media environmental quality with further details provided in Section 6.1.2.4 and a list of health measure is provided in Section 7: <ul style="list-style-type: none"> Environmental Management Committee ⁽¹⁾ Environmental Monitoring Environmental Data Sharing Agreements Indigenous Environmental Monitoring Programs

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC)

2 Assumes measures included in upstream pVC and fVC sections of the Impact Statement are implemented.

ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); HHERA = Human Health and Ecological Risk Assessment; HIA = Health Impact Assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; pVC = pathway valued component; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

While these findings are specific to this determinant of health (multi-media environmental quality), an overall determination of the potential for residual effects for Changes to Health (fVC Indigenous Peoples) is provided in Section 8.

6.1.3 ACCESS AND AVAILABILITY OF WATER

This section includes an assessment of Indigenous health from changes in access and availability of water, including health linkages, relevant existing conditions, potential effects (construction, operations and closure), mitigation and enhancement measures and GBA Plus considerations.

It is noted that assessment of changes to access and availability of water is focussed on water quantity. Changes in water quality is assessed through the evaluation of multi-media environmental quality in Section 6.1.2, and through access and availability to traditional foods in Section 6.1.4.

6.1.3.1 HEALTH LINKAGES

The following section describes the generic exposure pathways and scenarios by which health can be influenced by access and availability of water. The linkages described here are not specific to one sector or community, instead, this section provides an overview of the relevance of water access and availability as a determinant of Indigenous health.

Water access and availability is related to both surface water and groundwater. Surface water is any body of water above ground, including streams, rivers, lakes, wetlands, reservoirs, and creeks. Groundwater is water that flows through underground formations called aquifers, where it fills the space between sand and gravel, crevices, or solutions in various types of rocks and soil. Surface water and groundwater exist in a continuous cycle of exchange between each other (ECCC 2013; Water Resources Mission Area 2019). Surface water infiltrates and replenishes underlying groundwater aquifers from which groundwater is discharged over time back into surface water.

Exposure to surface water has been shown to be good for mental health and general health (Smith et al. 2021). White et al. (2020) proposes a conceptual framework that explores the pathways by which engagement with blue (water-based) spaces can influence health outcomes. The framework suggests that health is influenced through exposure to blue spaces via various potential mechanisms such as “*instoration (e.g., promotion of positive outcomes such as improved mood or greater physical activity)*” and “*restoration (e.g., recovery from stress or attentional fatigue)*” (White et al. 2020). Surface water access can have significant cultural importance related to both identity and traditional / ceremonial practices (White et al. 2020). Surface water quality can also impact the health of fish and aquatic ecosystems, potentially leading to socio-economic consequences such as loss of livelihood, and human health consequences if individuals ingest or are exposed to contaminated water or to aquatic food sources that have been exposed to contaminants in water (Belle et al. 2023; UNEP 2021). Surface water quality is also considered in the assessment of both changes to multi-media environmental quality in Section 6.1.2, and changes to access and available of traditional foods in Section 6.1.4.

For Indigenous communities across Canada, the importance of water goes far beyond that of physiological need. Water is respected as a sacred lifeform. Water is not to be owned or profited from, but protected and shared (Assembly of First Nations 2023; Awume et al. 2020; White et al. 2012). Water is an integral component of Indigenous culture and in many ways impossible to separate from Indigenous traditions and identity (Martinez-Cruz et al. 2024; McGregor 2008). A 2001 study titled, Water Quality in the Province of Ontario: An Aboriginal Knowledge Perspective (McGregor and Whitaker 2021) summarized key concepts surrounding water from Indigenous Elders and other traditional knowledge holders. Some of these concepts were described in McGregor (2008) as follows:

- *“Water finds significance in the lives of First Nations people on personal, community, clan, national, and spiritual levels. Whatever the level at which it is considered, water is understood as a living force which must be protected and nurtured; it is not a commodity to be bought and sold.*
- *Water is, and always has been, viewed by Indigenous people as something precious: a fundamental life-giving force. Concern for water is not new in Aboriginal communities.*
- *Water in Aboriginal traditions has cleansing and purifying powers. It is the giver of life with which babies are born. Water has tremendous significance before birth, during the birthing process, and after birth.*

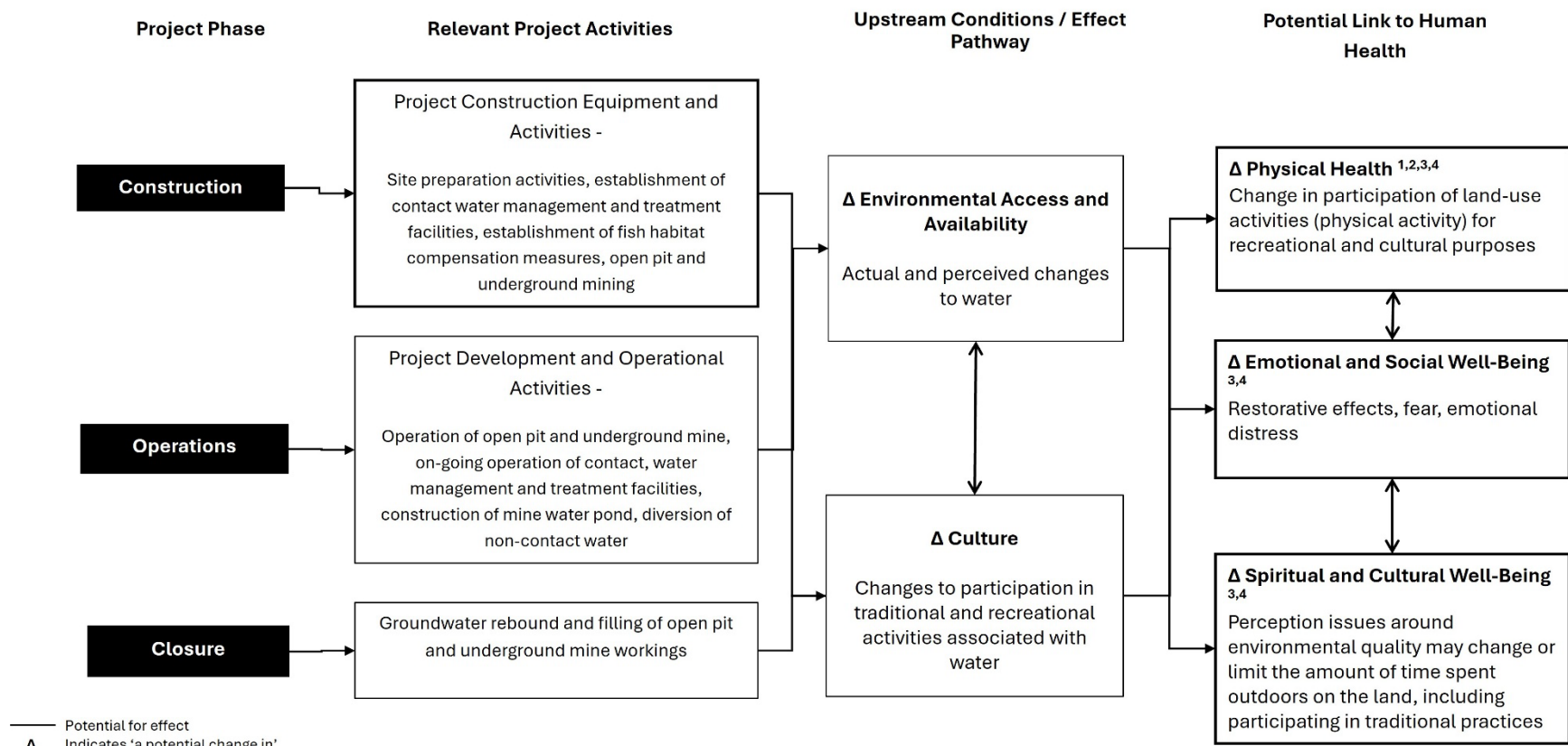
- *It is imperative to keep the water clean so it can continue to fulfill its purpose. Respect must be shown to water. This is frequently done by offering tobacco to the water.*
- *Recognizing the vital importance of water to survival is the beginning of a healthy perspective. Water is the blood of Mother Earth. Similar to blood, which circulates throughout our bodies, nutrients flow into the land via water. Without our blood serving its proper functions, we would die. It is the same with water. If it cannot perform its functions, we, as part of the Earth, will perish.*
- *In addition to people, water supports the lives of other beings or aspects of Creation that are important in the whole web of life. Again, Indigenous people benefit from this life-giving support. For example, there are medicines under and around the water. Water is the basis of life; we cannot live without it.*
- *Water was also used as a medicine, or as a part of medicines. It has medicinal properties and should be collected in certain ways.”*

The importance of water to Indigenous traditions, culture and identity is profound and beyond the typical understanding of water governance. Maintenance of Indigenous access to water for both domestic use and cultural use is integral for Indigenous health and wellness. Some survey respondents from the Awume et al. (2020) survey stated that “*water security means preserving their identity through connection to the land and water*”. A robust cultural identity has been shown through literature to fortify community cohesion and individual mental health and wellbeing (NCCIH 2016).

An effect pathway diagram showing potential Project activities during all phases, relevant changes / exposure pathways and health and wellness effects is provided in Figure 6-9 to graphically depict the potential linkages between the Project and human health outcomes. The diagram shows the potential pathways of exposure or change in upstream conditions that may result in changes to health; however, the assessment of potential effects (Section 6.1.3.3) identifies those pathways where changes are predicted to occur.

Figure 6-9: Effect Pathway Diagram for Access and Availability of Water

Access and Availability of Water



Sources:
 1 – UNEP 2021; 2 – White et al. 2021; 3 – Salerno et al. 2021; 4 – Ninomiya et al. 2023

6.1.3.2 EXISTING CONDITIONS

This section provides a summary of existing conditions relevant to Indigenous health from changes in access and availability of water. The available baseline (existing conditions) data for Indigenous health, including physical health and wellness (e.g., chronic conditions, communicable diseases and demographics), health-related behaviours (e.g., food consumption, physical activity and substance use) and mental wellness (depression, stress / anxiety, perception of risk) are provided in the Baseline Health Profile (Attachment A) and should be viewed for detail. In addition, a description of existing conditions for linked pVCs, Groundwater and Surface Water Flows and Levels, is provided in the following Impact Statement Sections:

- **Groundwater Quantity** (Existing Conditions): Impact Statement Section 2.8 (Environmental Setting – Groundwater) and Impact Statement Section 7.5 (pVC Groundwater Quantity – Existing Conditions)
- **Surface Water Flows and Levels** (Existing Conditions): Impact Statement Section 2.9 (Environmental Setting – Surface Water Flows and Levels) and Impact Statement Section 7.6 (pVC Surface Water Flows and Levels – Existing Conditions).

A brief description of existing conditions related to access and availability of water is presented below to provide context for the assessment of biophysical determinants of health. Collectively, the information from the two upstream pVCs provided the existing conditions related to access and availability of water.

Groundwater Quantity

The hydrogeologic system at the Property consists of bedrock that is overlain by deposits of varying thickness formed during the Quaternary geological period. Groundwater flow is anticipated mainly within the more permeable portions of the overburden with relatively little groundwater movement occurring in the bedrock. The four main groundwater units are:

- Sand deposits
- Glaciolacustrine clay and silt
- Glacial till, primarily consisting of sand and gravel with some silt and clay
- Bedrock.

At lower elevations on the Property (i.e., below 380 metres above sea level [masl]), the bedrock is in contact with glacial till overlain by glaciolacustrine deposits, which are anticipated to limit the interaction between the bedrock flow system and surface water features such as Dixie Creek. Areas of higher elevations on the Property presented with glaciofluvial sediments or exposed till and bedrock. The continuous sand layer is underlain by glacial till and is expected to act as a conduit to groundwater flow.

Terrain in the area of the Project can be characterized as rugged and is typical of northern Ontario. The topography reflects the glacial history of the area which has left exposed bedrock and deposited sand eskers and outwash deposits (typically sand and gravel) across some of the higher elevation northern portions of the site and lacustrine deposits in the lower elevation areas. The local topography is dominated by a local high ridge which runs roughly northwest to southeast and is parallel to Highway 105. This topographic high ground is inferred to form the major recharge area for the PA and it also represents the surface water catchment divide between Dixie Creek to the south and Gullrock Lake and Two Island Lake to the north of the divide. A local groundwater flow divide between Dixie Creek and Gullrock Lake / Two Island Lake is also inferred to coincide with this drainage divide.

Groundwater elevations correlated with ground surface elevations, with the highest water levels generally occurring at the high topographic areas at the north portion of the Property. Steep groundwater gradients along the area of bedrock ridge likely reflect the lower bedrock hydraulic conductivity of the ridge area. Groundwater flow across the Property is directed primarily south and west. Vertical hydraulic gradients on the Property are typically mild, with both downward and upward hydraulic gradients observed in different areas across the Property. The magnitude of water levels changes varies across locations on the Property. Geometric means of hydraulic conductivity were estimated in each of the four main groundwater

units, as detailed in Impact Statement Section 2.8 (Environmental Setting) and Impact Statement Section 7.5 (pVC Groundwater).

Interactions between groundwater and surface water at the Property consists of both groundwater discharge to the surface at several surface water locations, and groundwater recharge areas in the north part of the Property coinciding with topographic high ground areas with glacial sand deposits.

Surface Water Flows and Levels

The Project is located in the English River watershed above Pakwash Lake. The Manitou Falls Generating Station is located downstream of Pakwash Lake along the upper portion of the English River, with a total watershed area of 48,880 square kilometres (km²). The Chukuni River watershed, upstream of Pakwash Lake which includes the PA, contributes approximately 10% of the total contributing watershed area to the Manitou Falls Generating Station. The Snowshoe Rapids Dam is located upstream of Highway 105 and Pakwash Lake and is used to control water levels of lakes further upstream, and also controls flows released in the Chukuni River. The Ministry of Natural Resources (MNR) operates the dam to manage water levels and flows based on a rule curve developed to balance flood projection, navigation, water supply and environmental consideration objectives.

The Dixie Creek watershed (365 km²) which includes a majority of the Property discharges to the Chukuni River approximately 6 km downstream of Highway 105 and 4 km upstream of Pakwash Lake. Dixie Creek generally flows eastward discharging to the Chukuni River, receiving inflow from Dixie Lake, Unnamed Waterbody 2, Unnamed Watercourse 3, Unnamed Watercourse 7, Unnamed Waterbody 6 and a number of smaller tributaries. The Dixie Creek watershed accounts for 8% of the Chukuni River watershed at their point of confluence. Water levels at the location of the confluence are influenced by Pakwash Lake, whose water level is regulated and controlled by the Lake of the Woods Control Board and Ontario Power Generation at the Manitou Falls Generating Station.

Flows in the Chukuni tend to peak in June, with low flows observed during the winter months, January through March, with the freshet generally starting in April. Flows in Dixie Creek and its tributaries tend to follow the same seasonal trend as the regulated Chukuni River. Considerable beaver activity has been consistently observed in Dixie Creek during the field programs in 2022 through 2024, with several beaver dams controlling flow and level in the creek.

Water levels in the Chukuni River up to Highway 105, are controlled by backwater from Pakwash Lake. Pakwash Lake water levels are controlled and operated by the Lake of the Woods Control Board and Ontario Power Generation. The water levels in Dixie Creek are highly variable, particularly in the upper and middle reaches of Dixie Creek. The lower portion of Dixie Creek is a low-lying wetland and floodplain with a gradient of less than 0.01%. The water levels in the lower reach are controlled by backwater conditions from the Chukuni River, and indirectly by the Pakwash Lake water level.

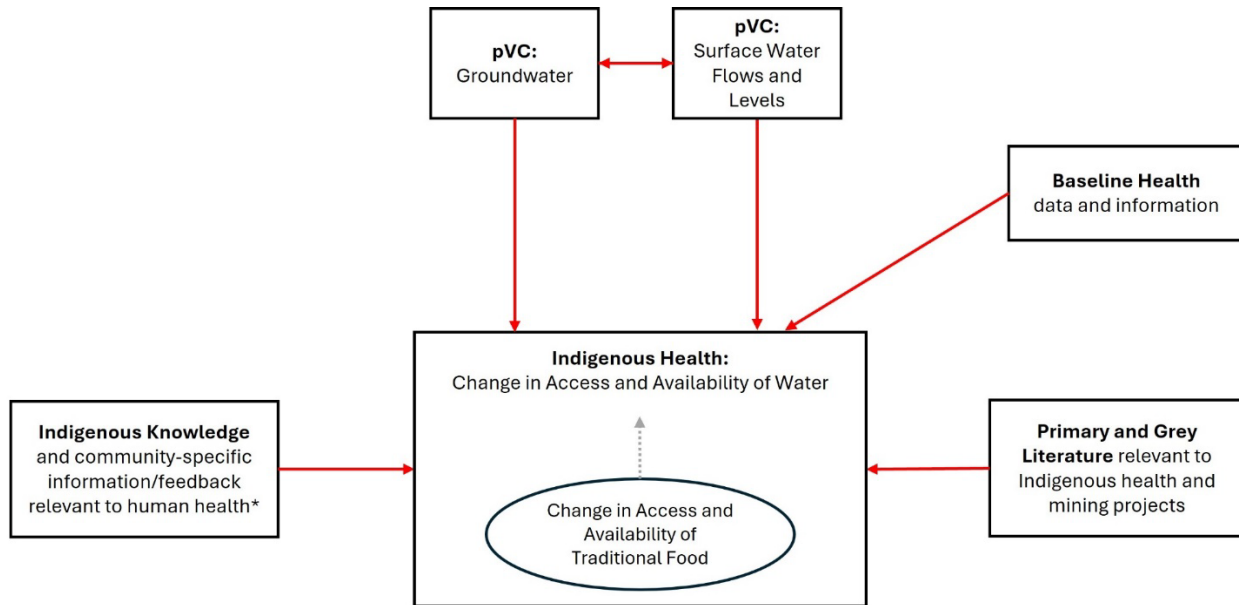
6.1.3.3 POTENTIAL EFFECTS

The following sections provide the inputs, assumptions, results from upstream analyses, Project information, primary and grey literature, and other evidence that supports the assessment of changes in access and availability of water in the context of Indigenous health. The assessment of potential effects first presents the available evidence, acknowledging any limitations and assumptions, followed by an assessment by Project phase (i.e., construction, operations and closure). Finally, a summary of the assessment findings is presented with a discussion regarding mitigation and / or enhancement measures, and GBA Plus considerations.

EVIDENCE FOR ASSESSMENT

The evidence used in the assessment of potential effects to Indigenous health from changes in access and availability of water included (i) findings from relevant upstream valued components (pVCs and fVCs); (ii) primary and grey literature sources; (iii) IK and community-specific information, and (iv) baseline health information (Figure 6-10).

Figure 6-10: Inputs for Access and Availability of Water



Note: additional linkages between individual inputs are not shown
 * Where relevant and available

Each of these sources of information and evidence are further described in the sections below. It is noted that the above figure illustrates only the most direct inputs relevant to the assessment of change in access and availability of water. Other indirect pVCs and fVCs which are captured through the inclusion of direct inputs are not displayed graphically. Collectively, this body of evidence informed the assessment of potential effects described for each Project phase (i.e., construction, operations and closure).

Upstream Valued Components (pVCs)

The assessment of potential effects for the linked pVCs are important in that they identify predicted changes in those upstream conditions that, in turn, have the potential to affect Indigenous health via changes in access and availability of water. A summary of the assessment, key mitigation measures, and predicted change after mitigation identified in the pVCs linked to Indigenous health, including Groundwater Quantity, and Surface Water Flows and Levels, are provided in Section 6 (Table 6-2).

It is noted that groundwater is included as a pVC because it is a natural component which can be important to other ecosystem elements including surface water, wetlands and the aquatic ecosystem, is of provincial regulatory interest and was identified as an issue of interest during community engagement. There are no groundwater water wells used as potable water sources within the LSA and RSA which will be affected by the Project. As such, there is no complete exposure pathway for groundwater and groundwater quality was not assessed. Groundwater quantity can, however, indirectly impact human health via changes in surface water flows and levels as groundwater recharge supports the maintenance of surface water levels. Changes to surface water levels can indirectly impact human health via effects to aquatic habitat which can influence access and availability of traditional foods, and impacts to water used for traditional practices / cultural uses.

Overall, Project activities will disrupt access and availability of water via changes to groundwater quantity and surface water flows and levels. Actual or perceived reduction or change in access and availability of water can have potential indirect effects to Indigenous health and wellness through interruption of land use, traditions and cultural identity linked to water.

Upstream Conditions (fVC Indigenous Peoples)

The assessments provided in the Indigenous Peoples sections (Impact Statement Sections 10 to 14; fVC), and the assessment of changes to Fish and Fish Habitat (Impact Statement Section 8; fVC) and Migratory Birds (Impact Statement Section 9; fVC) are considered to be downstream to access and availability of water. Surface water flows and levels, which is influenced by groundwater quantity, can impact aquatic ecosystems which host fish and fish habitats and / or support migratory bird habitat. Changes to access and availability of water itself, and changes to fish and fish habitats and migratory birds, can subsequently impact the current use of lands and resources for traditional purposes. These fVCs are further discussed in the assessment of access and availability of traditional foods, presented in Section 6.1.4.

Primary and Grey Literature

As stated in 6.1.3.1, water has significant spiritual and cultural importance to many Indigenous people. Anishinabek Nation Chief Water Commissioner, Autumn Peltier of Wiikwemkoong Unceded Territory, delivered a speech to the Global Landscapes Forum at the United Nations General Assembly on the subject of water, stating the following:

“When you ask the question about why is the water so sacred, it’s not just because we need it, and nothing can survive without water. It’s because for years and years our ancestors have passed on traditional oral knowledge that our water is alive, and our water has a spirit. Our first water teaching comes from within our own mother. We literally live in water for nine months, floating in that sacred water that gives us life. We can’t live in our mother’s womb without water. As a fetus, we need that sacred water for development. The sacred significance is that my mother comes from her mother’s water, my grandmother comes from her mother’s water, and my great-great grandmother comes from her mother’s water. Flowing within us is original water, lifeblood of Mother Earth that sustains us, as we come from this land. Mother Earth’s power is in the lifeblood of Mother Earth, which is our water. Mother Earth has the power to destroy us all, and if we keep harming her, one day she may decide to destroy everything. All water is original from time immemorial. To think our ancestors drank from this same water thousands of years before us. Water evaporates and can turn into mist, fog, rain, clouds and snow. Water can go and be anywhere. We are constantly surrounded by water. Water not only surrounds us, but my teaching is that water hears us, feels us, and listens to us. When you pray to the water, our prayers are that much stronger.” (Anishinabek News 2019).

In Indigenous culture, women are often tied to water based on the shared ability to give life (McGregor 2008; Awume et al. 2020; Assembly of First Nations, 2023). This represents both a unique relationship and additional responsibilities for the care of water. As stated in McGregor (2008), *“in some ceremonies, women speak for the water”*. McGregor (2008) further references workshops with Indigenous Elders through which the special connection between women and water was a common theme, stating that *“Many of the Elders who participated in the projects talked about the medicinal and spiritual properties of water and most of them identified these teachings as coming from their Grandmothers”* (McGregor 2008). A number of Indigenous respondents in the Awume et al. (2020) survey described the important relationship between women and water, and that due to this relationship it is important that women are involved in decision making with regard to water.

Awume et al. (2020) carried out interview with 21 Indigenous individuals, identifying as First Nations and Métis in Saskatchewan. While it is recognized that this represents a small sample size, common themes around the Indigenous understanding of water security echoed those concepts in other sources (i.e., McGregor 2008). The participants in the interview recognized and echoed the western scientific definition of food security as it relates to access to water of adequate quality and quantity for human use. Additionally, the importance of protecting water for the sake of plants and animals was a common theme among respondents. Awume et al. (2020) cited a research article from McGregor (2014) focused on First Nations in Ontario, which *“emphasized the importance of the connection between all our relations, human and non-human, including the earth, sun, and fish”*.

Survey responses from Indigenous participants expanded upon this definition to include the cultural importance of water. Some respondents indicated that water security included cultural continuity, as some ceremonies require or are centered on water. The majority of Indigenous respondents in the Awume et al.

(2020) survey described a spiritual connection with water and that water is understood to have a healing capacity (Awume et al., 2020). Water was described by various respondent as a source of strength, the “universal foundation for all life”, “a spirit, a sacred form” and stated that “water has a memory, it has a thought, and it has a voice”. A number of respondents also identified water as providing a connection between the living and their ancestors.

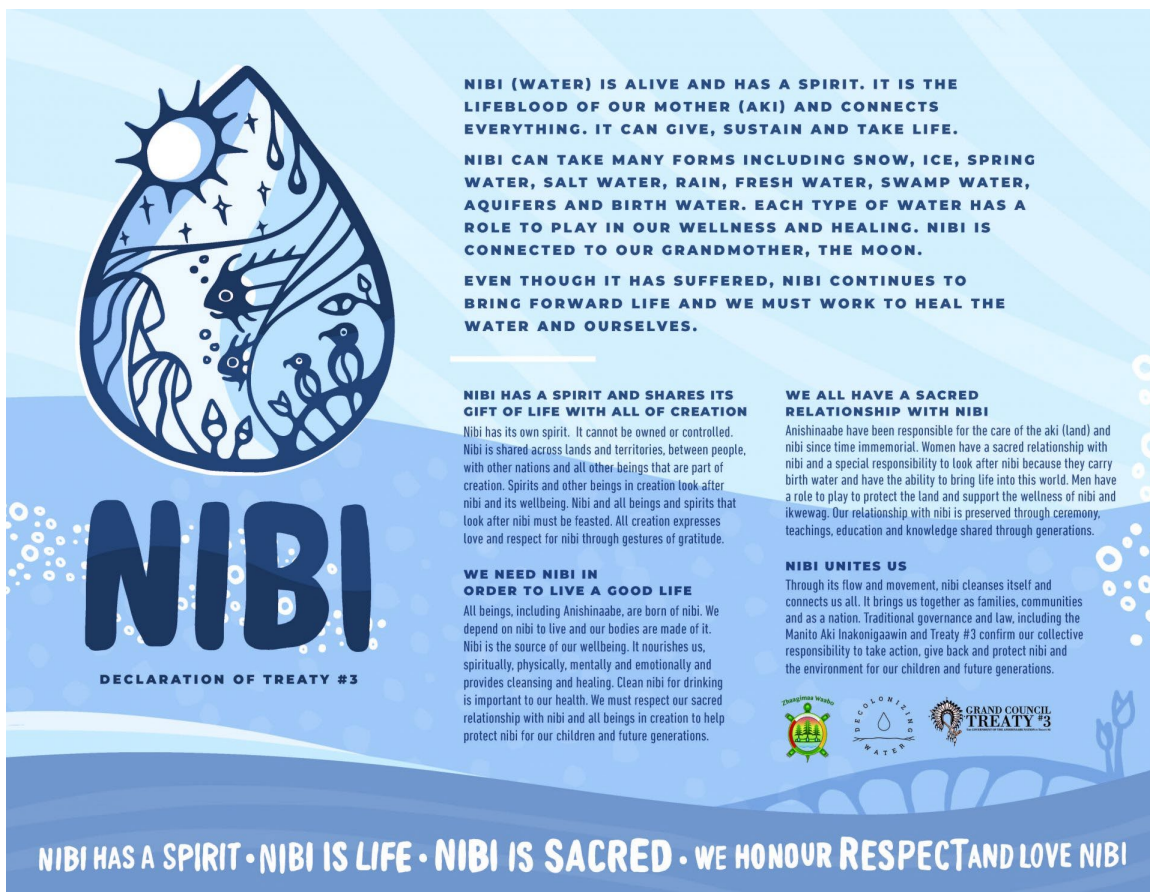
Awume et al. (2020) cited a study from Wilson et al. which evaluated the effectiveness of Indigenous-led community-based water monitoring (Wilson et al. 2018). Wilson et al. (2018) reported that Indigenous community-based monitoring programs resulted in data that allows for water governance through stewardship and advances Indigenous sovereignty over their waters.

Indigenous Knowledge and Community-specific Information

This section presents IK that was received from some of the local Indigenous communities, supplemented by other relevant community-specific information that was publicly available, to identify where and how IK was incorporated into the assessment of Indigenous health. While the TKLUS provided by some of the local Indigenous communities did not include information or data on food security; publicly available information and community-specific survey data were identified for inclusion.

As discussed in the CWB assessments (Impact Statement Sections 10 to 14; fVC Indigenous Peoples), the Anishinaabeg connection with water is expressed and explained in the Nibi Declaration produced by the Grand Council Treaty #3. It speaks to the sacred relationship and responsibilities that Anishinaabeg have with water, water beings, and the lakes and rivers (Grand Council Treaty #3 Women's Council 2019).

Figure 6-11: Nibi Declaration of Treaty #3



Source: Grand Council Treaty #3 Women's Council 2019

Water access and water quality are notable issues for Indigenous communities in the region. Traditional practices and cultural gathering spaces are generally tied to waterbodies where harvesting, trapping, fishing, and hunting opportunities tend to occur. As presented in the Influence of Consultation and Engagement discussion (Impact Statement Sections 10 to 14; fVC Indigenous Peoples), LSFN, WFN, ANA, NWOMC and RLEF identified that waterbodies and waterways were used for the transmission of intergenerational knowledge, and that changes from Project activities have the potential to affect the quality of experience of Indigenous people. WFN community members also indicated concerns around the volume of water being pulled from the Chukuni River and its potential effect on navigation. While not identified as a key concern, the use of waterbodies in the LSA and RSA for navigation by LSFN was also reported. Potential effects to Indigenous health from changes in access and availability of water are assessed for all Project phases below.

It is noted that the Indigenous communities identified that changes to the land from Project activities may result in the land being perceived as less functional, less desirable and less safe for traditional food practices and cultural activities, as presented in the Influence of Consultation and Engagement discussion (Impact Statement Sections 10 to 14; fVC Indigenous Peoples) discussion. Historical industrial activity in the region has influenced existing (baseline conditions) in the region. For further details, please refer to the HHERA (Impact Statement Appendix N-1; WSP 2026a) and Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies (Impact Statement Appendix T; WSP 2026b). Further details of IK and community-specific information related to access and availability of traditional foods is provided in Section 6.1.4.3.

Relevant Baseline Health Information

Baseline conditions related to access and availability of water are discussed in Existing Conditions, Section 6.1.3.2. Given the complex and varied interactions between access and availability of water human health, there are a variety of health conditions and wellness indicators (e.g., mental health) that may be influenced by access and availability of water. Existing health information can be found in the Baseline Health Profile (Attachment A). Information regarding baseline conditions related to access and availability of water in the Baseline Health Profile (Attachment A) is limited. Existing conditions related to access and availability of water would provide an indication of current conditions that may already be influencing baseline health status of communities in the region. These existing conditions would provide an understanding of current conditions being experienced by communities in the region related to access and availability of water in order to identify potential Project related effects on Indigenous health.

It is noted that information related to accessibility of clean drinking water (i.e., water quality) is provided in Attachment A, and drinking water exposure is considered through the HHERA as detailed in the assessment of changes to multi-media environmental quality in Section 6.1.2. However, information related to baseline access and availability of water, outside of the land use information (fishing locations, species of importance) provided in the IK information is limited.

As detailed in Attachment A, a Great Bear Project Community Health Survey was conducted in 2024 with residents of Red Lake, Ear Falls and surrounding areas. Some information related to access and availability of water was gleaned from this survey. Of the self-identified indigenous respondents, 9 of 18 (50%) identified Chukuni River and Pakwash Lake, and 6 of 18 (33%) identified Dixie Lake, as waterbodies in the RSA being used by the respondents for fishing and / or recreation. In addition, 6 of 18 (33%) identified that they used no waterbodies in the RSA for fishing and / or recreation. Self-identified Indigenous respondents to the survey identified minimizing adverse effects from the Project to water as a priority.

Overall, Indigenous communities in the region are considered to use the local waterbodies in the LSA and RSA and are expected to have a heightened interest in effects related to the access and availability of water from Project activities.

CONSTRUCTION

Changes to access and availability of water as a result of Project activities is impacted by both groundwater and surface water quantity. It is noted that water quality was also considered in the HIA, through the assessment of changes to multi-media environmental quality (Section 6.1.2).

The construction phase of the Project is expected to occur over a three-year period and will include preparation of the site and the construction of mine infrastructure. Activities during construction include, but are not limited to, open pit and underground mining, management of rock and unconsolidated materials in stockpiles, and construction of buildings and infrastructure.

As discussed in Impact Statement Section 7.5 (pVC Groundwater), Project interactions which could potentially effect groundwater quantity (i.e., flows and levels) during construction include dewatering activities associated with excavations for site preparations, mine development and construction of water management facilities. Excavations below the groundwater table will result in the underground facilities acting as local sinks for groundwater. Further, management of contact water will result in changes in surface water catchment areas, and the development of facilities and stockpiling activities will have an effect on infiltration rates to groundwater. These activities are expected to result in a reduction in groundwater quantity and groundwater contributions to some surface watercourses and waterbodies within or adjacent to the PA during construction.

As discussed in Impact Statement Section 7.6 (pVC Surface Water Flows and Levels), in addition to a reduction in groundwater contributions to surface water as described above, Project interactions which could potentially affect surface water flows and levels during construction include collection and treatment of Project contact water resulting in changes to surface water runoff quantities and patterns materially contributing to local water features within the LSA, primarily on and near the PA. Additionally, diversion of non-contact water to nearby surface waterbodies and watercourses for the establishment of fish habitat compensation measures and starter embankments for the TMF, will interact with the watershed areas contributing flows to surface waterbodies and watercourses within the LSA. Reductions in flow are expected in waterbodies throughout the LSA and RSA during construction; however, these reductions are not expected to be observable. Observable changes in water levels are also not expected in waterbodies or watercourses further away. As discussed in Impact Statement Section 7.6 (pVC Surface Water Flows and Levels), during construction, there will be permanent alteration to a number of very small unnamed waterbodies and watercourses within the PA. The effects to fish and fish habitat resulting from these permanent changes are proposed to be mitigated (Impact Statement Section 8 and Impact Statement Appendix L-2; WSP 2025b). New surface ponds are proposed to be created during fish habitat offsetting and compensation as described in Impact Statement Appendix L-2 (WSP 2025b).

Access and availability of water is influenced by a number of interrelated factors that both directly and indirectly affect upstream environmental and cultural conditions. Access and availability of water is inextricably linked to Indigenous traditions, culture and identity (McGregor 2008; Martinez-Cruz 2024). Changes to access and availability of water allows for cultural continuation and supports a sense of cultural identity, which can fortify community cohesion and improve individual mental health and wellbeing (NCCIH 2016). The available evidence indicates that Project activities are anticipated to result in localized changes to groundwater quantity and surface flows and levels during construction; however, changes are not expected to be observable. However, perceived reduction or change in experience to access of water can result in avoidance of the use of waters. This may influence Indigenous health and wellness through changes to cultural ceremonies, traditions and identity linked to water. The link between access and availability of water, mental health, and community cohesion is further assessed in Section 6.2.5.

The Project will result in changes to access and availability of water within the PA, LSA and RSA. There is no confirmed use of water within the PA by the local Indigenous communities, and changes to access and availability of water in the RSA and LSA are either not observable, or are being mitigated. However, the connection that Indigenous people have with water may result in indirect effects on Indigenous health and wellness for some individuals; no measurable deviation from baseline population-level health resulting from Project activities is anticipated following implementation of mitigation measures. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. Mitigations, as described in Impact Statement Section 7.5 (pVC Groundwater) and Impact Statement Section 7.6 (pVC Surface Water Levels and Flows), are proposed, and will minimize changes to access and availability of water. Data sharing agreements with local Indigenous communities, and support of Indigenous environmental monitoring programs were identified as mitigation measures required to minimize perception issues surrounding Indigenous use of lands and waters. A list of key

mitigation and enhancement measures for access and availability of water are presented in Section 6.1.3.4 and for the HIA overall in Section 7.

It is noted that changes to groundwater and surface water quantity (i.e., flows and levels) can result in changes to aquatic habitats, which can impact both aquatic life species themselves and humans who rely on these species as traditional foods. Access and availability of traditional foods is assessed in Section 6.1.4 and food security is assessed in Section 6.2.4.

OPERATIONS

The operations phase is anticipated to extend over a 26-year period. Similar interactions as the construction phase will continue.

As stated in Impact Statement Section 7.5 (pVC Groundwater), Project interactions which could potentially effect groundwater quantity are the same as those expected for construction, including a reduction in groundwater levels from mine dewatering. A reduction in groundwater quantity will reduce groundwater contributions to surface water, which will be reflected in some surface watercourses and waterbodies within or adjacent to the PA during operations.

As stated in Impact Statement Section 7.6 (pVC Surface Water Flows and Levels), Project interactions which could potentially effect surface water flows and levels are the same as those expected for construction, with the additional activity water takings from the Chukuni River during operations. Reductions in flow in watercourses will continue and increase during the operations phase, but will continue to not be observable. The temporary reduction in flow is expected to cause a small change in water level in a portion of Dixie Creek; however, the reduction in average annual water level may be less than 5 centimetres [cm]) which is unlikely to be identifiable from natural variation. Changes are considered temporary and reversible as flows and water levels are restored after closure. Observable changes in surface water levels are not expected for other waterbodies or watercourses with the exception of the unnamed waterbodies and watercourses within the PA which will be permanently altered during construction.

On-going changes to access and availability of water during long-term operations may continue to reinforce community concerns regarding perceived environmental change. This can result in avoidance of the use of local waters potentially leading to indirect effects on Indigenous health and wellness for some individuals through interruption of cultural ceremonies, traditions and identity linked to water. Potential adverse effects related to community cohesion, cultural continuity, mental health, intergenerational knowledge transfer, land-based healing, and ceremonial activities noted in construction are expected to continue in operations, particularly where the landscape remains altered or access to waters are perceived as reduced. However, no measurable deviation from baseline population-level health resulting from Project activities is anticipated following implementation of mitigation measures. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. The complex interaction between environmental quality, perception and possible avoidance is further discussed in Sections 6.1.2.3 and 6.2.4.3. Mitigations and enhancements presented in Impact Statement Section 7.5 (pVC Groundwater) and Impact Statement Section 7.6 (pVC Surface Water Levels and Flows) are proposed, and will minimize changes to access and availability of water. Data sharing agreements with local Indigenous communities, and support of Indigenous environmental monitoring programs were identified as mitigation measures required to minimize perception issues surrounding Indigenous use of lands and waters. A list of key mitigation and enhancement measures for access and availability of water are presented in Section 6.1.3.4 and for the HIA overall in Section 7.

CLOSURE

The active closure phase is anticipated to occur over a three-year period, immediately after operations stop.

As stated in Impact Statement Chapter 7.5 (pVC Groundwater), groundwater levels will recover during the closure phase through passive and active filling of mine workings. After closure, groundwater will stabilize to levels similar to baseline.

As stated in Impact Statement Chapter 7.6 (pVC Surface Water Flows and Levels), after closure the pre-development watershed areas will generally be restored although the changes to local topography will result in some localized reductions and increases. These changes will not be discernible from natural, seasonal water level fluctuations.

Interactions with the health of Indigenous people during closure are similar to those identified during construction and operations. As described in the CWB assessment (Impact Statement Sections 10 to 14; fVC Indigenous Peoples), confidence in land and water quality will remain a key determinant of recovery, influencing whether members resume harvesting and other traditional practices in reclaimed areas. Under post-closure conditions, groundwater levels will be restored to levels similar to baseline and the pre-development watershed areas will generally be restored, with the exception of the permanent alterations to some waterbodies and watercourses within the PA. Over the long term, reclamation activities may gradually restore access to traditional lands and support cultural revitalization if trust in environmental outcomes is rebuilt. Mitigations and enhancements during the closure phase presented in Impact Statement Section 7.5 (pVC Groundwater) and Impact Statement Section 7.6 (pVC Surface Water Levels and Flows) and in Section 6.1.3.4 are proposed, and will minimize changes to access and availability of water and perception issues surrounding Indigenous use of lands and waters.

6.1.3.4 MITIGATION AND ENHANCEMENT MEASURES

Table 6-15 outlines the key mitigation and enhancement measures recommended based on the assessment of changes to access and availability of water. These mitigation and enhancement measures are anticipated to apply across all Project phases unless otherwise specified. General mitigation measures for closure activities that relate to Indigenous health are also included.

Table 6-15: Mitigation and Enhancement Measures for Access and Availability of Water

Mitigation and Enhancement Measures for Access and Availability of Water	Rationale
<p><u>Environmental Management Committee:</u> GBR will work with the environmental management committee(s) and interested Indigenous members throughout the duration of the Project (all phases), to facilitate ongoing communications, sharing and integration of Indigenous knowledge and environmental information, and share and evaluate Project approvals, adaptive management and monitoring plans, and address emerging issues and interests identified by Indigenous Nations. ⁽¹⁾</p>	<p>Key aspects of the environmental management committee(s) related to Indigenous health are that: (1) it includes Indigenous members and (2) the committee will continue to operate for the duration of the Project. The committee is expected to mitigate against perception issues associated with environmental degradation and mistrust and is supportive of self-determination in addressing Indigenous issues. Collectively, these are expected to help mitigate against adverse mental health and community cohesion concerns.</p>
<p><u>Environmental Monitoring:</u> Environmental monitoring programs for surface water and aquatics will include constituents and related health-based benchmarks as considered in the health assessment (such as arsenic, mercury, methylmercury and selenium). Aquatics sampling programs will also include ongoing sampling and testing of fish quality in species identified for human consumption (i.e., walleye / pickerel, lake whitefish, northern pike, trout) as captured.</p>	<p>The HHERA multi-media assessment results do not indicate an effect to human health from the Project, including human health-based constituents and benchmarks in water and aquatic / fish monitoring programs is important to validate assessment assumptions, provide evidence regarding the effectiveness of mitigation measures, and assist in mitigating community perception issues related to safety, environmental quality and health.</p>

Mitigation and Enhancement Measures for Access and Availability of Water	Rationale
<u>Environmental Data Sharing Agreements:</u> GBR will share environmental monitoring data (air, water, fish) with Indigenous communities that request it on an annual basis and provide opportunities (including funds) to conduct their own reviews.	Providing environmental monitoring data, in a timely manner, to interested Indigenous communities is anticipated to promote transparency and relationship-building, while provision of funding for communities to conduct their own reviews, analyses and / or assessments using the data will empower and resource Indigenous communities. This measure is anticipated to mitigate against mental wellness and community cohesion effects, related to perception issues, lack of trust, and environmental quality concerns, over time.
<u>Indigenous Environmental Monitoring Programs:</u> GBR is committed to involving Indigenous communities in environmental monitoring activities throughout all phases of the Project, including opportunities for participation in the collection and sharing of environmental monitoring information and results.	This Indigenous initiative is expected to have a positive effect on participating Indigenous communities, enhancing knowledge transfer and community cohesion. It is also expected to mitigate against adverse perceptions of environmental quality and safety, and promote overall physical and mental health and wellness through time spent on the land.

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC). fVC = federal valued component; GBR = Great Bear Resources; HHERA = Human Health and Ecological Risk Assessment; HIA = Health Impact Assessment; pVC = pathway valued component. The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2) are in place as planned.

6.1.3.5 GBA PLUS CONSIDERATIONS

In accordance with Health Canada guidance (Health Canada 2024a), the HIA takes an equity approach to assessing potential effects by examining the potential distribution of effects across different sub-populations within the Indigenous communities. This section highlights how Indigenous identity intersects with the other GBA Plus identity factors described below. Table 6-16 applies a GBA Plus lens that treats Indigenous identity as a central identity factor, and the other identity factors described below are discussed within this context. At the bottom of this table there is a section highlighting key intersectionality considerations, Indigenous identity is at the center of this qualitative analysis.

It is important to note that while this section identified subgroups that have the potential to experience effects uniquely from changes to access and availability of water, the analysis should be considered in the context of the potential effects assessment findings. The analysis below identifies populations that could be disproportionately affected and also discusses the potential health effects, or lack thereof, as identified in the assessment.

Table 6-16: GBA Plus and Equity Considerations – Access and Availability of Water

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Gender	Disproportionate (Women+)	In Indigenous culture, women are often considered to have a unique relationship to water and additional responsibilities for the care of water (McGregor 2008; Awume et al. 2020; Assembly of First Nations 2023). Given that permanent changes to some waterbodies will occur, the connection that Indigenous people have with water may result in indirect effects on Indigenous health and wellness for some individuals.
Age	Even	Age is not expected to have an impact on access and availability of water.

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Physical Ability	Even	Available evidence does not suggest unique exposure pathways or health risks from access and availability of water based on physical ability.
Socioeconomic Status	Even	Socio-economic status is not expected to have an impact on access and availability of water.
Mental Ability	Even	Mental health status is not expected to have an impact on access and availability of water.
Intersectional Analysis:	Intersectional effects may occur for individuals who are women+ and identify as Indigenous persons, as the combined influence of gender and Indigenous identity can compound vulnerabilities around access and availability of water, as women are often considered to have a unique relationship to water and additional responsibilities for the care of water (McGregor 2008; Awume et al. 2020; Assembly of First Nations 2023). It is acknowledged that Indigenous identity intersects with the identity factors listed above.	

Notes:

GBA Plus = Gender Based Analysis Plus

6.1.3.6 SUMMARY OF POTENTIAL EFFECTS: ACCESS AND AVAILABILITY OF WATER

The following is a summary of the findings from the assessment of potential effects to Indigenous health based on changes to access and availability of water (Table 6-17). The specific mitigation and enhancement measures based on the assessment of changes to access and availability of water, including a description and rationale, are described in Section 6.1.3.4.

Table 6-17: HIA Potential Effects Summary: Access and Availability of Water

Criteria	Description	Characterization
Health Determinant	Identify the determinant of health being assessed	<ul style="list-style-type: none"> Access and Availability of Water (Biophysical Determinant of Health)
Direction of Potential Effect	Describe whether the potential effect may be beneficial or adverse	<ul style="list-style-type: none"> Adverse: the potential effect on human health may be adverse, thereby diminishing conditions that support Indigenous health.
Scale of Potential Effect for this Determinant (post-mitigation)	Describes the expected scale of the Project-related effect to Indigenous health for this determinant	<ul style="list-style-type: none"> Minor: the effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures. The assessment findings did not identify observable changes to access and availability of water beyond natural variation with the exception of permanent changes to some small waterbodies and watercourses which will be compensated and offset. However, given the connection that Indigenous people have with water, these changes may result in indirect effects on Indigenous health for some individuals. Perception issues may change or limit participation in cultural practices related to water for some individuals. Overall, while some individuals may experience adverse health effects, a population-level shift in Indigenous health is not expected.
Affected Populations (Indigenous Communities)	Refers to the distribution of the effects across Indigenous communities and includes equity considerations	<ul style="list-style-type: none"> Assessment findings (i.e., Project-related changes) are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.

Criteria	Description	Characterization
GBA Plus	Identify relevant GBA Plus considerations for this determinant	<ul style="list-style-type: none"> There are groups that may experience effects differently for this determinant. Details are discussed in the access and availability of water GBA Plus section (Section 6.1.3.5).
Mitigations and Enhancements	Additional measures listed based on the assessment of potential effects for this determinant ⁽²⁾	<ul style="list-style-type: none"> Additional measures, beyond what is included in other pVC and fVC sections of the Impact Statement are listed below for access and availability of water with further details provided in Section 6.1.3.4 and a list of health measured provided in Section 7: <ul style="list-style-type: none"> Environmental Management Committee ⁽¹⁾ Environmental Monitoring Environmental Data Sharing Agreements Indigenous Environmental Monitoring Programs

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC)

2 Assumes measures included in upstream pVC and fVC sections of the Impact Statement are implemented.

ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); HIA = Health Impact Assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; pVC = pathway valued component; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

While these findings are specific to this determinant of health (access and availability of water), an overall determination of the potential for residual effects for Changes to Health (fVC Indigenous Peoples) is provided in Section 8.

6.1.4 ACCESS AND AVAILABILITY OF TRADITIONAL FOODS

This section includes an assessment of Indigenous health from changes in access and availability of traditional foods, including health linkages, relevant existing conditions, potential effects (construction, operations and closure), mitigation and enhancement measures and GBA Plus considerations.

6.1.4.1 HEALTH LINKAGES

The following section describes the generic exposure pathways and scenarios by which human health can be influenced by changes in access and availability of traditional foods. The linkages described here are not specific to one sector or community, instead, this section provides an overview of the relevance of access and availability of traditional foods as a determinant of Indigenous health.

Indigenous traditional food systems, which include subsistence activities such as hunting, fishing, trapping, and harvesting practices, are linked to health and wellness in ways extending beyond nutrition, as these activities may contribute to health through other economic and social pathways (Earle 2011a). Engaging in traditional food collection practices and preparing traditional foods supports health benefits for Indigenous communities as these activities help strengthen cultural and spiritual ties to the land, encourage the sharing of traditional knowledge across generations, and promote physical activity (Kuhnlein et al. 2001; Marushka et al. 2021). For example, Samson and Pretty (2006) estimated that some Innu (an Indigenous population from eastern Quebec and Labrador) engaged in traditional activities in the country, exert approximately 12.5 to 50 megajoules of energy per day compared to 0.8 to 2.1 megajoules expended when residing in the village. They also report that the transition from a traditional lifestyle of moving through the land to hunt, gather, and trap, to a more sedentary life living in permanent villages and settlements, has been linked to a decline in physical and mental health (Samson and Pretty 2006).

Daily activities like food collection, community activities and participating in ceremonies help foster a collective understanding of the land among community members, evidenced by a wealth of Indigenous ecological knowledge that is passed down through generations (Bélisle et al. 2021).

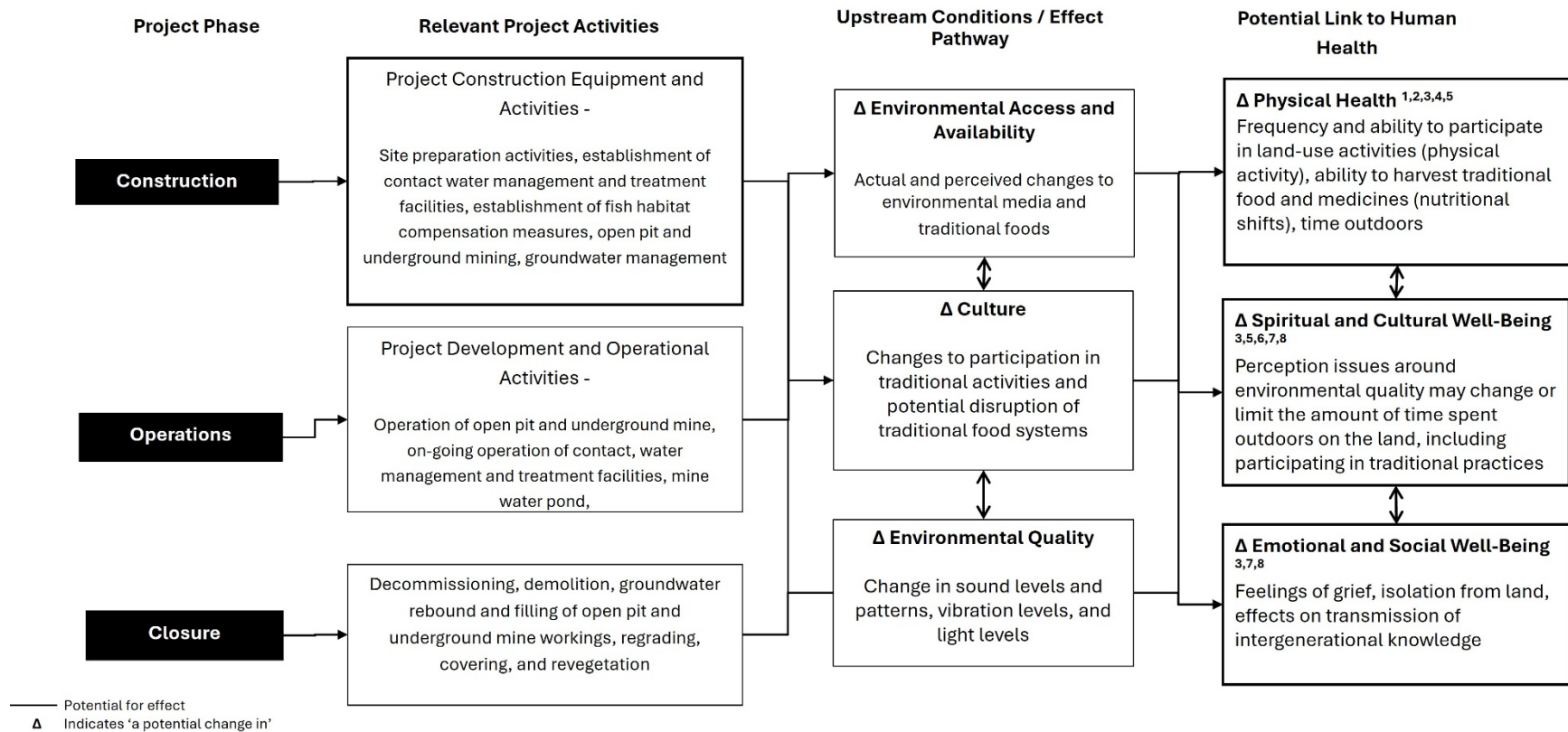
The willingness and frequency of traditional food intake among Indigenous populations globally is changing, as many factors have influenced consumption patterns (McCartan et al. 2020; Earle 2011a). As cited in (Earle 2011a), *“Access to traditional foods has been altered through the loss of traditional lands, legislative restrictions on the use of land, waterways, and animal resources.”* Many of these changes can result in a greater reliance on the colonial introduced food system and, for many, intergenerational loss of skills in the procurement of traditional food (McCartan et al. 2020). In addition, changes to the quality of traditional foods have occurred over time as discussed in Section 6.1.2. These barriers, which may have influenced consumption patterns, are also linked to other determinants of health, such as food security, economics, and community cohesion (see Sections 6.2.1, 6.2.4 and 6.2.4.6). For example, lack of time for harvesting, lack of a hunter, and lack of equipment or transportation were among the key reported barriers to traditional food harvesting in Ontario (Chan et al. 2014). Overall, given its close link to culture, changes in access and availability of traditional foods, may influence Indigenous health and wellness.

In the context of major projects, including mining, the ability to participate in traditional activities can be impacted in a number of ways. Physical health effects, if there is an accident, spill or incidental exposure to contaminants for example, can physically impede the ability to participate and can result in social, cultural, spiritual and mental health effects (Shandro et al. 2017). Major projects can also limit the ability to participate in traditional activities through changing or blocking access to the land.

An effect pathway diagram showing potential Project activities during all phases, relevant changes / exposure pathways and health and wellness effects is provided in Figure 6-12 to graphically depict the potential linkages between the Project and human health outcomes. These diagrams show the potential pathways of exposure or change in upstream conditions that may result in changes to health; however, the assessment of potential effects (Section 6.1.4.3) identifies specific pathways where changes are predicted to occur.

Figure 6-12: Effect Pathway Diagram for Access and Availability of Traditional Foods

Access and Availability of Traditional Foods



Sources:

1 – Earle et al. 2011a; 2 – Shafiee et al. 2022; 3 – Salerno et al. 2021; 4 – Batal et al. 2021a; 5 – Kirmayer et al. 2000; 6 – NCCIH 2016; 7 – Carrier et al. 2022; 8 – Ninomiya et al. 2023

6.1.4.2 EXISTING CONDITIONS

This section provides a summary of existing conditions relevant to Indigenous health from changes in access and availability of traditional foods. The available baseline (existing conditions) data for Indigenous health, including physical health and wellness (e.g., chronic conditions, communicable diseases, demographics), health-related behaviours (e.g., food consumption, physical activity, substance use) and mental wellness (depression, stress / anxiety, perception of risk) are provided in the Baseline Health Profile (Attachment A) and should be viewed for detail. In addition, a description of existing conditions for linked pVCs Air Quality, Sound, Vibration, Water Quality, Vegetation Communities, Wild Rice, Moose, Other Wildlife, SAR, and fVCs, Fish and Fish Habitat and Migratory Birds are provided in the following Impact Statement Sections and technical appendices:

- **Air Quality (Existing Conditions):** Impact Statement Section 2.4 (Environmental Setting – Air Quality) and Impact Statement Section 7.2 (pVC Air Quality – Existing Conditions)
- **Sound (Existing Conditions):** Impact Statement Section 2.6 (Environmental Setting – Sound and Vibration) and Impact Statement Section 7.3 (pVC Sound – Existing Conditions)
- **Vibration (Existing Conditions):** Impact Statement Section 2.6 (Environmental Setting – Sound and Vibration) and Impact Statement Section 7.4 (pVC Vibration – Existing Conditions)
- **Water Quality (Existing Conditions):** Impact Statement Section 2.10 (Environmental Setting – Water Quality) and Impact Statement Section 7.7 (pVC Water Quality – Existing Conditions)
- **Vegetation Communities (Existing Conditions):** Impact Statement Section 2.12 (Environmental Setting – Vegetation Communities), Impact Statement Section 7.8 (pVC Vegetation Communities – Existing Conditions), and Attachment A2 (Soil and Traditional Food Sampling Program) of the HHERA (Impact Statement Appendix N-1; WSP 2026a)
- **Wild Rice (Existing Conditions):** Impact Statement Section 2.13 (Environmental Setting – Wild Rice) and Impact Statement Section 7.9 (pVC Wild Rice – Existing Conditions)
- **Moose (Existing Conditions):** Impact Statement Section 2.14 (Environmental Setting – Migratory Birds, Moose, and Other Wildlife) and Impact Statement Section 7.10 (pVC Moose – Existing Conditions)
- **Other Wildlife (Existing Conditions):** Impact Statement Section 2.14 (Environmental Setting – Migratory Birds, Moose, and Other Wildlife) and Impact Statement Section 7.11 (pVC Other Wildlife – Existing Conditions)
- **Species at Risk (Existing Conditions):** Impact Statement Section 2.15 (Environmental Setting – Species at Risk) and Impact Statement Section 7.12 (pVC Species at Risk – Existing Conditions)
- **Fish and Fish Habitat (Existing Conditions):** Impact Statement Section 2.11 (Environmental Setting – Fish and Fish Habitat) and Impact Statement Section 8.4 (fVC Fish and Fish Habitat – Existing Conditions)
- **Migratory Birds (Existing Conditions):** Impact Statement Section 2.14 (Environmental Setting – Migratory Birds, Moose, and Other Wildlife) and Impact Statement Section 9.4 (fVC Migratory Birds – Existing Conditions).

A brief description of existing conditions related to access and availability of traditional foods is presented below to provide context for the assessment of biophysical determinants of health. For the summary of existing conditions for air quality, sound and vibration, and water quality refer to Section 6.1.1.2, 6.1.5.2 and 6.1.2.2 of the HIA, respectively. The paragraphs below summarize existing conditions for the seven remaining upstream biota-related pVCs and fVCs (i.e., Vegetation Communities, Wild Rice, Moose, Other Wildlife, SAR, Fish and Fish Habitat and Migratory Birds), as these are most directly relevant to characterizing existing conditions for access and availability of traditional foods. Collectively, the information from the upstream pVCs and fVCs provided the existing conditions related to access and availability of traditional foods. Unless otherwise indicated, the existing conditions information provided below is applicable to the local Indigenous communities: LSFN, WFN, ANA, NWOMC and RLEF.

Vegetation Communities

Vegetation communities within the Property are described in relation to plant species and communities that support or contribute to the availability of traditional foods to inform existing conditions. According to confidential reports prepared for Indigenous communities in the region and publicly available sources (Chan et al. 2014), the most commonly reported plants that are traditionally gathered for food and / or medicinal purposes in the region include blueberries, raspberries, pin cherries or chokecherries, cranberries, labrador tea, and mint. Section 4.4 provides a description of plant species commonly consumed as traditional foods for each Indigenous community.

The Property is dominated by upland conifer forest, upland deciduous forest and conifer swamp. Widespread wildfire and development have resulted in younger jack pine forest throughout the western and southern areas of the Property, while the oldest forests are typically in lowland areas such as treed swamps, bogs and fens. Dominant tree species on the Property include jack pine, black spruce, trembling aspen and white birch, with lesser amounts of balsam fir and white spruce. Meadow marshes are the most abundant open wetland on the Property, often having formed on the exposed sediments in inactive beaver ponds. Shore fens are also abundant in the vicinity of Unnamed Waterbody 6, Unnamed Waterbody 1 and Dixie Creek. Non-wetland terrestrial non-forested communities (< 25% tree cover) account for less than 1% of the Property. These barren areas include vascular plant species such as common juniper, bearberry and three-toothed cinquefoil, with some occurrence of pin cherry, jack pine and balsam fir. North facing bedrock exposures often support mosses, and herbaceous shrubs and ferns.

A total of 331 species of vascular plants have been documented on the Property, with 42 of these species being non-native. In addition, 77 species of fungi were observed on the Property.

Numerous plant species have been identified as species of importance to local Indigenous people. Some examples of these plants and fungi are: wild rice, tamarack, red-osier dogwood, wild red raspberry, cranberry, blueberry, sweetgrass, white birch, wild mint, sweetflag, eastern white cedar, chaga mushroom, chanterelle mushroom, pin cherry, choke cherry, diamond willow, wild ginger, gooseberry, bush honeysuckle, juniper, labrador tea, waterlily, labrador tea, sagebrush and sage.

Plant harvesting has been identified as central to the WFN seasonal food, medicine, and ceremonial systems. Berry-picking hotspots are mostly around and south of the WFN community and are concentrated along highways and forestry roads at successional forest clearcuts or fire areas. There are community-utilized blueberry sites along the roads north, west, and south of PA. There are reported labrador tea gathering sites northwest of the PA, in the LSA. While some previously clear-cut areas support berry growth, harvesting routines have been identified as being disrupted from concerns related to potential herbicide use, soil compaction, and exploration-related disturbances.

Additional information from confidential reports prepared for LSFN indicated that plant harvesting also plays an important role in LSFN culture for subsistence, medicine, cultural practices and cultural continuity. Blueberries are the most commonly gathered traditional plant, while manoomin (wild rice) holds cultural importance and is widely consumed for both traditional and commercial use. Manoomin harvesting sites are not identified in the PA but occur in the LSA and RSA. Edible mushroom harvesting was also reported to occur within the PA, as well as areas throughout the LSA and RSA.

Additional information from a confidential report prepared for NWOMC indicated that plant harvesting is an important component of NWOMC subsistence, medicinal and ceremonial practices, and cultural continuity. Within the LSA, areas are used for gathering of fiddleheads, mushrooms, blueberries, and firewood, as the most commonly reported species, along with other natural materials.

Vegetation samples were also collected as part of the Soil and Traditional Food Sampling Program, as reported in the HHERA (Impact Statement Appendix N-1; WSP 2026a). Vegetation samples of interest were identified based on their importance as food for human consumption which was based on engagement with the local Indigenous communities. Vegetation species targeted for collection were informed by IK interviews with LSFN and WFN, as IK from other communities were not available at the time of the sampling program. In the absence of a vegetation type identified from IK, alternative vegetation types were sampled. The following vegetation samples were collected as part of the program and were considered accessible to the local Indigenous communities:

- **Berries:** Canadian bunchberry, velvetleaf blueberry, chokecherry, rosehips, blueberries and raspberries
- **Traditional plants:** bog Labrador tea, mountain ash, Labrador tea, prickly wild rose, wild mint, paper birch, red-osier dogwood, chaga, chanterelle, tamarack, wild rice, turkey tail, common juniper, cattail, birch bark, lily pad, alder bark and bog aster.

Wild Rice

Wild rice has consistently been identified of importance to local Indigenous communities. Wild rice within the PA and LSA is described to inform existing conditions for availability of traditional foods. Wild Rice is documented within the PA in Unnamed Waterbody 1, and within the LSA in Unnamed Waterbody 6, along Dixie Creek, Hiewall Lake, and in an unnamed waterbody southeast of Hiewall Lake. These Wild Rice stands have not been identified as being recently harvested in confidential Indigenous knowledge shared with Great Bear Resources by LSFN, WFN or NWOMC. The importance of Wild Rice in the region is acknowledged by all communities. Wild Rice was consistently abundant in Unnamed Waterbody 1. Abundance in Unnamed Waterbody 6, located east of the PA and within the LSA, was highly variable.

Moose

Moose within the PA are described to inform existing conditions for availability of traditional foods. Moose have been identified as a species of importance to local Indigenous communities, both culturally and for subsistence.

The Project is located within a WMU, which is an administrative coverage area under the *Fish and Wildlife Conservation Act*, regulated by the MNR that serves as a land base for wildlife research and management. Specifically, the Project falls within WMU 3. As presented in Impact Statement Section 7.10 (pVC Moose), the Ontario Landscape Tool Moose Capability Model was used to estimate relative carrying capacity to assess changes in moose density across the RSA. The model suggested that the current PA can support approximately nine moose. It also indicated that much of the high-quality moose habitat is outside the PA and LSA, near the southern border of WMU 3.

A confidential report prepared for WFN documented community values through GIS-based mapping and interviews conducted between 2021 and 2022. The study identified Moose hunting values surrounding the PA. Moose is noted as a main species harvested in proximity to the PA.

A confidential report prepared for LSFN compiled IK and land use information gathered through interviews with community members and Knowledge Holders between 2021 and 2024. The report highlighted the importance of moose as one of the two primary species harvested by the community. Moose hunting supports cultural transmission, food security, and various economic activities, including guiding and outfitting. Community members shared knowledge on moose habitat and expressed concerns about population declines linked to forestry, logging, and pesticide use. Observations included changes in moose meat quality and notable declines in moose presence in areas such as Whitefish Lake and regions north of Sioux Lookout.

The confidential report for the NWOMC similarly identified moose as an important species, with nearly a third of the participants in the study having hunted for moose. Métis citizens identified that there are fewer large game, such as moose, available in the region, which they attributed to an increased number of hunters in the area.

Other Wildlife

Wildlife species in the PA are described in relation to their role as traditionally harvested species and / or to describe the other species were observed within the PA. According to confidential reports prepared for Indigenous communities in the region and publicly available sources (Chan et al. 2014), the most commonly reported wildlife species that are hunted or trapped in the region (other than moose) include deer, caribou, rabbit, beaver, and muskrat. Section 4.4 provides a description of the wildlife species commonly consumed as traditional foods for each Indigenous community.

A total of 36 mammal species were observed on the Property from 2021 to 2023. The most commonly observed species on the Property during baseline investigations for the Project, were snowshoe hare, grey wolf, moose, red squirrel, Canada lynx and black bear. Various other furbearing species are likely to use the Property based on habitat, range, and track sightings. A total of six amphibian species were observed on the Property from 2021 to 2023, including spring peeper, wood frog, gray treefrog, American toad, eastern garter snake and painted turtle.

A confidential report prepared for WFN documented interviews with community members in 2021 and 2022. The report identified 594 community lands and resource use values within and surrounding the PA. Additional confidential reports indicate that a variety of habitats for wildlife exist in the PA, but that hunting and harvesting occur outside the PA.

Trapline areas within the PA were identified and include RL068 and RL059, which are both registered to LSFN; a non-Indigenous trapper is active in RL068. In early 2025, a non-First Nations trapper, who traps on the LSFN member trapline (RL068), volunteered a summary of wildlife sightings, including furbearers, collected in the PA during their 2018 to 2024 trapping seasons. The recorded observations included incidental sightings, tracks, and other evidence of wildlife activity (i.e., predation on trapped animals) of furbearing mammals not targeted for trapping, which included beaver and Canada lynx.

Species at Risk

SAR described below to inform existing conditions for availability of traditional foods. According to confidential reports prepared for local Indigenous communities and publicly available sources (Chan et al. 2014), SAR that have also been identified as traditionally hunted or trapped and / or are of cultural importance to Indigenous communities in the area include caribou and wolverine. Other SAR were included in this discussion of existing conditions for completeness and conservatism. One federally or provincially listed SAR, the black ash, has a range that potentially overlaps with the Property. Two federal or provincial mammal SAR were detected on the Property during environmental baseline studies, and there is potential for several others based on species range and documentation in surrounding areas. Wolverine (Threatened) have been detected at several locations on the Property, as well as little brown myotis (Endangered) and northern myotis (Endangered) have also been detected on the Property.

A total of 13 avian provincial or federal SAR have been detected on the Property, including American white pelican, bald eagle, bank swallow, barn swallow, Canada warbler, common nighthawk, eastern whip-poor-will, eastern wood-pewee, evening grosbeak, olive-sided flycatcher, rusty blackbird, short-eared owl and yellow rail. For reptiles and amphibians, snapping turtle were not identified on the Property; however, their range overlaps with the Property and potentially suitable habitat are present along Dixie Creek, Unnamed Waterbody 6 and other large watercourse and waterbodies. The only insect SAR detected on the Property was yellow-banded bumblebee, which was confirmed near Unnamed Waterbody 1.

Confidential IK reports shared with Great Bear Resources which include regional SAR sightings, are supportive of the baseline findings described above, including noting the presence of boreal caribou and Wolverine in the region.

Fish and Fish Habitat

Fish and fish habitat within the PA are described to inform existing conditions for availability of traditional foods. According to confidential reports prepared for local Indigenous communities and publicly available sources (Chan et al. 2014), the most commonly reported species of fish that are harvested in the region include walleye / pickerel, lake whitefish, jackfish / northern pike, as well as perch, lake sturgeon, trout / lake trout, sucker, and muskellunge. The probability of fish being present, and the number of species present, increases with stream size. Larger streams support more complex multi trophic fish communities in habitats such as Dixie Creek and the Chukuni River where the number of species present range from 16 to 35 and include species such as northern pike, walleye and lake whitefish. Fish species of interest to local Indigenous communities are also present in the PA waterbodies include white sucker, smallmouth bass and shiner minnow species, according to confidential IK information shared with Great Bear Resources.

Lake whitefish and walleye are common in the larger watercourses including the Chukuni River; and in larger waterbodies such as Genessee Lake, Gullrock Lake and Pakwash Lake. Lake trout and lake sturgeon are not resident species within the PA or the LSA. Incidental lake trout could potentially migrate from Red Lake downstream through the Chukuni River (Red Lake community engagement pers. comm. 2025). Information shared by LSFN with Great Bear Resources through confidential IK studies, stated that the aquatic ecosystem in the local and surrounding waterbodies include walleye, northern pike, (yellow) perch, (lake) whitefish, smallmouth bass, sucker, rock bass, mooneye, tullibee (cisco) and shiner minnow species. Information shared by WFN with Great Bear Resources through confidential IK studies indicated that communities have long harvested species such as walleye, (lake) whitefish, lake trout, muskie (muskellunge), bass, (northern) pike, sucker, jackfish (northern pike) and (yellow) perch across the region. Information shared by the NWOMC with Great Bear Resources through confidential IK studies stated that fishing within the local area included walleye, perch, bass, northern pike and whitefish; and other species fished within a 100 km radius of the Project also included trout, minnows, crappie, sucker, sauger, muskie (muskellunge) and other non-commercial fish. Based on comments from participants during the Planning Phase of the Impact Statement for the Project, lake whitefish, walleye, lake trout, and lake sturgeon were identified as important.

Lake sturgeon have not been observed as present in the LSA or RSA waterbodies. Lake Sturgeon were not captured or observed during the extensive baseline studies completed for the Project and were not detected within the 2023 baseline environmental DNA samples for the Project.

A confidential IK study prepared for LSFN, and shared with Great Bear Resources, identified spawning areas in lakes and watercourses outside of the LSA and RSA. Lake whitefish and white sucker are known to spawn in the Chukuni River, and northern pike spawning areas have been identified in Pakwash Lake.

Migratory Birds

Migratory bird species in the region, as well as their habitat are described to support an understanding of availability of traditional foods and conditions that are related to waterfowl harvesting. According to confidential reports prepared for local Indigenous communities and publicly available sources (Chan et al. 2014), the most commonly reported bird species that are traditionally harvested in the region include goose, duck, grouse or partridge, and gray partridge. Section 4.4 provides a description of bird species commonly consumed as traditional foods for each Indigenous community. The Project is located within the Bird Conservation Region 8 in Ontario, which identifies 229 species of birds that breed, overwinter, reside year-round, or migrate through (ECCC 2014). Confidential IK reports shared with Great Bear Resources identified the presence of waterfowl hunting areas within the LSA, but none directly within the PA.

A total of 153 bird species were observed on the Property from 2021 to 2023 during environmental baseline investigations, not all of which breed in the Red Lake area. Additional species could be expected on the Property due to known distributions. The most commonly observed birds on the Property include Nashville warbler, white-throated sparrow, red-eyed vireo, ovenbird, ruby-crowned kinglet, chipping sparrow, magnolia warbler, hermit thrush, Tennessee warbler, and yellow rumped warbler. In total, seven species of owls, ten species of raptors, six species of shorebirds, seven species of colonial nesting birds and 49 wetland-associated species have been detected on the Property.

Several species of game birds, including three species of ruffed grouse, were also detected on the Property. Unnamed Waterbody 6 and Unnamed Waterbody 1 are stopover areas for migrating waterfowl and waterbirds, particularly in the fall due to the presence of wild rice. Confidential IK reports prepared for LSFN, WFN and NWOMC shared with Great Bear Resources, document the dynamic and seasonal nature of waterfowl hunting in the region, as well as the importance of waterfowl to community food systems, cultural continuity, and intergenerational knowledge transfer. According to a confidential report prepared for WFN, waterfowl hunting areas (primarily for ducks and geese, but also loons and ptarmigans) were identified within the LSA, but none directly within the PA. The report emphasizes that the information documented represents a snapshot in time and does not encompass the full extent of community knowledge and land use. A confidential IK report prepared for LSFN highlights the importance of hunting waterfowl (ducks and geese) to the community, both as a food source and as a means of passing on traditions. LSFN members reported hunting in locations within the LSA, but no key hunting

areas were reported within the PA. A confidential report prepared for NWOMC notes that Métis members hunt waterfowl in the LSA. Public correspondence from ANA to IAAC, Ministry of Energy and Mines, and Great Bear Resources regarding the Project, indicates that ANA has reported that habitat ranges for large game including moose, caribou and wolverine overlap with the PA and LSA, and that the forested area south of Red Lake is a hunting area of moose (ANA 2024).

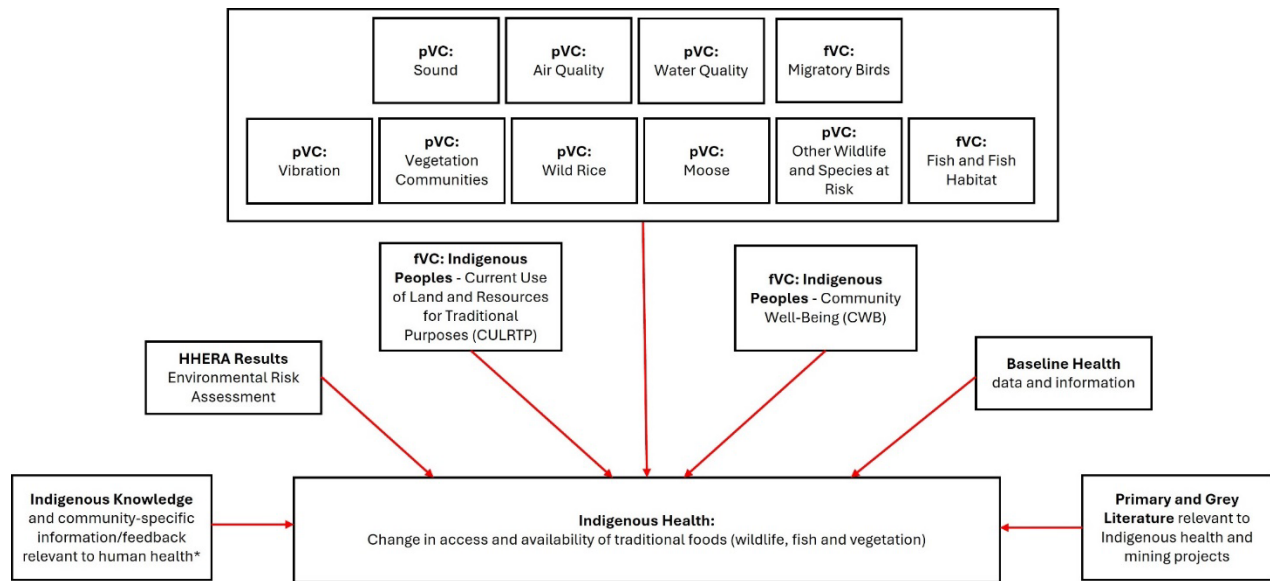
6.1.4.3 POTENTIAL EFFECTS

The following sections provide the inputs, assumptions, results from upstream analyses, Project information, primary and grey literature, and other evidence that supports the assessment of changes in access and availability of traditional foods in the context of Indigenous health. The assessment of potential effects first presents the available evidence, acknowledging any limitations and assumptions, followed by an assessment by Project phase (i.e., construction, operations and closure). Finally, a summary of the assessment findings is presented with a discussion regarding mitigation and / or enhancement measures, and GBA Plus considerations.

EVIDENCE FOR ASSESSMENT

The evidence used in the assessment of potential effects to Indigenous health from changes in access and availability of traditional foods, included (i) findings from relevant upstream valued components (pVCs and fVCs); (ii) results from the HHERA; (iii) primary and grey literature sources; (iv) IK and community-specific information, and (v) baseline health information (Figure 6-13).

Figure 6-13: Inputs for Access and Availability of Traditional Foods



Note: additional linkages between individual inputs are not shown
 * Where relevant and available

Each of these sources of information and evidence are further described in the sections below. Collectively, this body of evidence informed the assessment of potential effects described for each Project phase (i.e., construction, operations and closure).

Upstream Valued Components (pVCs, fVCs)

The assessment of potential effects for the linked pVCs and fVCs are important in that they identify predicted changes in those upstream conditions such as wildlife, vegetation and fish population changes that, in turn, have the potential to affect Indigenous health via changes in access and availability of traditional foods. Please see Section 6.1.2 for the assessment of potential changes to traditional food

quality. A summary of the assessment, key mitigation measures, and predicted change after mitigation identified in the pVCs and fVCs linked to Indigenous health, including Air Quality, Sound, Vibration, Water Quality, Vegetation Communities, Wild Rice, Moose, Other Wildlife, SAR, Fish and Fish Habitat and Migratory Birds are provided in Section 6 (Table 6-2).

Ten upstream pVCs were used as inputs in the assessment of access and availability of traditional foods as these pVCs inform whether there is potential for wildlife, vegetation and fish population changes due to the Project activities that may disrupt traditional food systems. Specifically, determining whether the Project will result in changes to plants, wildlife, and fish, which may be harvested as traditional foods, were the relevant inputs into the assessment of potential effects on Indigenous health via access and availability of traditional foods.

Upstream changes to sound, vibration, air, and water, from airborne emissions and / or discharge of Project contact water are relevant as these can result in changes to plants, wildlife, and fish populations. For a summary of changes to upstream conditions for air quality, refer to Section 6.1.1.3. For changes to upstream conditions for water quality, refer to Section 6.1.2.3. For summary of changes to upstream conditions for sound and vibration, refer to Section 6.1.5.3.

Overall, Project activities will result in habitat alteration, vegetation removal and sensory disturbances which may alter ecosystems that support traditional harvesting activities, possibly resulting in a change in access and availability of traditional foods. Project activities that disrupt access and availability of traditional foods such as those that result in changes to wildlife, fish, birds, and plant populations either directly or indirectly through sensory disturbances, have the potential to affect Indigenous health because traditional food systems are closely tied to nutrition (Batal et al. 2021a, 2021b; Earle 2011a), physical activity (Earle 2011a), cultural continuity, and mental health (Batal et al. 2021a; Earle 2011a, 2011b; Salerno et al. 2021; Simpson et al. 2009).

Upstream Conditions (Indigenous Peoples fVCs)

In addition to the multitude of pVCs that influence various aspects of access and availability of traditional foods, there are also components of the fVC Indigenous Peoples assessments that are both directly and indirectly linked to this determinant of health. Specifically, changes in availability, access to and experience related to traditional terrestrial wildlife harvesting (hunting and trapping), traditional aquatic harvesting (fishing), and traditional plant harvesting (for food and medicinal purposes), were considered as part of the assessment of CULRTP. Additionally, access to land and resources were considered as part of the assessment of CWB. While these other sections did not consider health effects, they did evaluate changes to those upstream conditions that have the potential to influence downstream outcomes related to Indigenous health.

Influence of Current Use of Lands and Resources for Traditional Purposes on Access and Availability of Traditional Foods:

In undertaking the assessment of potential effects to Indigenous people, changes in CULRTP were assessed for each of the local Indigenous communities in Impact Statement Sections 10 to 14 (fVC Indigenous Peoples). The potential effects to traditional terrestrial wildlife harvesting (hunting and trapping), traditional aquatic harvesting (fishing), and traditional plant harvesting (food and medicinal purposes) were assessed. The assessment included evaluation of which dimensions (i.e., availability, access, quality of experience) of each land-based harvesting practice may be affected by the Project, specifically:

- **Availability:** quantity of traditionally hunted and trapped wildlife species available
- **Access:** to locations and areas for hunting and trapping
- **Quality of Experience:** detectable changes to sensory conditions at harvesting sites or areas.

The CULRTP assessments identified how the Project may affect the access, availability, and quality of experience related to traditional foods harvesting, specifically wildlife, fish, and plant harvesting, across the local Indigenous communities. The CULRTP assessment synthesized information from technical reports, IK, community feedback, and linked valued components (pVCs and fVCs). A summary of results,

that are relevant to the assessment of Indigenous health from changes to access of traditional foods, is described in the paragraphs below and in Table 6-18.

- Availability was assessed based on results of input pVCs and biophysical fVCs (e.g., moose, other wildlife, fish and fish habitat, migratory birds)
- Access was assessed based on whether or not each community identified land use within the PA and LSA and whether or not changes were expected within this area
- Quality of experience was assessed based on detectable changes to sensory conditions (sound, vibration, dust, light) at harvesting sites or areas.

Table 6-18: Summary of Results from CULRTP Effects Assessment used in the HIA

Potential Effect / Indicator	Sub-Indicators	LSFN	WFN	ANA	NWOMC	RLEF
Change in availability, access to, and experience related to traditional terrestrial wildlife harvesting (hunting and trapping)	Availability	Y	Y	Y	Y	Y
	Access	Y	N	N	N	Y
	Experience	Y	Y	Y	Y	Y
Change in availability, access to, and experience related to traditional aquatic harvesting (fishing)	Availability	N	N	N	N	N
	Access	N	N	N	N	N
	Experience	N	N	N	N	N
Change in availability, access to, and experience related to traditional plant harvesting (food and medicinal purposes)	Availability	Y	N	N	N	Y
	Access	Y	N	N	N	Y
	Experience	Y	Y	N	Y	Y

Notes:

Y=Yes Residual Effects identified under Current Use of the Land and Resources for Traditional Purposes

N=No Residual Effects identified under Current Use of the Land and Resources for Traditional Purposes

ANA = Asubpeeschoseewagong Netum Anishinabek; CULRTP = Current Use of the Land and Resources for Traditional Purposes; HIA = Health Impact Assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

Source: Table recreated with information from Impact Statement Sections 10 to 14 (fVC Indigenous Peoples: LSFN, WFN, ANA, NWOMC, RLEF).

Mining and related activities may result in sensory disturbance which could discourage trapping activity in the LSA, immediately adjacent to the PA. Anticipated potential effects include direct and indirect changes to availability of plants and wildlife, respectively, as well as reduced access within the PA and diminished quality of experience due to sensory disturbances such as noise, dust, vibration, and visual change. Similar effects are identified for fishing and aquatic resources, with changes projected due to altered aquatic habitat conditions from surface water quality changes, sedimentation, and vibration.

After the application of proposed mitigation measures for Project, residual effects were identified for Indigenous communities with reported current terrestrial wildlife and plant harvesting within the PA and LSA. After the application of mitigation measures, no residual effects for traditional aquatic harvesting (fishing) were identified for any of the local Indigenous communities.

As presented in the CULRTP assessment for LSFN, the PA overlaps active traplines and areas reportedly used for hunting, trapping, fishing and plant harvesting, which were outlined in confidential reports prepared for LSFN. Specifically, two of the four registered traplines located in the LSA are within the PA (RL059 and RL068 are located within the PA, whereas RL06 and RL073 are located outside the PA but within the LSA).

As presented in the CULRTP assessment for WFN, no current use of the PA was identified for harvesting activities in confidential IK studies prepared for WFN, although land use occurs in the LSA and RSA for WFN. Given no current use of the PA was identified by WFN, residual effects to plant harvesting were not anticipated in terms of access and availability; however, sensory impacts may still influence quality of experience in the LSA in immediate proximity to the PA.

As presented in the CULRTP assessment for ANA, in publicly available information ANA have identified an Indigenous Protected Conservation Area (IPCA) for moose, boreal caribou, and wolverine habitat ranges which overlaps the PA and LSA (ANA 2024). The CULRTP assessment for ANA identified potential current use of the LSA for moose harvesting, but no confirmed use of the PA. The CULRTP assessment identified residual effects for ANA for terrestrial wildlife harvesting. After the application of proposed mitigation measures, no residual effects for traditional aquatic harvesting (fishing) or plant harvesting were expected.

As presented in the CULRTP assessment for NWOMC, confidential reports prepared for the NWOMC identify hunting, trapping, fishing, and / or plant gathering , in the LSA and RSA. Therefore, NWOMC may experience direct and indirect changes to availability, and quality of experience for wildlife and plant harvesting, particularly due to sensory disturbance and localized habitat alteration for vegetation communities and migratory birds. Indirect effects to fish and aquatic resources may occur in the LSA, which may result in localized changes to fish and aquatic species distribution. Potential effects for NWOMC remain for terrestrial wildlife and plant harvesting. After the application of mitigation measures, no residual effects for traditional aquatic harvesting (fishing) were expected.

As presented in the CULRTP assessment for RLEF, harvesting within the PA for RLEF was assumed to occur based on use of the PA for harvesting identified by LSFN. Therefore, RLEF may experience direct and indirect changes to access, availability, and quality of experience for wildlife and plant harvesting, particularly due to sensory disturbance and localized habitat alteration for vegetation communities and migratory birds. Indirect effects to fish and aquatic resources in the LSA may affect localized fish and aquatic species population and distribution. Potential effects for RLEF remain for terrestrial wildlife and plant harvesting. After the application of proposed mitigation measures for the Project, no residual effects for traditional aquatic harvesting (fishing) were identified.

Influence of Access to Land and Resources on Access and Availability of Traditional Foods:

In the assessment of potential changes to Indigenous people, changes in CWB were assessed for each of the local Indigenous communities in Impact Statement Sections 10 to 14 (fVC Indigenous Peoples). The assessment included evaluation of how several indicators of CWB may be affected by the Project, including Access to Land and Resources.

The CWB assessment synthesized information from technical reports, IK, community feedback, and linked valued components (pVCs and fVCs). The CWB assessment includes the findings from CULRTP with a community well-being lens, highlighting that perceived risks, such as concerns about contamination, may also influence participation in land-based practices. A summary of the results is provided in the paragraphs below.

As described in the CWB assessment, Indigenous people who previously accessed the PA and access surrounding areas (in the CULRTP LSA) for harvesting, including for culturally significant furbearers and plant species, may experience changes in access, availability of culturally important harvesting sites and areas due to Project infrastructure, and quality of harvesting activities due to sensory disturbances (noise, dust and visual changes) across all Project phases.

As described in the CWB assessment, temporary or longer-term avoidance of certain areas may occur, particularly where harvesting quality or cultural experience is changed from Project activities and infrastructure. These changes may contribute to reduced opportunities for intergenerational knowledge transfer, cultural continuity, and land-based wellness practices that are important to community well-being.

Overall, the Project may temporarily disrupt access, availability, and / or experience within the PA and immediately surrounding areas for at least one type of land-based practice for each community. As such,

residual effects associated with the Access to Land and Resources indicator under CWB were identified for the local Indigenous communities and were carried through for assessment in the HIA.

HHERA Results

The Project has the potential to release contaminants into the environment, resulting in potential changes to air, soil, water, and sediment quality that may affect availability of wildlife, fish, and vegetation and in turn, may affect Indigenous health if consumed. An Ecological Risk Assessment (ERA) was conducted to evaluate whether exposure to POPCs associated with the Project will affect the sustainability of ecological (animal, fish, plant) populations (Impact Statement Appendix N-1; WSP 2026a). Effects endpoints included survival, growth, reproduction and development.

Specifically, the ERA evaluated the following:

- **Receptors:** terrestrial plants and invertebrates, aquatic life (including fish, plants, invertebrates, amphibians [aquatic phase] living in the water column) and terrestrial and aquatic-feeding wildlife (including mammals, birds, reptiles and amphibians)
- **POPCs:** arsenic in soil (terrestrial plants and invertebrates), mercury in surface water (aquatic feeding-wildlife) and arsenic and iron in surface water (aquatic life); other Project parameters were below screening values protective of ecological receptors
- **Exposure pathways:** direct contact and / or ingestion of soil, surface water, sediment and food (e.g., browse, lichen, berries, aquatic plants, aquatic and terrestrial invertebrates, fish and / or small mammals).

For plants, the HQs calculated in the ERA for terrestrial plants and soil invertebrates were below the target of 1.0 for all Project phases. In addition, there was no measurable change in the HQs for the Project phases compared to baseline. It is noted that baseline risks for terrestrial plants and soil invertebrates in contact with soil were identified for arsenic; however, the incremental change to existing concentrations of arsenic in soil due to Project contributions was determined to be negligible. Therefore, Project activities were not expected to result in unacceptable risks to terrestrial plant and soil invertebrate communities (Impact Statement Appendix N-1; WSP 2026a).

For aquatic life (including fish), the HQs calculated in the ERA using maximum monthly average predicted surface water concentrations were marginally above the target of 1.0 for all Project phases for arsenic and iron; however, there was no measurable increase in the HQs for the Project phases compared to baseline. When using the maximum annual average predicted surface water concentration, HQs were equal to 1.0 for iron and marginally above 1.0 for the Project phases for arsenic, but showed little difference from baseline (i.e., change in HQ of less than 0.1). Given the conservative assumptions used in the calculations of the HQs and the negligible contributions to the HQ by the Project, Project activities were not expected to result in unacceptable risks to aquatic life communities.

For mammals and birds, the HQs for all mammals and birds receptors assessed in the ERA for all Baseline+Project phases were below the target HQ of 1.0, with the exception of methylmercury for the belted kingfisher, which is a piscivore. The HQs for the belted kingfisher were marginally above 1.0 for baseline and the Baseline+Project phases (i.e., construction, operations and closure) and post-closure. However, changes in calculated HQs between baseline and the Project phases were less than 0.1 for construction and operations and negligible during closure and post-closure. Given the negligible contributions to the baseline HQ by the Project, Project activities were not expected to result in unacceptable risks to mammals and birds.

In regard to methylmercury which is the form of mercury most readily taken up by aquatic organisms and biomagnified through the food chain, with the highest concentrations in top predators (e.g., northern pike and walleye, and fish-eating birds and mammals), wildlife in the region is already exposed to methylmercury at levels above the most stringent environmental guidelines for the protection of wildlife in baseline. The incremental contribution to existing mercury and methylmercury concentrations in water, sediment and biota by the Project was predicted to be negligible and not measurable with current analytical methods (Impact Statement Appendix N-1; WSP 2026a).

Ecological risk results for each Project phase are summarized in the construction, operations and closure sections below.

Primary and Grey Literature

The accessibility and availability of traditional foods is an important biophysical determinant of health for Indigenous people. Studies have shown that traditional foods provide nutritional benefits and can reduce risk factors for the development of certain health concerns such as chronic disease (Mozaffarian and Rimm 2006; Del Gobbo et al. 2010; Seabert et al. 2014). Traditional practices such as hunting, fishing, and gathering naturally encourage physical activity and promote nutrient-dense diets, helping to reduce risk of chronic diseases such as diabetes (Earle 2011b). These activities also reinforce cultural identity and promote knowledge transmission, supporting healthier behaviors and having positive influence on other social determinants of health (Earle 2011b).

In general, for Anishinabek communities, traditional foodways have long served as the foundation of health and wellness, sustaining not only physical nourishment, but also cultural identity, spiritual practices, and community cohesion. Considered good medicine and a gift from Creation, traditional foods supported active lifestyles, strong family relationships, and emotional well-being through respectful, reciprocal relationships with the land (Simpson et al. 2009). Revitalizing building Indigenous food systems is therefore viewed as an important step for improving community health. This process involves protecting lands and waters, creating opportunities for Elders to share their knowledge with younger generations, and restoring land-based practices that uphold *mino-bimaadiziwin*, which translates to the good life (Simpson et al. 2009).

A resource published by Waasegiizhig Nanaandawe'iyewigamig titled *Traditional Food Guide & Supporting Resources Mashkikiwan Miijim ~ Food Is Medicine* highlights the connection between traditional foods and health, and emphasizes that knowledge and food is medicine for Anishinabek communities (Waasegiizhig Nanaandawe'iyewigamig 2020). Thus, maintaining access and availability of traditional foods, is also considered medicine for Anishinabek communities. Barriers to accessing traditional foods extends beyond physical access restrictions within the PA, as Indigenous communities in northern Ontario face several interconnected barriers to accessing traditional foods. For instance, Waasegiizhig Nanaandawe'iyewigamig (2020) highlights colonization has disrupted traditional food systems and practices, leading to increased reliance on store-bought foods. Many people also lack opportunities to learn or pass down essential land-based knowledge and skills, such as hunting, preparing wild game, filleting fish, setting traps, and preserving foods through canning, smoking, pickling, or dehydrating. Cost and accessibility further limit access, as transportation, equipment, licenses, and tools for hunting and fishing can be expensive or difficult to obtain, especially for lower-income individuals, Elders or those with physical disabilities. Time constraints also prevent many people from engaging in harvesting or food preservation activities. Further, perceived environmental changes can affect the access of traditional foods (Waasegiizhig Nanaandawe'iyewigamig 2020). Together, these factors create barriers to maintaining traditional food practices and food sovereignty (Waasegiizhig Nanaandawe'iyewigamig 2020). Changes in access and availability of traditional foods in the context of food security is further discussed in Section 6.2.4.

Indigenous Knowledge and Community-specific Information

This section presents IK that was received from some of the local Indigenous communities, supplemented by other relevant community-specific information that was publicly available, to identify where and how IK was incorporated into the assessment of Indigenous health.

According to confidential reports prepared on behalf of LSFN, hunting and trapping have traditionally been integral to LSFN community and culture, providing them with food, connection to family, and acting as a way of connecting them with the lands and waters. LSFN has also noted the importance of trapping to connecting with and learning from family, and how trapping techniques have evolved over time. Fishing is a key aspect of LSFN identity and maintaining their way of life while stewarding the natural resources in the territory. Fishing is an important source of food and economic livelihood for LSFN and plays a central role in LSFN's culture, traditions, and relationship to the land. Traditionally, LSFN members participated in commercial fishing operations for income, although LSFN community members have noted how this has

changed. Overall, access to traditional foods and the ability to participate in land-based activities is a determinant of health for LSFN through its contributions to connection with family and community.

Historical industrial activity in the region has influenced existing (baseline conditions) in the region, particularly for ANA. For further details, please refer to the HHERA (Impact Statement Appendix N-1; WSP 2026a) and Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies (Impact Statement Appendix T; WSP 2026b). For ANA, land-based practices are central to their health as they have indicated, *“This is an area where our ancestors have practiced, and we currently practice our Anishinaabe way of life; a way of life that relies on a healthy environment and is central to our identity, health, wellness, and livelihood”* (ANA 2024). As described in Impact Statement Section 12 (fvc Indigenous Peoples: ANA) during consultation and engagement activities with ANA, it was indicated that ANA understands their relationship with the landscape as holistic, rather than restricted to a finite set of sites and areas. Culturally and spiritually important areas were identified as a concern, noting that if these spiritual landscapes are not intact, spiritual sites may become desecrated and lose their function for ANA community members. ANA points to this in direct relation to community well-being and cohesion, as inability to fulfill cultural and spiritual purposes on the landscape translates to disruptions of health (including mental health challenges, conflicts, and reduced ability to hunt and harvest traditional foods). Overall, access and availability of traditional foods and the ability to participate in land-based activities is a determinant of health for ANA through its relationship to community well-being and cohesion.

Community-specific information and perspectives for WFN, NWOMC, and RLEF regarding the ways in which access to, availability of, and consumption of traditional foods functions as a health-related behavior is limited. However, drawing on available secondary sources (Earle 2011a, 2011b; Simpson et al. 2009; Waasegiizhig Nanaandawe'iyewigamig 2020) and information from confidential reports prepared for other communities in the region to help contextualize potential pathways of influence, it is reasonable to infer that similar to other Indigenous communities in northern Ontario, the ability to engage in land-based practices, such as hunting, fishing, and plant harvesting, plays an important role in supporting the health and wellness of WFN, NWOMC, and RLEF members. These practices are widely understood to contribute to cultural continuity, strengthen family and community connections, and sustain relationships with the land.

In addition, through consultation and engagement activities, general concerns were raised about the potential for wildlife to interact with contact water ponds. Concerns were raised that changes to air quality as a result of elevated dust levels, as well as changes to water quality may change the experience of land users, change access to traditional harvesting areas and pose health risks. Great Bear Resources understands that Indigenous people may have a concern that changes to water quality may affect the availability of fish, wild rice and waterfowl (i.e., traditional foods) for community members.

Relevant Baseline Health Information

Baseline conditions related to access and availability of traditional foods are discussed in Existing Conditions, Section 6.1.4.2. Given the complex and varied interactions between exposure to traditional foods and human health, there are a variety of health conditions and wellness indicators (e.g., chronic conditions, nutrition and diet) that may be influenced by different environmental exposures including from wildlife, fish and plants. Existing health information can be found in the Baseline Health Profile (Attachment A). Existing conditions related to access and availability of traditional foods provide an indication of current conditions that may already be influencing baseline health status of communities in the region. These existing conditions provide an understanding of current conditions being experienced by communities in the region related to access of traditional foods in order to identify potential Project related effects on Indigenous health.

In 2011, the FNFNES assessed food security in First Nations communities (including ANA) using the Household Food Security Survey Module and results are summarized in a report titled FNFNES Ontario Regional Report (2011–2012), (Chan et al. 2014). It is noted that LSFN, WFN, NWOMC, and RLEF were not participants in this study; however, ANA participants were included. In Ontario (all ecozones), when asked if their household would like to have more traditional food, the majority of adults (73%) said that they would (Chan et al. 2014).

First Nations households in Ecozone 1 (which includes the PA and LSA) exhibit strong land-based participation relative to other ecozones and Ontario as a whole. When examining data by specific activity, hunting and fishing participation was the highest in Ecozone 1; 48% of households reported fishing and 24% reported hunting. Less commonly reported was collecting wild plant food, with 19% of households in Ecozone 1 reporting they participate in gathering practices (Chan et al. 2014). When First Nations households in Ontario were asked openly to list the main barriers preventing greater use of traditional food, time constraints (19%), absence of a hunter in the household (12%), and lack of equipment and / or transportation (10%) were reported as the top categories of responses (n = 1331). In another question that asked FNFNES respondents (n = 1429) to report common barriers that limit harvesting of traditional foods, forestry operations (24%), government restrictions (24%), and roadways (22%) were among the top reported external factors that inhibited access to traditional foods in Ontario (Chan et al. 2014). Less common but still reported as a barrier that affects access to traditional foods, was mining (19% of FNFNES respondents in Ontario) (Chan et al. 2014).

As presented in the Baseline Health Profile (Attachment A), the Great Bear Project Community Health Survey asked survey participants to select any activities they participate in near the Project location and surrounding area. Most self-identified Indigenous respondents (n=22) selected fishing, hunting, and foraging. Respondents who hunt, fish, forage, or trap, were asked if their activities were for nutrition or recreation and most self-identified Indigenous respondents noted their activities served both nutritional and recreational purposes. Respondents were then asked whether they think the Project will have an impact on the activities they selected in the earlier question. The top activities self-identified Indigenous respondents (n=23) identified as potentially being impacted by the Project were fishing, foraging, secondary house / cottage / camping, hiking / walking, hunting, all terrain vehicle / dirt biking / mountain biking and visiting friends and family.

Overall, Indigenous communities in the region are currently experiencing pre-existing barriers related to access and availability of traditional foods and some have expressed desire for improved access to traditional foods.

CONSTRUCTION

The construction phase of the Project is expected to occur over a three-year period and will include preparation of the site and the construction of mine infrastructure. Activities during construction include, but are not limited to, open-pit and underground mining, management of rock and unconsolidated materials in stockpiles, and construction of buildings and infrastructure. Site preparation activities for the mine site area including clearing, grubbing, bulk earthworks and the establishment of onsite road infrastructure. Dust and vibration related to Project construction have the potential to affect wildlife, fish, and vegetation, and subsequently, the availability of traditional foods, affecting Indigenous people's health and wellness.

In terms of traditional foods availability, potential effects and interactions during construction identified within the linked biophysical pVCs and fVCs may influence a change in access and availability of traditional foods by altering ecosystems that support traditional harvesting activities. Specifically, water levels and flows within waterbodies in the PA may be altered by mine activities or related infrastructure and nearby waterbodies and waterways will receive treated effluent discharged from the Project. For wildlife, modeling indicates only marginal disturbance and habitat loss within the PA, with no expected population-level effects on any species, including moose and boreal caribou. For migratory birds, vegetation removal and ground-disturbing site preparation activities may alter habitat abundance, connectivity, and quality, while noise, dust, and water drawdown may further affect birds in the PA and immediately surrounding areas. For vegetation, site preparation and associated changes in groundwater conditions will lead to localized direct and indirect impacts on vegetation communities, which may also influence Indigenous availability of traditional food resources. For fish, site preparation will directly affect fish habitat and fish communities. Changes to upstream ecological conditions in the PA and immediately surrounding areas may lead to changes in availability of traditional foods which in turn, may affect Indigenous health (Earle 2011a). It has been well-established that traditional food systems, land-based practices, and community cohesion have the potential to influence Indigenous health and wellness.

In addition, construction activities that result in changes to water quality which if not managed properly, could affect fish, wildlife, and plants such as those that are utilized for traditional food consumption. These may include species identified for traditional food consumption by Indigenous communities in the region through both confidential reports and publicly available resources (Chan et al. 2014; ANA 2024). According to these sources, commonly reported foods for traditional food consumption in the region include but are not limited to moose, birds including waterfowl (goose, ducks), fish (walleye, lake whitefish, northern pike), berries, and traditional plants. A more fulsome list of traditional food species commonly consumed by each Indigenous community is detailed in Section 4.4.

Many Indigenous communities understand that fish, wildlife, plants, and water are interconnected and interdependent, such that changes to one component of the environment may affect the health, availability, and use of traditional foods as part of a broader, living system. Therefore, changes in air and water quality could have the potential to indirectly affect Indigenous health via changes in availability of traditional foods. The ERA considered this potential effect through the evaluation of potential health risks to fish, wildlife, and plants due to POPC emissions associated with Project activities. The results of the ERA demonstrated that air and / or water quality changes associated with Project activities were not expected to result in unacceptable risks to plants, mammals and birds, or aquatic communities, suggesting that the availability of traditional foods is not expected to be impacted.

In terms of traditional foods access, for some communities, traplines and harvesting may occur within the PA and LSA; therefore, construction-related disturbance could reduce access to traditional foods for Indigenous communities. These changes to access may affect Indigenous health (Earle 2011a), which is inherently linked to traditional food systems, land-based practices, and community cohesion.

Perceptions of contamination, whether from the Project or historical developments, can lead to avoidance of traditional land use practices, further disrupting access of traditional foods, even without any identified health risk from the Project (Waasegiizhig Nanaandawe'iyewigamig 2020). For example, in the Great Bear Project Community Health Survey, a few self-identified Indigenous respondents from Red Lake or Ear Falls indicated that they believe the Project may affect their fishing and foraging activities in areas near the Project (Attachment A). It is noted however, that according to the FNFNES, time constraints, absence of a hunter in the household, and lack of equipment and / or transportation were the top reported barriers to accessing traditional foods among First Nations households in Ontario (Chan et al. 2014). Overall, changes in access to traditional foods may influence health through disruptions in diet, cultural practices, community cohesion, and overall wellness during the construction phase (Batal et al. 2021b; Earle 2011a, 2011b; Salerno et al. 2021; Simpson et al. 2009). Perception of contamination, and participation in land-based practices as it relates to cultural continuity is further discussed in the assessment of mental wellness and personal behaviours, in Section 6.2.4.6.

Access and availability of traditional foods is influenced by a multitude of interrelated factors that both directly and indirectly affect upstream environmental, social, cultural and economic conditions. For Indigenous communities, Project related construction activities that lead to wildlife habitat alteration, vegetation removal, and sensory disturbance may limit access for Indigenous community members who previously harvested within the PA. Pre-existing sociocultural barriers to access of traditional foods, such as on-going effects of colonization, cost, time constraints, lack of traditional knowledge and skills (Chan et al. 2014), and perception of contamination (Waasegiizhig Nanaandawe'iyewigamig 2020) may be further influenced by Project development. Potential indirect changes to fish and aquatic systems may occur due to Project-related changes that affect water quality, fish habitat and spawning areas. Changes to wildlife distribution, plant harvesting areas and migratory bird habitat, and potential indirect changes to fish and aquatic systems may disrupt availability of traditional foods. These disruptions to availability of traditional foods may have implications for nutrition (Batal et al. 2021a, 2021b; Earle 2011a), physical activity (Earle 2011a), cultural continuity, and mental health (Batal et al. 2021a; Earle 2011a, 2011b; Salerno et al. 2021; Simpson et al. 2009). For example, studies have noted that disruptions to accessing the land and cultural practices can lead to mental stress for community members and reduced dietary and physical activity benefits (Salerno et al. 2021; Shandro et al. 2017).

Mitigation measures and monitoring plans are expected to be protective of Indigenous health during construction. For example, as discussed in Impact Statement Section 7.9 (pVC Wild Rice), the Wild Rice Enhancement Project is expected to offset potential effects on wild rice stand abundance and as

discussed in Impact Statement Section 7.10 (pVC Moose), Great Bear Resources plans to conduct moose surveys to monitor changes in density and distribution over time. In addition, as described in Impact Statement Section 8 (fVC Fish and Fish Habitat), a Fish Habitat Offset and Compensation Plan will be implemented, which includes habitat diversion plans, and fish relocation from affected watercourses. While upstream pVCs and fVCs did not identify adverse effects to Indigenous people's health from Project activities per se, the measures proposed for upstream pVCs and fVCs are expected to continue mitigating potential effects from disruptions to access and availability of traditional foods during construction. In addition, data sharing agreements with local Indigenous communities, support of Indigenous environmental monitoring programs, and support for Indigenous-led education and training for land-based activities were also identified. A list of mitigation and enhancement measures for access and availability of traditional foods are presented in Section 6.1.4.4 and for the HIA overall in Section 7.

Overall, as described in the assessment of CULRTP, the Project is expected to temporarily disrupt access, availability, and / or experience within the PA and immediately surrounding areas for at least one type of land-based practice (hunting and trapping or plant gathering) for each Indigenous community after the application of mitigation measures. As such, available information indicates that changes in access and availability of traditional foods (e.g., changes in harvesting patterns due to land disturbance and perception issues and ecosystem alteration) will likely occur as a result of Project activities during construction, and that this change may affect Indigenous health and wellness for some individuals (Earle 2011a, 2011b; Simpson et al. 2009; Waasegiizhig Nanaandawe'iyewigamig 2020); however, no measurable deviation from baseline population-level health resulting from Project activities is anticipated following implementation of mitigation measures. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.

Changes in access and availability of traditional foods are also linked to social determinants of health such as economics (employment, income and education), food security, and mental wellness and personal behaviours, which are further discussed in Sections 6.2.1, 6.2.4, and 6.2.4.6, respectively.

OPERATIONS

The operations phase is anticipated to extend over a 26-year period. Similar interactions as the construction phase will continue, and potential effects to health via changes to access and availability of traditional foods for Indigenous people may occur within the PA, LSA and RSA during operations. Project-related activities during operations may continue to disrupt access and availability of traditional foods, including changes in harvesting patterns due to land disturbance, perception issues and other barriers, as well as ecosystem alteration.

During the operations phase, access to areas within the PA will be restricted for safety and security reasons, however, access to land and resource areas within the LSA will remain unrestricted during Project operations. Anticipated potential effects from Project activities also include direct and indirect changes to availability of plants and wildlife, respectively, as well as diminished quality of experience due to sensory disturbance in the LSA, immediately adjacent to the PA. Therefore, access and availability of traditional foods for the local Indigenous communities may continue to be affected for some individuals. As a result, effects to Indigenous health identified for the construction phase due to changes to access and availability of traditional foods, may continue throughout the mine life.

In addition, operational activities could affect fish, wildlife, and plants due to potential changes in air and water quality and in turn, indirectly affect Indigenous health. The ERA includes this potential effect pathway to assess potential effects on fish, wildlife, and plants due to POPC emissions associated with Project activities. The results of the ERA demonstrated that Project activities are not expected to result in unacceptable risks to plants, mammals and birds, or aquatic communities, suggesting that the availability of traditional foods is not expected to be impacted.

Mitigation measures and monitoring plans for the operations phase are expected to be protective of Indigenous health during operations, through measures such as contact water management and treatment, compliance with federal and provincial regulatory requirements, and compensation and offsetting for loss of fish habitat. In addition, data sharing agreements with local Indigenous communities, support of Indigenous environmental monitoring programs, and support for Indigenous-led education and training for land-based activities were also identified to mitigate potential changes to access and

availability of traditional foods. A list of mitigation and enhancement measures for access and availability of traditional foods are presented in Section 6.1.4.4 and for the HIA overall in Section 7.

As described in the CULRTP assessment, long-term operational activity may reinforce community concerns regarding environmental change and cultural continuity, particularly where the landscape remains altered or access to important cultural areas is perceived as reduced and may continue to influence overall health for Indigenous people.

Overall, available information indicates that changes in access and availability of traditional foods (e.g., changes in harvesting patterns and ecosystem alteration) will likely occur as a result of Project activities during operations, and this change may affect Indigenous health and wellness for some individuals (Earle 2011a, 2011b; Simpson et al. 2009; Waasegiizhig Nanaandawe'iyewigamig 2020); however, no measurable deviation from baseline population-level health resulting from Project activities is anticipated following implementation of mitigation measures.. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. The link between changes in access and availability of traditional foods and other health indicators including economics (employment, income and education), food security, and mental wellness and community cohesion, is further discussed in Sections 6.2.1, 6.2.4, and 6.2.4.6, respectively.

CLOSURE

Activities during the active closure period, which is expected to occur over a three-year period immediately after operations cease, are similar to those during the construction phase.

Interactions similar to those identified during the construction and operation phases will continue during closure activities for the Project community members in the PA, LSA, and RSA. Potential interactions with the Project that result in pathways to potential effects on access and availability of traditional foods will continue to have the potential to affect Indigenous health for some individuals.

The *Mining Act* requires that a Closure Plan be certified to the Mine Rehabilitation Code, prior to disturbance associated with the mining project. The overall intent of the Closure Plan is to restore the Project to a naturalized condition. In such a condition, the Project footprint would eventually provide wildlife habitat, and the potential for typical open space pursuits. The re-establishment of vegetation communities during closure would allow wildlife to return to the PA and surrounding area. With the closure of the PA and subsequent site rehabilitation supporting the return of wildlife, there is the potential for the PA to be used again for harvesting for food and medicinal purposes. Restoration of harvesting opportunities also contributes to cultural continuity and land-based practices that underpin mental, emotional, and spiritual wellness for Indigenous communities.

As described in the CWB assessment, confidence in land and water quality will remain a key determinant of recovery, influencing whether members resume harvesting and other traditional practices in reclaimed areas. Over the long term, reclamation and revegetation activities may gradually restore access to traditional lands and support cultural revitalization if trust in environmental outcomes is rebuilt. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.

6.1.4.4 MITIGATION AND ENHANCEMENT MEASURES

Table 6-19 outlines the key mitigation and enhancement measures recommended based on the assessment of changes to access and availability of traditional foods. These mitigation and enhancement measures are anticipated to apply across all Project phases unless otherwise specified. General mitigation measures for closure activities that relate to Indigenous health are also included.

Table 6-19: Mitigation and Enhancement Measures for Access and Availability of Traditional Foods

Mitigation and Enhancement Measures for Access and Availability of Traditional Foods	Rationale
<p><u>Environmental Management Committee:</u> Great Bear Resources will work with the environmental management committee(s) and interested Indigenous members throughout the duration of the Project (all phases), to facilitate ongoing communications, sharing and integration of Indigenous knowledge and environmental information, and share and evaluate Project approvals, adaptive management and monitoring plans, and address emerging issues and interests identified by Indigenous Nations ⁽¹⁾.</p>	<p>Key aspects of the Environmental Management Key aspects of the environmental management committee(s) related to Indigenous health are that: (1) it includes Indigenous members and (2) the committee will continue to operate for the duration of the Project. The committee is expected to mitigate against perception issues associated with environmental degradation and mistrust and is supportive of self-determination in addressing Indigenous issues. Collectively, these are expected to help mitigate against adverse mental health and community cohesion concerns.</p>
<p><u>Education and Training (Region):</u> <u>Inclusive and Local Hiring Strategy (hiring policies):</u> Partner with Indigenous training and employment organizations to support culturally appropriate recruitment and retention of Indigenous candidates, to support employment of Indigenous workers, provide training, priority hiring and work towards continuous improvement including training and employment opportunities for Indigenous women ⁽¹⁾.</p>	<p>Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. By prioritizing hiring of Indigenous workers where possible, the benefits of employment (income, skills training, health / dental benefits, retirement supports) can be realized by Indigenous communities. In additional, the hiring of Indigenous women specifically was one of the calls to action in the National Inquiry on MMIWG for the resource development industry.</p>
<p><u>Environmental Monitoring:</u> Environmental monitoring programs for surface water and aquatics will include constituents and related health-based benchmarks as considered in the health assessment (such as arsenic, mercury, methylmercury and selenium). Aquatics sampling programs will also include ongoing sampling and testing of fish quality in species identified for human consumption (i.e., walleye / pickerel, lake whitefish, northern pike, trout) as captured.</p>	<p>While the HHERA multi-media assessment results do not indicate an effect to human health from the Project, including human health-based constituents and benchmarks in water and aquatic / fish monitoring programs is important to validate assessment assumptions, provide evidence regarding the effectiveness of mitigation measures, and assist in mitigating community perception issues related to safety, environmental quality and health.</p>
<p><u>Environmental Data Sharing Agreements:</u> GBR will share environmental monitoring data (air, water, fish) with Indigenous communities that request it on an annual basis and provide opportunities (including funds) to conduct their own reviews.</p>	<p>Providing environmental monitoring data, in a timely manner, to interested Indigenous communities is anticipated to promote transparency and relationship-building, while provision of funding for communities to conduct their own reviews, analyses and / or assessments using the data will empower and resource Indigenous communities. This measure is anticipated to mitigate against mental wellness and community cohesion effects, related to perception issues, lack of trust, and environmental quality concerns, over time.</p>
<p><u>Indigenous Environmental Monitoring Programs:</u> GBR is committed to involving Indigenous communities in environmental monitoring activities throughout all phases of the Project, including opportunities for participation in the collection and sharing of environmental monitoring information and results.</p>	<p>This Indigenous initiative is expected to have a positive effect on participating Indigenous communities, enhancing knowledge transfer and community cohesion. It is also expected to mitigate against adverse perceptions of environmental quality and safety, and promote overall physical and mental health and wellness through time spent on the land.</p>
<p><u>Support for Indigenous-led Education and Training for Land-Based Activities:</u> Support for Indigenous-led education and training for land-based activities (hunting, gathering, plant harvesting) in the region and promote skills and knowledge transmission among Indigenous communities, including Indigenous youth.</p>	<p>Primary literature indicates that land-based learning among Indigenous people has beneficial downstream effects on health, mental wellness and cultural / community cohesion. This mitigation is intended to act as a mitigation to minimize adverse effects and also an enhancement intended to support Indigenous practices, cultural continuity, traditional economy and growth of the eco-tourism industry in the area.</p>

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC).

ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBR = Great Bear Resources; HHERA = Human Health and Ecological Risk Assessment; HIA = Health Impact Assessment; LSA = Local Study Area; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; OCAP = ownership, control, access and possession; PA = Project Area; pVC = pathway valued; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2) are in place as planned.

6.1.4.5 GBA PLUS CONSIDERATIONS

In accordance with Health Canada guidance (Health Canada 2024a) the HIA takes an equity approach to assessing potential effects by examining the potential distribution of effects across different sub-populations within the Indigenous communities. This section highlights how Indigenous identity intersects with the other GBA Plus identity factors described below. Table 6-20 applies a GBA Plus lens that treats Indigenous identity as a central identity factor, and the other identity factors described below are discussed within this context. At the bottom of this table there is a section highlighting key intersectionality considerations, Indigenous identity is at the center of this qualitative analysis.

It is important to note that while this section identified subgroups that have the potential to experience effects uniquely from changes to access and availability of traditional foods, the analysis should be considered in the context of the potential effects assessment findings. The analysis below identifies populations that could be disproportionately affected and also discusses the potential health effects, or lack thereof, as identified in the assessment.

Table 6-20: GBA Plus and Equity Considerations - Access and Availability of Traditional Foods

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Gender	Even	Available evidence suggests that gender-specific differences in exposure or sensitivity to changes in access and availability of traditional foods is not expected.
Age	Even	Available evidence does not suggest unique exposure pathways or health risks for certain age groups beyond what is typical in the general population.
Physical Ability	Even	Available evidence does not suggest unique vulnerability to access and availability of traditional foods, based on physical ability.
Socioeconomic Status	Disproportionate (Low-income individuals and households)	Low-income individuals and households may be experiencing pre-existing barriers to access of traditional foods due to financial constraints, reduced harvesting capacity, limited access to equipment and transportation, and greater reliance on market-based foods (Shafiee et al. 2022; Chan et al. 2014).
Mental Ability	Even	Available evidence does not suggest individuals with varying mental health statuses would experience differential effects compared to the broader population.
Intersectional Analysis	Intersectional effects are not expected, as only one identity factor (i.e., socioeconomic status) was identified as potentially experiencing disproportionate effects. However, it is acknowledged that Indigenous identity intersects with the identity factors listed above. The combined influence of reduced financial resources and strong reliance on land-based harvesting can compound barriers to accessing traditional foods.	

Notes:

GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+).

6.1.4.6 SUMMARY OF POTENTIAL EFFECTS: ACCESS AND AVAILABILITY OF TRADITIONAL FOODS

The following is a summary of the findings from the assessment of potential effects to Indigenous health based on changes to access and availability of traditional foods (Table 6-21). The specific mitigation and enhancement measures based on the assessment of changes to access and availability of traditional foods, including a description and rationale, are described in Section 6.1.4.4.

Table 6-21: HIA Potential Effects Summary: Access and Availability of Traditional Foods

Criteria	Description	Characterization
Health Determinant	Identify the determinant of health being assessed	<ul style="list-style-type: none"> Access and Availability of Traditional Foods (Biophysical Determinant of Health).
Direction of Potential Effect	Describe whether the potential effect may be beneficial or adverse	<ul style="list-style-type: none"> Adverse: the potential effect on human health may be adverse, thereby diminishing conditions that support Indigenous health.
Scale of Potential Effect for this Determinant (post- mitigation)	Describes the expected scale of the Project-related effect to Indigenous health for this determinant	<ul style="list-style-type: none"> Minor: the effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures. The assessment findings identified Project-related changes to access and availability of traditional foods due to changes in harvesting patterns and ecosystem alteration. Given the connection that Indigenous people have with the land, these changes may result in indirect effects on Indigenous health for some individuals. Perception issues may change or limit participation in traditional land practices for some individuals. Overall, while some individuals may experience adverse health effects, a population-level shift in Indigenous health is not expected.
Affected Populations (Indigenous Communities)	Refers to the distribution of the effects across Indigenous communities and includes equity considerations	<ul style="list-style-type: none"> Assessment findings (i.e., Project-related changes) are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.
GBA Plus	Identify relevant GBA Plus considerations for this determinant	<ul style="list-style-type: none"> There are groups that may experience effects differently for this determinant. Details are discussed in the access and availability of traditional foods GBA Plus section (Section 6.1.4.5).
Mitigations and Enhancements	Additional measures based on the assessment of potential effects for this determinant ⁽²⁾	<ul style="list-style-type: none"> Additional measures, beyond what is included in the other pVC and fVC sections of the Impact Statement are listed below for access and availability of traditional foods with further details provided in Section 6.1.4.4 and a list of health measures is provided in Section 7: <ul style="list-style-type: none"> Environmental Management Committee ⁽¹⁾ Education and Training (Region); Inclusive and Local Hiring Strategy (hiring policies) ⁽¹⁾ Environmental Monitoring Environmental Data Sharing Agreements Indigenous Environmental Monitoring Programs Support for Indigenous-led Education and Training for Land-Based Activities

Notes:

- 1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC)
- 2 Assumes measures included in upstream pVC and fVC sections of the Impact Statement are also implemented.

ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); HIA = Health Impact Assessment; LSA = Local Study Area; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; PA = Project Area; pVC = pathway valued component; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

While these findings are specific to this determinant of health (access and availability of traditional food), an overall determination of the potential for residual effects for Changes to Health (fVC Indigenous Peoples) is provided in Section 8.

6.1.5 SENSORY DISTURBANCES: SOUND, VIBRATION, AND LIGHT

This section includes an assessment of Indigenous health from changes in sensory disturbances (sound, vibration and light), including health linkages, relevant existing conditions, potential effects (construction, operations and closure), mitigation and enhancement measures and GBA Plus considerations.

6.1.5.1 HEALTH LINKAGES

The following section describes the generic exposure pathways and scenarios by which human health can be influenced by sensory disturbances such as sound, vibration and light. The linkages described here are not specific to one sector or community, instead, this section provides an overview of the relevance of sensory disturbances (sound, vibration and light) as a determinant of Indigenous health.

Sound

Sound is ubiquitous in the natural environment and even the most remote locations have sound. Natural sounds (e.g., wind, wildlife, water, storms, etc.) in our environment and desired sounds like music can mitigate noise pollution, and can improve stress levels and mental health (Health Canada 2024c). Where sound is what we hear, noise is typically understood as unwanted or harmful sound. The difference between noise and sound can be subjective as it depends upon the sound itself, the listener and the circumstances (Health Canada 2024c).

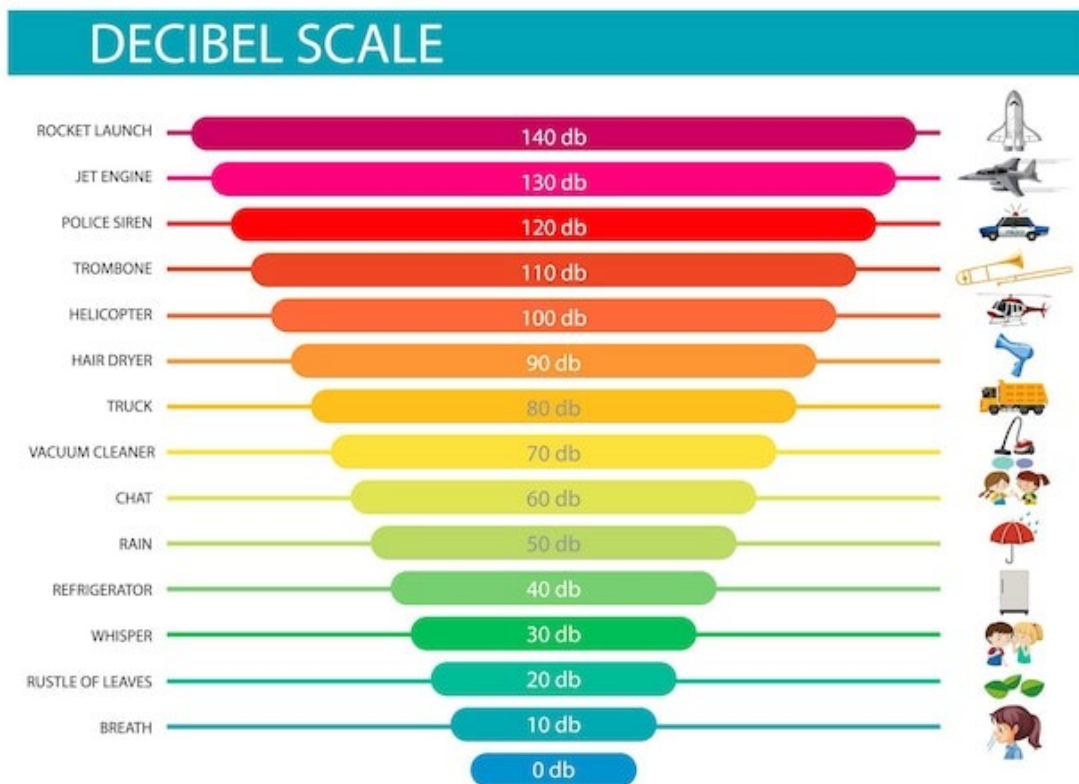
Noise is measured in decibels (dB), which is a sound unit that expresses the magnitude of sound intensity (e.g., pressure), as well as A-weighted decibels (dBA), which is a frequency weighted unit that approximates the response of the human ear (Health Canada 2024c). Environmental noise has been well documented as influencing human health and wellness (Karki et al. 2024; Liu et al. 2022). In the literature, there is a general consensus that exposure to noise levels of less than 70 dB does not produce hearing damage, regardless of the duration of exposure (Karki et al. 2024; NIDCD 2022). Exposure to sound at or above 85 dBA can result in hearing loss, if exposure is long term or repetitive, with time-to-effect decreasing with increasing loudness (NIDCD 2022). In addition, noise exposure can also impact health through indirect pathways (Hahad et al. 2024). Excess noise has been shown to disturb sleep, cause adverse cardiovascular and mental health effects, increase stress levels and irritability, cause cognitive and hearing impairment, and reduce productivity (Karki et al. 2024; WHO 2011a; Hahad et al. 2024). These effects can in turn adversely impact home life, relationships, sociability and employment (Karki et al. 2024).

One of the more prominent effects of exposure to excessive noise is annoyance. Annoyance is associated with sustained undesired sound and is highly subjective to each person and to each exposure (Health Canada 2024c). A sound that is considered highly annoying to one individual may not bother, or may even be desirable, to someone else. Similarly, a sound that is annoying you at one point in time may not bother you at another point in time. Annoyance can be determined by disposition (i.e., stress level and mood at time of sound), perception of the noise source (e.g., personal feelings towards the source), and situational circumstances (i.e., noise occurring at a time assumed to be quiet) (Health Canada 2024c). Although not typically considered a relatively severe health impact, noise-induced annoyance can be associated with other indirect health effects. Coupled with certain external factors, noise induced annoyance can lead to changes in social behavior (e.g., annoyance responses, absenteeism, aggressiveness and mood changes) (Karki et al. 2024; Hahad et al. 2024). Shift workers represent a particularly vulnerable population to noise because of the requirement for sleep during daytime hours when noise levels are typically higher (WHO 2011a; WHO 2011b).

Mines often have vehicles and machinery that produce noise at differing noise levels at the source. For example, pneumatic and percussion equipment have operational noise levels ranging between 114 and 120 dB at the source (Minetek 2024); ventilation equipment, generators, material transportation vehicles, and processing machinery may generate noise levels above 85 dB; and controlled blasting can be associated with a noise pulse above 160 dB. Figure 6-14 provides noise levels for other activities for comparison.

On mining sites, mobile equipment (e.g., drills, bulldozers, and excavators) serves as a dynamic source of noise, while fixed installations (e.g., crusher machines) act as stationary emitters. The extent of noise-related effects during both the development and operational phases of a mine is influenced not only by the intensity of the sound generated by these mobile and immobile sources but also by the area's composition and topography, which can alter sound propagation through reflection, refraction, or absorption (Manwar et al. 2016). Noise levels decrease with increasing distance from the source. It is important to factor in both spatial and temporal considerations when evaluating the impacts of noise (Manwar et al. 2016) and assessing the potential impact of noise on human health.

Figure 6-14: Typical Noise Levels Associated with Different Emission Sources



Source: Freepik, 2025.

Vibration

Human health effects of vibration from blasting or similar activities are primarily related to hearing loss and are typically assessed through measurements of air overpressure (Health Canada 2023). Air overpressure limits, outlined by Health Canada (2023), are intended to represent thresholds known to damage inner-ear structures, thereby serving as a protective measure against noise-induced hearing loss.

Vibration also contributes to the sensory environment that influences wildlife and aquatic behaviour and habitat. For example, the detonation of explosives near waterbodies can produce post-detonation shock waves which result in a pressure deficit referred to as overpressure that can cause impacts to fish, or harm fish eggs and larvae (Wright and Hopky 1998). Such ecological changes may indirectly influence

Indigenous wellness through impacts to sense of place, given the inherent connection between land, ecosystems, and Indigenous health (Salerno et al. 2021).

Light

The presence of light, whether it be natural or artificial, and whether it be wanted or unwanted, has the potential to influence human health and wellness. Artificial light has benefited society in a multitude of ways by extending the length of time light is available throughout the day for both productivity and leisure (Chepesiuk 2009). Artificial lighting has tangible contributions to human health and wellness by supporting optimal vision and improving safety from physical obstacles, and also has intangible contributions such as reducing fear of crime at night, and promoting economic growth (Boyce 2019). Biologically, light also plays an important role in various physiological and psychological functions, including the regulation of humans' nervous systems and hormones (e.g., melatonin) (National Geographic Society 2024).

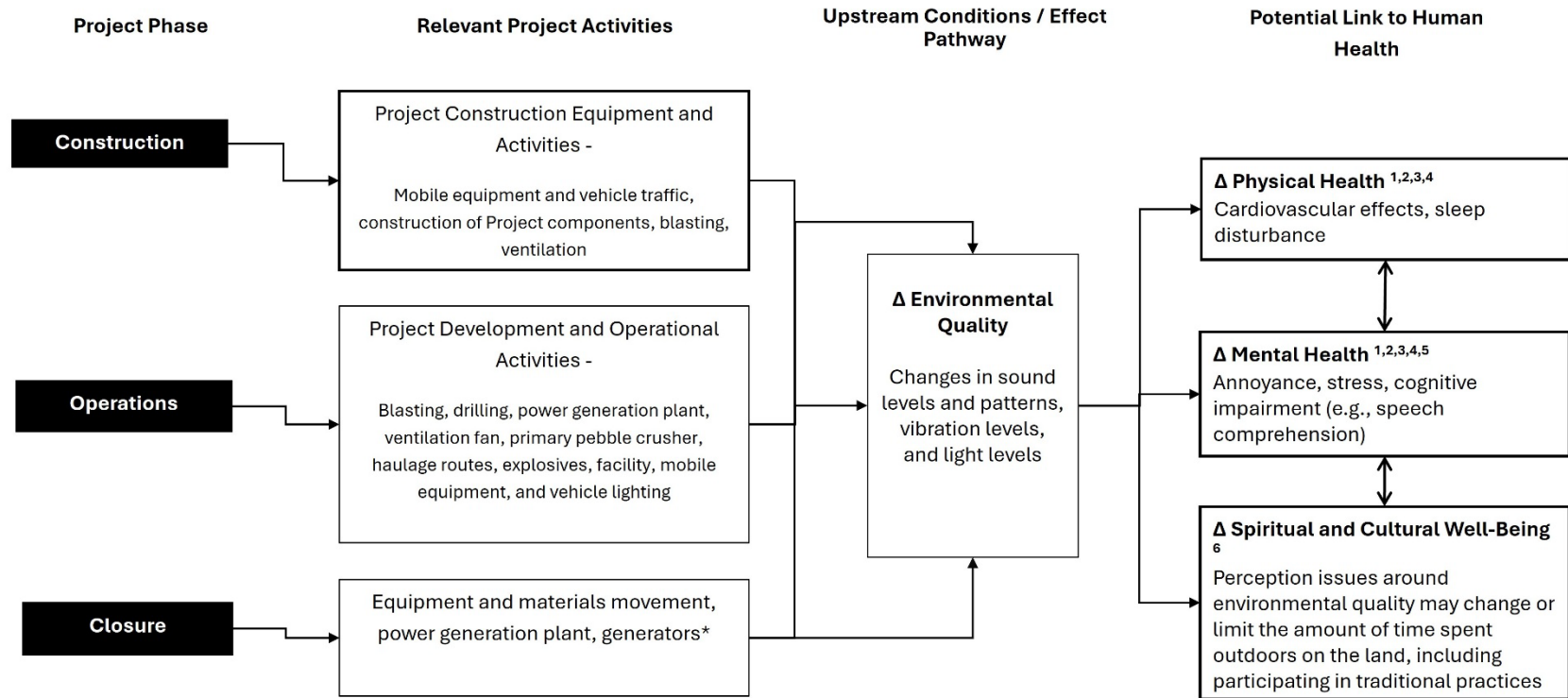
By contrast, when light emitted becomes "*inefficient, annoying, and unnecessary*", it is known as light pollution (Chepesiuk 2009). Environmental light illumination has become more widespread with urbanization and industrialization as the safe and efficient operation of commercial and industrial developments often relies on artificial lighting (Candolin 2024). Excessive light pollution can pose some human health risks, and the most widely accepted toxicological mechanism through which this occurs is through the disruption of the circadian rhythm resulting in sleep disturbances (Cao et al. 2023). The implications of light pollution on metabolic disease, mental health and cancer are ongoing fields of study (Cao et al. 2023; Chepesiuk 2009). The extent and magnitude to which light pollution may directly affect human health is largely dependent on exposure and proximity to the light pollution sources (Candolin 2024). Many, if not all studies, conducted to evaluate light pollution effects on human health are conducted in large urban centers, and thus uncertainty remains concerning the extent and magnitude to which light pollution poses a risk to human health in non-urban areas (Candolin 2024; Cao et al. 2023; Chepesiuk 2009).

Artificial light emissions can affect plant and animal life (Chepesiuk 2009). Sensory disturbance due to light may influence animal behavior, particularly for migratory organisms and nocturnal animals (Burt et al. 2023). In general, changes to animal and bird habitats, and changes in wildlife migration patterns and distribution of certain game species, may influence traditional food access and availability for Indigenous people (Shafiee et al. 2022). Although not directly related to human health, it is important to consider indirect impacts to ecosystem components that may be ecologically important to Indigenous communities, through consumption of traditional foods, hunting and trapping practices, cultural connections to the land and its inhabitants, and other important linkages.

An effect pathway diagram showing potential Project activities during all phases, relevant changes / exposure pathways and health and wellness effects is provided in Figure 6-15 to graphically depict the potential linkages between the Project and human health outcomes. These diagrams show the potential pathways of exposure or change in upstream conditions that may result in changes to health; however, the assessment of potential effects (Section 6.1.5.3) identifies specific pathways where changes are predicted to occur.

Figure 6-15: Effect Pathway Diagram for Sound, Vibration, Light

Sensory Disturbances: Sound, Vibration, Light



— Potential for effect
 Δ Indicates 'a potential change in'
 * Assumed that air quality will return to background conditions after mining is completed

Sources:
 1 – Karki et al. 2024; 2 – WHO 2011a; 3 – WHO 2011b; 4 – Chepesiuk 2009; 5 – Health Canada 2024c; 6 – Salerno et al. 2021

6.1.5.2 EXISTING CONDITIONS

This section provides a summary of existing conditions relevant to Indigenous health from changes in sound, vibration, and light. The available baseline (existing conditions) data for Indigenous health, including physical health and wellness, health-related behaviours and mental wellness are provided in the Baseline Health Profile (Attachment A) and should be viewed for detail. In addition, a description of existing conditions for sound, vibration, and light provided in the following Impact Statement Sections and technical reports:

- **Sound (Existing Conditions):** Impact Statement Section 2.6 (Environmental Setting – Sound and Vibration) and Impact Statement Section 7.3 (pVC Sound – Existing Conditions)
- **Vibration (Existing Conditions):** Impact Statement Section 2.6 (Environmental Setting – Sound and Vibration) and Impact Statement Section 7.4 (pVC Vibration – Existing Conditions)
- **Light (Existing Conditions):** Night-Time Light Levels Baseline and Predictive Assessment (Impact Statement Appendix G; WSP 2025e).

A brief description of existing conditions related to sound, vibration and light, is presented below to provide context for the assessment of biophysical determinants of health. Collectively, the information from the three upstream pVCs provided the existing conditions related to sensory disturbances. Unless otherwise indicated, the existing conditions information provided below is applicable to the local Indigenous communities: LSFN, WFN, ANA, NWOMC, and RLEF.

Sound

The acoustics of the PA are currently predominantly nature based although there are active industrial operations present locally. At this time, the research indicates that long-term human responses to sound are best evaluated using energy equivalent sound exposure levels (also referred to as L_{eq} values) (ISO 2016). As a time-averaged metric, all L_{eq} values must have a time span associated with them. A L_{eq} based approach was used for the acoustics assessment, which then informs the daytime (L_d), nighttime (L_n) and day-night average (L_{dn}) indicators described below. The baseline sound levels in the noise assessment (Impact Statement Appendix E-3; Wood 2025) were characterized using a variety of sound metrics including the hourly A-weighted Equivalent Sound Level (LA_{eq-1hr}) and the Day-Night Sound Level (L_{dn}) values.

The following descriptors, sound levels, and metrics are commonly used to quantify sound levels and were adopted for use in the acoustics assessment for human health:

- Daytime (L_d): L_{eq} (15 hour [hr]), from 0700hr to 2200hr (7 am to 10 pm)
- Nighttime (L_n): L_{eq} (9 hr), from 2200hr to 0700hr (10 pm to 7 am)
- Day-Night Average (L_{dn}): An L_{eq} (24hr) value with a 10 dB nighttime penalty applied to overnight sound levels (2200hr to 0700hr) (10 pm to 7 am).

Baseline sound monitoring at four cardinal locations over multiple programs was carried out to represent existing sound conditions on the Property. Three programs were completed to reflect potential seasonal changes (leaves on and leaves off), as well as a campaign over a holiday break, when exploration and forestry activities were not active. The data from the leaves-on program indicate low background sound levels with average LA_{eq} below 40 dBA during the daytime and below 30 dBA during the nighttime at the four monitoring sites (Impact Statement Appendix E-1; Wood 2022). The leaves-off data also indicate relatively low background sound levels with the average hourly LA_{eq} below 35 dBA during the day and below 30 dBA at night at the four locations (Impact Statement Appendix E-2; Wood 2023). During the holiday break campaign, the average hourly LA_{eq} levels were below 35 dBA during the day and below 25 dBA at night and the average L_{dn} levels were below 30 dBA for all monitoring stations (Impact Statement Appendix E-2; Wood 2023).

Vibration

Vibration was also measured during these programs (Impact Statement Appendix E-1 and E-2; Wood 2022, 2023). For the three programs, the 95th percentile of measured peak particle velocity values were below 0.005 millimetres per second for the four locations, which is typically considered low (Impact Statement Appendix E-2; Wood 2023).

Light

The Night-Time Light Levels Baseline and Predictive Assessment (Impact Statement Appendix G; WSP 2025e) used sky glow (brightening of night sky resulting in reduction of sky quality and star visibility) and light trespass (unwanted light or illuminance on neighboring areas) as metrics for the assessment of light. In the absence of regulatory criteria for ambient light assessments, published guidelines were presented in the Night-Time Light Levels Baseline and Predictive Assessment (Impact Statement Appendix G; WSP 2025e) to support discussions of baseline light conditions and potential effects of introducing artificial lighting. Specifically, the Commission Internationale d'Éclairage (CIE) Lighting Zones framework presented in Table 6-22 was used to characterize existing conditions (CIE 2017).

Table 6-22: CIE Environmental Lighting Zones

Lighting Zone	Lighting Environment	Examples
E0	Intrinsically dark	United Nations Educational, Scientific and Cultural Organization Starlight Reserves, IDA Dark Sky Parks, and major optical observatories
E1	Dark	Relatively uninhabited rural areas
E2	Low district brightness	Sparsely inhabited rural areas
E3	Medium district brightness	Well inhabited rural and urban settlements
E4	High district brightness	Town and city centres and commercial areas

Notes:

CIE = Commission Internationale d'Éclairage; IDA = International Dark Sky Association.

Source: (CIE 2017)

Baseline sky glow and light trespass measurements proximate to the Project were taken to characterize existing light conditions. Existing light conditions in the region correspond to low district brightness (E2 Lighting Zone) and minimal light trespass generally representative of a truly dark sky (E1 Lighting Zone) (Impact Statement Appendix G; WSP 2025e).

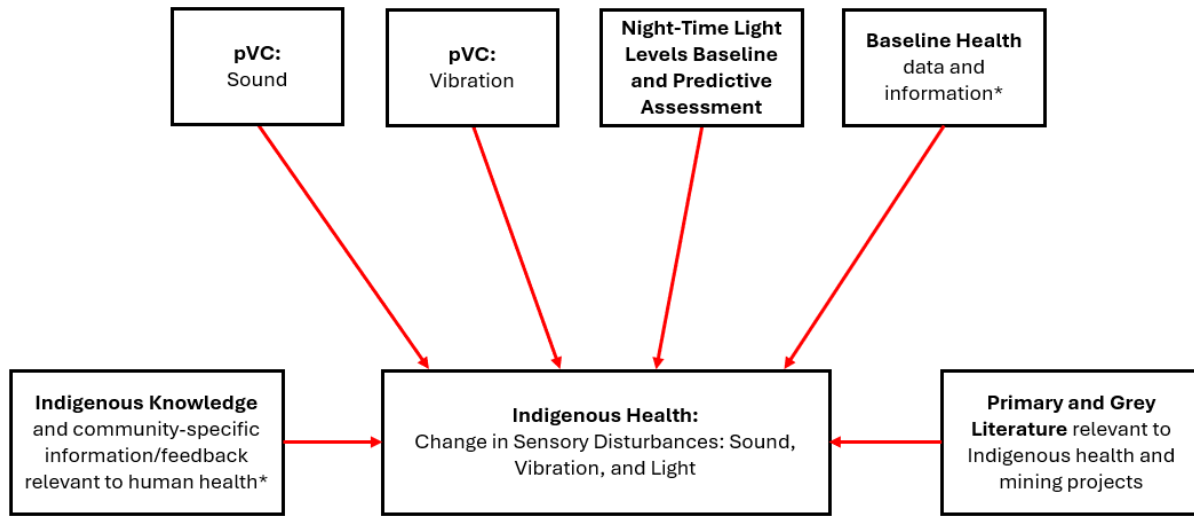
6.1.5.3 POTENTIAL EFFECTS

The following sections provide the inputs, assumptions, results from upstream analyses, Project information, primary and grey literature, and other evidence that supports the assessment of changes in sound, vibration and light in the context of Indigenous health. The assessment of potential effects first presents the available evidence, acknowledging any limitations and assumptions, followed by an assessment by Project phase (i.e., construction, operations and closure). Finally, a summary of the assessment findings is presented with a discussion regarding mitigation and / or enhancement measures, and GBA Plus considerations.

EVIDENCE FOR ASSESSMENT

The evidence used in the assessment of potential effects to Indigenous health from changes in sound, vibration, and light included (i) findings from relevant upstream valued components (pVCs and fVCs); (ii) primary and grey literature sources; (iii) IK and community-specific information, and (iv) baseline health information (Figure 6-16).

Figure 6-16: Inputs for Sound, Vibration, and Light



Note: additional linkages between individual inputs are not shown
 * Where relevant and available

Each of these sources of information and evidence are further described in the sections below. Collectively, this body of evidence informed the assessment of potential effects described for each Project phase (i.e., construction, operations and closure).

Upstream Valued Components (pVCs)

The potential effects assessments for the relevant upstream pVCs are important in that they identify predicated changes in those upstream conditions that, in turn, have the potential to affect Indigenous health via changes in sound, vibration, and light. A summary of the predicted changes identified in the pVCs linked to Indigenous health, including Sound and Vibration, are provided in Section 6 (Table 6-2).

Impact Statement Section 7.3 (pVC Sound), Impact Statement Section 7.4 (pVC Vibration) and the Great Bear Project Night-Time Light Levels Baseline and Predictive Assessment (Impact Statement Appendix G; WSP 2025e) were used as inputs in the assessment of changes to sound, vibration, and light. Specifically, determining whether the Project will result in sensory disturbances of unacceptable thresholds that could then, in turn affect human health (via annoyance, sleep disturbance, or cognitive effects) and / or changes to wildlife and fish which may be utilized as traditional foods, were the relevant inputs into the assessment of potential effects on Indigenous health via changes in sound, vibration and light. It is noted that sensory disturbances due to changes in visual quality were considered within the CULRTP assessment which was used as an upstream input for the assessment of changes to access and availability of traditional foods.

Sound

Screening of sound levels against Health Canada (2023) night-time noise guidelines, and guidelines associated with noise-induced interference with speech comprehension was carried out to assess potential effects.

Interference with Speech Comprehension:

The recommended sound levels to maintain good speech comprehension are defined with respect to indoors and outdoors. Based on reviews of relevant studies, Health Canada recommends that the daytime noise due to project activities as measured indoors should be maintained below 40 dBA to sustain adequate speech comprehension, and below 55 dBA as measured outdoors for outdoor speech comprehension (Health Canada 2023).

Indicator of Potential Human Health Effects:

Health Canada considers certain community reactions to project-related noise represent potential indicator of adverse health (Health Canada 2023). Two of the most common community reactions include complaints and annoyance. When the outdoor L_{dn} from project-related sound levels reaches 62 dBA, it is considered that widespread complaints can, or are likely to, occur. When project-related L_{dn} sound levels are greater than 75 dBA, complaints can be expected to include strong appeals to authorities to stop noise.

The percentage of highly annoyed (%HA) is also an important factor to consider for both community complaints and long-term high annoyance. Health Canada uses the change in %HA as the indicator of noise-included human health effects from exposure to project operational noise and to long-term construction noise exposure. To assess the impacts of noise from projects using this indicator, the project-related change in the sound environment and the related increase in %HA are evaluated using the dose-response relationship between noise levels and annoyance as per ISO 1996-1:2003 (ISO 2013). Noise control measures should be considered when a change in the calculated %HA at any given receptor location is above 6.5%. Further detail on how %HA is calculated is presented in the Noise Modelling Report (Impact Statement Appendix E-3; Wood 2025).

In addition, while the WHO suggests exposure limits of 45 dBA L_{den} (L_{dn} is equivalent for the purposes of this assessment) during the day and 40 dBA L_n at night, along with not regularly being greater than a maximum L_n of 60 dBA during the nighttime, WHO noted moderate-quality evidence of annoyance and impaired reading comprehension in children above these levels. Consistent with the approach in Impact Statement Section 7.3 (pVC Sound) and (Impact Statement Appendix E-3; Wood 2025), the HIA considers 45 dBA as the nighttime noise guideline for sleep disturbance which is an $LA_{eq(1hr)}$ metric (Health Canada 2023). The selected screening criteria for sound is presented in Table 6-23.

Table 6-23: Selected Noise Criteria for Health

Noise Metric ⁽¹⁾	Noise Criteria	
	Limit	Basis for Criteria
Quantitative		
Daytime $L_{Aeq-1hr}$	55 dBA	Interference with Speech Comprehension ⁽³⁾
Nighttime $L_{Aeq-1hr}$	45 dBA	Noise-Induced Sleep Disturbance ⁽³⁾
%HA ⁽²⁾	6.5%	Long-Term Community Annoyance
Qualitative		
Noise Complaints	# of community noise complaints	

Notes:

- 1 The quantitative noise metrics are defined for outdoors. An outdoor-to-indoor transmission loss of 15 dB is assumed in the Health Canada noise guideline for buildings with windows at least partially open, and it is considered that by meeting the outdoor noise criteria, the indoor noise limits will be respected.
- 2 The %HA to be assessed based on the outdoor day-night sound level (L_{dn}). The daytime and nighttime periods for calculation of L_{dn} as per the local guidelines are defined as: daytime period from 07:00 to 23:00 and nighttime period from 23:00 to 07:00. As per Health Canada guidelines, the calculation of L_{dn} considers a +10dB penalty for both daytime and nighttime because this project PORs are in a quite rural area. The %HA is applicable for the assessment of potential effects.
- 3 Noise screening criteria were selected based on Health Canada noise guidelines (2023) and Impact Statement Section 7.3 (pVC Sound).
 LA_{eq-1hr} = A-weighted equivalent continuous sound level averaged over one hour; dBA = A-weighted decibels; LA_{eq} = A-weighted equivalent continuous sound level; %HA = percent highly annoyed; # = number (count); hr = hour.

The applicable provincial noise guideline used to assess the Project in Impact Statement Section 7.3 (pVC Sound) is the Publication NPC-300, Environmental Noise Guideline - Stationary and Transportation Sources - Approval and Planning (MECP 2013). It is noted that while the Sound pVC (Impact Statement Section 7.3) screened against both provincial and federal criteria for noise, the HIA and the summary below focuses on federal criteria. Federal criteria based on Health Canada guidance (2023) for noise were selected for the assessment of potential effects on Indigenous health given that the basis for the

federal criteria is health-based. Screening against provincial criteria pertaining to the Project is presented in Impact Statement Section 7.3 (pVC Sound).

According to the Health Canada (2023) noise guidelines and MECP NPC-300 Guidelines (MECP 2013), noise-sensitive receptor types include the majority of which are not present near the Project site:

- Permanent, seasonal, or rental residences
- Hotels, motels and campgrounds
- Schools, universities, libraries, and daycare centers
- Hospitals and clinics, nursing / retirement homes
- Churches and places of worship.

The noise assessment (Impact Statement E-3; Wood 2025) considered 29 points of reception (POR) consisting of properties (such as residential, cabins, lodges and campsites) not owned by Great Bear Resources and vacant lots classified as non-mining land.

Noise emissions will be generated within the PA during all Project phases and will need to meet the applicable MECP noise guideline(s) associated with the provincial *Environmental Protection Act*. A detailed list of Project sound sources is presented in Impact Statement Section 7.3 (pVC Sound). Screening of the predicted sound levels for the construction phase against health-based noise guidelines is presented in the Noise Modelling Report (Impact Statement Appendix E-3; Wood 2025).

The Noise Modelling Report (Impact Statement Appendix E-3; Wood 2025) modelled two scenarios associated with the operations phase: Peak-Production and Underground Production. Peak-production period is defined as the time period when the underground operations and open pit mining at the LP Central pit is underway with a fully operational process plant. Underground Production is expected to commence after Year 8, when mining and other activities are expected to stop in the LP Central pit above ground and the majority of the process plant feed will be coming from the underground mine and stockpiles. After the active closure period, there will be limited equipment or materials movement, and sound levels are expected to revert to the current baseline conditions.

After the application of mitigation measures, the change in %HA was predicted to meet the Health Canada guideline of 6.5% for the construction, operations, and closure phases at all receptors. As such, no anticipated effect on Indigenous health and wellness is expected.

Vibration

Vibrations will result from the use of explosives during all phases of the Project. The potential impact of blasting impact was evaluated with respect to ground vibration, air overpressure and water overpressure in Impact Statement Section 7.4 (pVC Vibration). For vibration, the federal Health Canada (2023) guideline applicable to this Project, provides limits for blasting air-overpressure which are based on the WHO (1999) recommendations for hearing loss protection. For air-overpressure assessments, the peak pressure level should not be above 140 dB for adults and 120 dB for children as per Health Canada guidance (Health Canada 2023).

As presented in Impact Statement Section 7.4 (Vibration pVC), blasting operations at the same 29 modelled PORs as described above for noise are predicted to be within the federal Health Canada guidance for air overpressure which is protective of hearing loss protection (Health Canada 2023). As such, there is no anticipated change to human health due to vibration. Vibration can affect fish eggs and larvae, which may have potential indirect effects on Indigenous health via traditional foods pathways (Salerno et al. 2021). Potential changes for underwater ground vibration and water overpressure as they relate to fish and fish habitat were identified, but can be managed with existing project design and mitigation measures and effects to Indigenous health are not anticipated.

Light

The predictive light assessment (Impact Statement Appendix G; WSP 2025e), considered the same 29 PORs as described above for noise. Generally, the difference between existing and predicted skyglow was comparable to the seasonal variability seen between baseline measurement. In addition, light

trespass was not predicted to be above the maximum recommended for an E1 Environmental Lighting Zone at any of the assessed PORs as a result of the Project. It is noted that comparison of predicted light levels to CIE Lighting Zones is not a definitive indicator whether a nuisance would be experienced by a POR given the subjective nature of light level perception. As detailed in the light assessment, nuisance is not expected and should be manageable through use of responsible outdoor lighting practices. As such, no adverse effects to human health due to light are anticipated.

Indigenous Knowledge and Community-specific Information

This section presents IK that was received from some of the local Indigenous communities, supplemented by other relevant community-specific information that was publicly available, to identify where and how IK was incorporated into the assessment of Indigenous health.

While the TKLUS reports provided by some of the local Indigenous communities did not include data on sensory disturbances; general feedback on concerns pertaining to the Project were provided to Great Bear Resources through consultation activities and this information is summarized below.

A community member from LSFN or WFN commented on the potential for more dust and noise resulting from the Project during an archaeology tour in 2024.

IK specifically related to current conditions or potential changes to noise, vibration, and light was not received for the Project. The interconnected relationship between the landscape and the harvesting, ceremonial, and cultural areas distributed across it has been highlighted by Indigenous communities.

Relevant Baseline Health Information

Baseline conditions related to sound, vibration, and light are discussed in Existing Conditions, Section 6.1.5.2. Existing health information for a variety of health indicators (e.g., stress, cardiovascular functioning, diet) that may be influenced by sensory disturbances (sound, vibration and light), as well as exposure to other social and environmental factors can be found in the Baseline Health Profile (Attachment A).

At present, there is no readily available public baseline health data for communities in the LSA or RSA specific to health outcomes associated with sensory disturbances (sound, vibration, or light), such as data on indicators related to speech comprehension, sleep disturbance, or annoyance for local communities. Although it is noted that data from the Canadian Community Health Survey (CCHS) shows that NWHU respondents reported similar levels of perceived life stress to those observed across Ontario overall, and that males and females had similar levels of perceived stress (Attachment A). Perceived life stress is influenced by a myriad of factors and this statistic is provided for informational purposes only.

The Great Bear Project Community Health Survey, that was conducted among Red Lake and Ear Falls residents, asked survey respondents to select what matters most to them in their community and only 5 out of 23 self-identified Indigenous respondents indicated sensory changes as their response (Attachment A).

CONSTRUCTION

The construction phase of the Project is expected to occur over a three-year period and will include preparation of the site and the construction of mine infrastructure. The primary noise emissions from the Project are expected to originate from equipment and infrastructure such as, stationary equipment and mobile equipment fleet operating at different areas of the mine, equipment used for production above ground at the open pits, ventilation systems and noise transmission through walls, roofs and ventilation openings of major facilities and infrastructure. During the construction phase noise will be primarily sourced from the power generator, haulage routes with high truck traffic and primary drills. Vibration will be generated related to blasting activities.

Potential effects and interactions during construction identified within Impact Statement Section 7.3 (pVC Sound), Impact Statement Section 7.4 (pVC Vibration), and Impact Statement Appendix G (Light) may influence a change in sensory disturbance, that lead to annoyance (Health Canada 2024c) or disrupt sense of place (Salerno et al. 2021). Noise modelling was carried out to predict the potential changes to baseline sound levels at 29 selected sound PORs, as outlined in Impact Statement Section 7.3 (pVC

Sound). Predicted sound levels were compared to provincial and federal guidelines. In addition, the Project-related change in the sound environment and the related increase in the percentage of %HA were evaluated. Predicted sound levels at all of the identified PORs were predicted to be below the federal and provincial criteria after the application of mitigation measures as described in Impact Statement Section 7.3 (pVC Sound). In addition, the change in %HA meets Health Canada limit of 6.5% (Health Canada 2023) which means that changes to sound levels are not expected to trigger noise complaints from PORs, and effects associated with a higher %HA (i.e., annoyance) are not expected.

A mechanism will be established for the Project for receiving and responding to noise complaints in a timely manner during construction, operations and closure phases. Monitoring programs will be implemented to verify the accuracy of the predicted effects and assess the effectiveness of the implemented mitigation measures. A framework for a follow-up noise monitoring program for the Project is provided in Impact Statement Section 20 (Environmental Management and Follow-Up Program). Monitoring will be required as a condition of provincial approval(s).

Similarly, vibration from blasting was predicted to remain within Health Canada's air overpressure guidelines at all 29 PORs, after implementation of mitigations described in (Impact Statement Appendix E-3; Wood 2025) and in Impact Statement Section 7.4 (pVC Vibration). Although potential changes for underwater ground vibration and water overpressure were identified, changes to upstream conditions (i.e., fish and fish habitat) will be managed such that no residual effects to fish and fish habitat were identified. With Project design and the application of proposed mitigation measures, such as the development and implementation of a blast management plan, changes to sound and vibration levels will be managed and effects to Indigenous health and wellness are not anticipated.

Project-related artificial lighting during construction is required for safety and effective working. Light trespass was not predicted to be above the recommended thresholds (i.e., CIE Lighting Zones) at any assessed PORs (Impact Statement Appendix G; WSP 2025e). Generally, the difference between existing and predicted skyglow was comparable to the seasonal variability seen between baseline measurement. The predictive light assessment (Impact Statement Appendix G; WSP 2025e) indicated that nuisance effects are not expected and should be manageable through use of responsible outdoor lighting practices.

Overall, after the application of mitigation measures identified in the Impact Statement, potential effects to Indigenous health and wellness from changes in sound, vibration, and light such as annoyance (Health Canada 2024c), disruptions to sense of place (Salerno et al. 2021), or sleep disturbance (WHO 2009; Candolin 2024; Cao et al. 2023; Chepesiuk 2009), are not anticipated. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.

It is noted however, that mining activities may result in sensory disturbance (noise, visual and dust) which could impact sense of place and quality of experience during harvesting activities in the LSA, and immediately adjacent to the PA.

OPERATIONS

The operations phase is anticipated to occur over a 26-year period. During operations, similar interactions as the construction phase are expected.

During the peak production and underground production operations modelling periods, sound levels predicted under the worst-case hour scenario ($L_{Aeq-1hr}$, dBA) meet the provincial and federal guidelines at all PORs in the LSA and RSA, during daytime and evening / nighttime periods. In addition, the change in %HA is predicted to meet the Health Canada guideline (2023) of 6.5% for the operations phase, which means that changes to sound levels are not expected to trigger noise complaints from PORs. Blasting operations are within applicable guidelines and there is no change to vibration at the PORs. Therefore, effects to Indigenous health during the operations phase due to sound (e.g., annoyance) and vibration are not anticipated. For light, the difference between existing and predicted skyglow during operations was comparable to the seasonal variability seen between baseline measurement. Therefore, potential effects to Indigenous health due to light (e.g., sleep disturbance) are not anticipated. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.

Mining-related activities may result in sensory disturbance during the operations phase (noise, visual and dust) which could impact sense of place and quality of experience during harvesting activities in the LSA, and immediately adjacent to the PA.

Mitigation measures and monitoring plans are expected to be protective of Indigenous health during operations, such as noise control measures, the blast management plan, and light control measures and best practices. In addition, a mechanism will be established for receiving and responding to noise complaints in a timely manner during all Project phases.

CLOSURE

During active closure, the activities are similar to those occurring during the construction phase and operations phase, using similar mining and construction equipment, but on a much smaller scale. Noise emissions are considerably less during the closure phase. After the active closure period, there will be limited equipment or materials movement, and sound, vibration and light levels are expected to revert to the near baseline conditions.

During the closure phase (active closure period), sound levels predicted under the worst-case hour scenario ($L_{Aeq-1hr}$, dBA) meet the provincial and federal guidelines at all modeled PORs, during daytime and evening / nighttime periods. The change in %HA is predicted to meet the Health Canada guideline of 6.5% for the closure phase, which means that changes to sound levels are not expected to trigger noise complaints from PORs. Therefore, effects to Indigenous health due to sound (e.g., annoyance) and vibration are not anticipated. Light emissions during the closure phase are anticipated to vary according to construction equipment requirements and are expected to be lower than those during the operations phase. Therefore, potential effects to Indigenous health due to light (e.g., sleep disturbance) are also not anticipated. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.

6.1.5.4 MITIGATION AND ENHANCEMENT MEASURES

Based on the assessment of changes in sound, vibration, and light, no effect on Indigenous health is anticipated; therefore, additional mitigation measures beyond those proposed in Impact Statement Section 7.3 (pVC Sound), Impact Statement Section 7.4 (pVC Vibration) and the Great Bear Project Night-Time Light Levels Baseline and Predictive Assessment (Impact Statement Appendix G; WSP 2025e) are not warranted. The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2) are in place.

6.1.5.5 GBA PLUS CONSIDERATIONS

In accordance with Health Canada guidance (Health Canada 2024a) the HIA takes an equity approach to assessing potential effects by examining the potential distribution of effects across different sub-populations within the Indigenous communities. This section highlights how Indigenous identity intersects with the other GBA Plus identity factors described below. Table 6-24 applies a GBA Plus lens that treats Indigenous identity as a central identity factor, and the other identity factors described below are discussed within this context. At the bottom of this table there is a section highlighting key intersectionality considerations, Indigenous identity is at the center of this qualitative analysis.

It is important to note that while this section identified subgroups that have the potential to experience effects uniquely from changes to sensory disturbances, the analysis should be considered in the context of the potential effects assessment findings. The analysis below identifies populations that could be disproportionately affected and also discusses the potential health effects, or lack thereof, as identified in the assessment.

Table 6-24: GBA Plus and Equity Considerations – Sensory Disturbances: Sound, Vibration, Light

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Gender	Even	Available evidence suggests that gender-specific differences in exposure or sensitivity to changes in sound, vibration, and light are not expected.
Age	Disproportionate (Youth - children and infants, older adults/Elders)	Youth (children and infants) and the elderly, should they be exposed, are more vulnerable to potential effects due to noise (e.g., sleep disturbance and speech comprehension) (WHO 2009). The potential for noise-sensitive receptors was evaluated in the selection of PORs for the noise assessment (Impact Statement Appendix E-3; Wood 2025). Additionally, Health Canada (2023) guidelines for sound and vibration applicable to the Project are protective of vulnerable groups including children to account for such sensitivities. The assessment found no levels above these health-based guidelines.
Physical Ability	Even	Although individual sensitivities and perceptions may vary overall, groups across physical health statuses in the region are not expected to experience differential effects due to changes in sound, vibration, or light.
Socioeconomic Status	Even	Available evidence does not suggest differences in sensitivity or exposure that would result in disproportionate effects among groups of varying socioeconomic status.
Mental Ability	Even	Available evidence does not suggest individuals with varying mental health conditions would experience differential effects compared to the broader population. Although it is acknowledged that pre-existing stress can heighten an individual’s susceptibility to sound-related annoyance (measured as %HA) (Health Canada 2024c). The assessment found no levels above %HA guidelines (Impact Statement Appendix E-3; Wood 2025).
Intersectional Analysis:	Intersectional effects are not expected, as only one identity factor (i.e., age) was identified as potentially experiencing disproportionate effects. However, it is acknowledged that Indigenous identity intersects with the identity factors listed above. Individuals engaged in land-based traditional harvesting activities near the PA may have greater exposure to sensory disturbances (sound, vibration, and light).	

Notes:

%HA = Percent Highly Annoyed; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); PORs = Points of Reception; PA = Project Area.

6.1.5.6 SUMMARY OF POTENTIAL EFFECTS: SENSORY DISTURBANCES: SOUND, VIBRATION AND LIGHT

The following is a summary of the findings from the assessment of potential effects to health based on changes to sensory disturbances: sound, vibration, and light (Table 6-25). Additional mitigations / enhancements for changes to sound, vibration, and light are not proposed beyond what is already included in the other Impact Statement Sections.

Table 6-25: HIA Potential Effects Summary: Sensory Disturbances: Sound, Vibration, and Light

Criteria	Description	Characterization
Health Determinant	Identify the determinant of health being assessed	<ul style="list-style-type: none"> Sensory Disturbances: Sound, Vibration, Light (Biophysical Determinant of Health)
Direction of Potential Effect	Describe whether the potential effect may be beneficial or adverse	<ul style="list-style-type: none"> Adverse: the potential effect on human health may be adverse, thereby diminishing conditions that support Indigenous health. However, the determination of actual effects is based on the assessment findings.
Scale of Potential Effect for this Determinant (post- mitigation)	What is the expected scale of the project-related effect to population health and wellness for this determinant?	<ul style="list-style-type: none"> Negligible: there is limited to no effect on Indigenous health expected as a result of Project activities for this determinant following implementation of mitigation measures. The assessment findings did not identify potential for adverse effects to Indigenous health from Project-related changes to noise, vibration, and light. Perception issues around sensory disturbances may change or limit participation in outdoor activities, including traditional practices, for some individuals.
Affected Populations (Indigenous Communities)	Refers to the distribution of the effects across Indigenous communities and includes equity considerations	<ul style="list-style-type: none"> Assessment findings (i.e., Project-related changes) are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.
GBA Plus	Identify relevant GBA Plus considerations for this determinant	<ul style="list-style-type: none"> There are groups that may experience effects differently for this determinant. Details are discussed in the sensory disturbances: sound, vibration, light GBA Plus section (Section 6.1.5.5).
Mitigations and Enhancements	Additional measures based on the assessment of potential effects for this determinant ⁽¹⁾	<ul style="list-style-type: none"> Additional mitigations / enhancements are not proposed beyond what is proposed in Impact Statement Section 7.3 (pVC Sound), Impact Statement Section 7.4 (pVC Vibration) and the Great Bear Project Night-Time Light Levels Baseline and Predictive Assessment (Impact Statement Appendix G; WSP 2025e).

Notes:

¹ Assumes measures included in upstream pVC and fVC sections of the Impact Statement are also implemented. ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); HIA = Health Impact Assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; pVC = pathway valued component; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

While these findings are specific to this determinant of health (sensory disturbances: sound, vibration, light), an overall determination of the potential for residual effects for Changes to Health (fVC Indigenous Peoples) is provided in Section 8.

6.2 SOCIAL DETERMINANTS OF HEALTH

The following sections describe the assessment of changes to social determinants of health, including changes to economics (employment, income, education), housing, access to health and social services, food security, mental wellness and Community Cohesion, actual and perceived public safety, and safety of Indigenous women and girls. For these determinants, there is a close relationship between the upstream social, economic and cultural conditions that influence and shape Indigenous health and wellness. Therefore, in order to fully capture the complex interdependencies both within and between determinants and upstream conditions, the results from relevant pVCs, fVCs (Table 6-2), and the other assessments in the fVC Indigenous Peoples sections (Impact Statement Sections 10 to 14) were

considered as part of the HIA. Specifically, assessments of Community Services and Infrastructure (CSI), CULRTP and CWB.

6.2.1 ECONOMICS (EMPLOYMENT, INCOME, EDUCATION)

This section includes an assessment of Indigenous health from changes in economics (employment, income and education), including health linkages, relevant existing conditions, potential effects (construction, operations and closure), mitigation and enhancement measures and GBA Plus considerations.

6.2.1.1 HEALTH LINKAGES

The following section describes the generic pathways and scenarios by which health can be influenced by economics (i.e., employment, income and education). Each indicator (i.e., employment, income and education) can influence health individually, and collectively as a factor of economics. The linkages described here are not specific to one sector or community, instead, this section provides an overview of the relevance of economics as a determinant of Indigenous health.

Employment and income play a key role in shaping health outcomes, as financial stability determines an individual's ability to access the resources necessary for maintaining a healthy lifestyle (Darin-Mattson et al. 2017). Income is considered a clear measure of material resources, and income and longevity consistently exhibit a strong positive correlation in the literature (Chetty and Stepner 2016; Rehnberg and Fritzell 2016). There is strong and growing evidence that higher social and economic status is associated with better health. In fact, these two factors considered in tandem are one of the most important determinants of health based on the scientific evidence available to date (PHAC 2022c). The Public Health Agency of Canada (PHAC) reported that:

- *“Only 47% of Canadians in the lowest income bracket rate their health as very good or excellent, compared with 73% of Canadians in the highest income group.*
- *Low-income Canadians are more likely to die earlier and to suffer more illnesses than Canadians with higher incomes, regardless of age, sex, race and place of residence.*
- *At each rung up the income ladder, Canadians have less sickness, longer life expectancies and improved health. [...]*
- *A major British study of civil service employees found that, for most major categories of disease (cancer, coronary heart disease, stroke, etc.), health increased with job rank. This was true even when risk factors such as smoking, which are known to vary with social class, were taken into account. [...] Health increased at each step up the job hierarchy,” (PHAC 2022c).*

Inequalities in employment and income can influence health outcomes and health-related behaviors. For example, the PHAC found that certain health outcomes were more prevalent in low-income communities, such as lower life expectancy, lower self-rated mental health, and hospitalization rates for mental illnesses, asthma, diabetes, and arthritis (PHAC 2018). In the literature, income is, largely and positively, associated with longevity, as it is considered a clear indicator of material resources (Chetty and Stepner 2016; Rehnberg and Fritzell 2016). The PHAC also found that as income decreased, adverse health-related behaviors such as smoking, exposure to second-hand smoke in the home, and lung cancer incidence, increased (PHAC 2018).

In addition, the PHAC states that: *“There is a clear relationship between income and perceived mental health that is influenced by increased stress, access to basic needs, opportunities and mental health care,” (PHAC 2022a).* Data from Statistics Canada shows that Canadians in the lowest income group are 3 to 4 times more likely than those in the highest income group to report poor to fair mental health (Statistics Canada 2010). In 2022, *“adults (age 18+) living in the lowest income group report having anxiety disorder at a rate that is 2.4 times that of adults in the highest income group” (PHAC 2022b).* Conversely, increases in income has been shown to have beneficial effects on mental health and wellness outcomes (Thomson et al. 2022).

Income and employment are linked to many determinants of health. For instance, financial constraints can impact food insecurity, with the PHAC reporting that household food insecurity increased as household income decreased (PHAC 2018). Income and employment also are also linked to access to health care, but especially social services. Many social assistance programs, including mental health support, are outside or only partially covered by Canadian universal health care. As such, Canadians who seek support for mental health often must cover the associated costs on their own or through private health insurance plans (CIHI 2024). In 2018, Statistics Canada found that affordability was one of the most significant barriers for accessing adequate mental health services (Statistics Canada 2019).

Evidently, employment opportunities and income are linked to many different determinants of health and may be particularly influential for groups who typically experience disproportionate employment and income inequalities.

An effect pathway diagram showing potential Project activities during all phases, relevant changes / exposure pathways and health and wellness effects is provided in Figure 6-17 to graphically depict the potential linkages between the Project and human health outcomes. These diagrams show the potential pathways of exposure or change in upstream conditions that may result in changes to health; however, the assessment of potential effects (Section 6.2.1.3) identifies specific pathways where changes are predicted to occur.

6.2.1.2 EXISTING CONDITIONS

This section provides a summary of existing conditions relevant to Indigenous health from changes in local and regional economy, as relevant to the economics determinant of health. The available baseline (existing conditions) data for Indigenous health, including economic information, physical health and wellness, health-related behaviours and mental wellness are provided in the Baseline Health Profile (Attachment A) and should be viewed for detail. In addition, a description of existing conditions for economics is provided in the following Impact Statement Sections:

- **Local and Regional Economy (Existing Conditions):** Impact Statement Section 2.17 (Environmental Setting – Local and Regional Economy), Impact Statement Section 7.16 (pVC Local and Regional Economy – Existing Conditions)
- **Economics (Existing Conditions):** Impact Statement Sections 10.8 through 14.8: (fVC Indigenous Peoples - Community Well-Being)
- **Socio-Economic (Existing Conditions):** Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024).

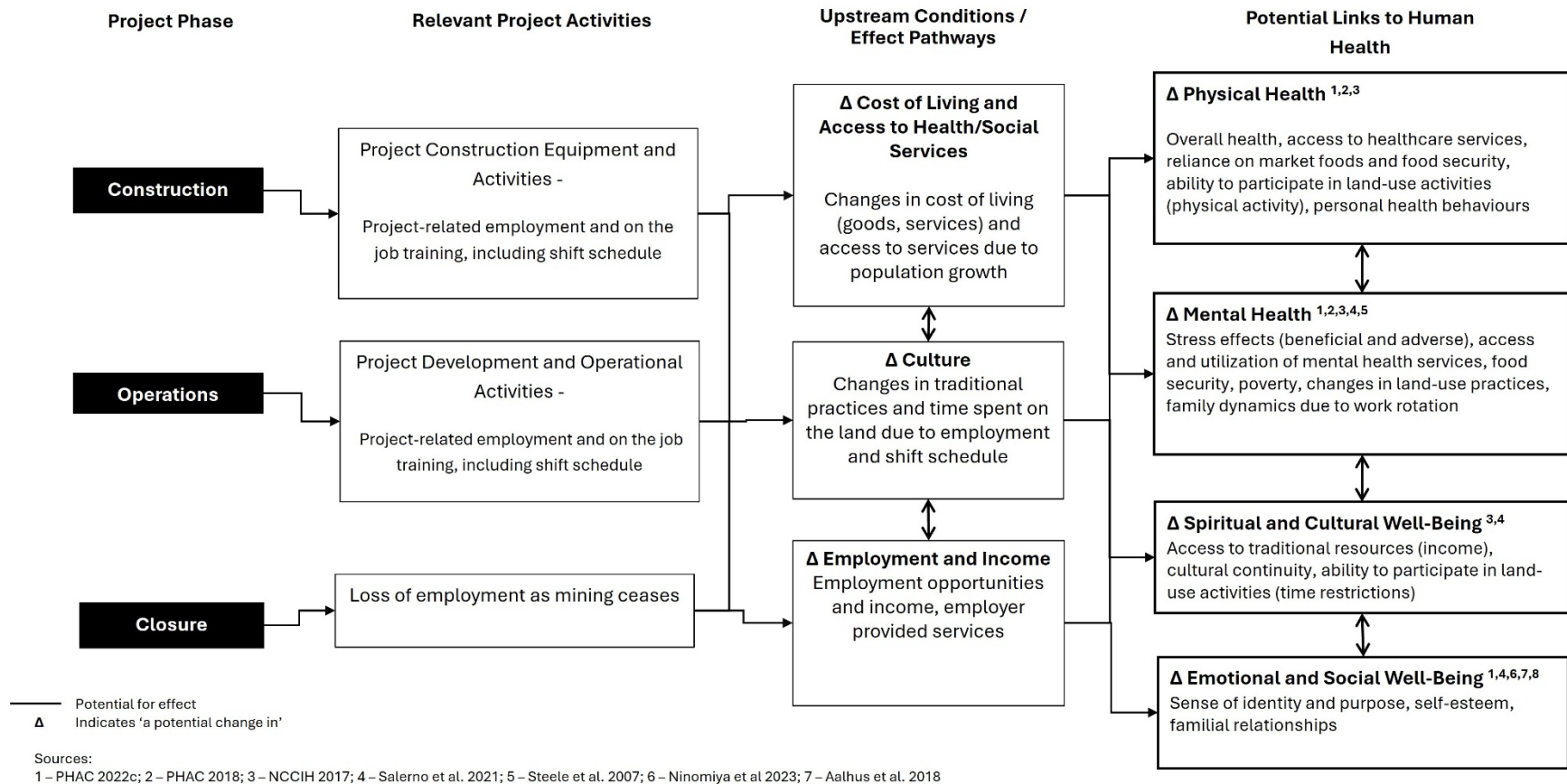
A brief description of existing conditions related to economics (employment, income, and education) is presented below to provide context for the assessment of social determinants of health. The following paragraphs summarize existing conditions from various Impact Statement sections and the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024). Collectively, the information from these upstream assessments provided the existing conditions related to economics.

In the broader Kenora District, the healthcare and social assistance sector makes up the largest workforce. In the municipalities and communities within the land use investigation area; however, the workforce includes larger numbers involved in the mining, quarrying and oil extraction sector. Other key industries include public administration, retail trade, educational services, construction, accommodation and food services, and transportation and manufacturing (Statistics Canada 2023a).

The MNR manages hunting and fishing activities in Ontario. The Project lies within Wildlife Management Unit 3 which covers over 12,492 km². This unit is part of Cervid Ecological Zone B, which focuses on populations of ungulates, particularly caribou and moose. Additionally, the Project falls within Fisheries Management Zone 4, covering an area of 60,440.8 km², home to 27 commercial fisheries, with 19 currently active licenses. Based on IK and TKLUS reports, hunting and fishing may also be part of the traditional economy in the region.

Figure 6-17: Effect Pathway Diagram for Economics (Employment, Income, Education)

Economics (Employment, Income, Education)



Economic Sector Overview:

Red Lake is known for its long-standing gold mining industry that is critical to the success of the region. The increase in possible mining opportunities directly provides access to future employment and business opportunities for the region. Historically, Ear Falls was known for its mining and forestry industries, fur trade and recently developed tourism industry. Communities in the LSA (including Indigenous Nations) are involved to varying degrees in major projects, mining, forestry, construction, infrastructure, tourism, and the provision of other goods and services.

Income and Employment:

Employment income and employment participation are important factors related to labour force. Details are provided in Impact Statement Sections 10 to 14 (fVC Indigenous Peoples) and the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024), and are summarized below:

- LSFN, WFN and ANA income: The employment income for the Indigenous Nations (as per Statistics Canada data) in the LSA (i.e., LSFN, WFN, ANA, where data were available), was below the Ontario average, and a higher share of income came from government transfers (Statistics Canada 2023b; 2023c; 2023d). LSFN has a Low-Income Measure-After Tax (LIM-AT) percentage that is notably higher than the provincial average, suggesting that members of LSFN may be facing economic vulnerability (Statistics Canada 2023c). The CWB Index score supports this finding as it falls below the national average, suggesting LSFN is experiencing income-related challenges (Government of Canada 2021). The CWB Index is a composite measure developed by Indigenous Services Canada that provides a high-level snapshot of socio-economic conditions based on four indicators: income, education, housing, and labour force activity; and scored on a scale from 0 to 100 (Indigenous Services Canada 2021). The LIM-AT for ANA also reflects considerable income insecurity in this community as provincial rates were notably lower (Statistics Canada 2023d). Statistics Canada did not provide a LIM-AT for WFN.
- LSFN, WFN and ANA employment participation: According to 2021 Census data, participation rates for LSFN were 50% and employment rates were 44% among the on-reserve First Nation members, which represents a lower rate than the provincial average (Statistics Canada 2023b; Statistics Canada 2023c). Women reported lower participation and unemployment rates and a higher employment rate than men on the reserve in LSFN. This contrasts with the trend in Ontario, where men had higher participation and employment rates compared to women (Statistics Canada 2022b). For WFN, participation rates were 77.8% and employment rates were 66.7% for on-reserve First Nation members, higher than the provincial average (Statistics Canada 2023b; Statistics Canada 2023e). Women of WFN reported higher participation and employment rates compared to men, no unemployment noted amongst women (Statistics Canada 2022b). For ANA, participation rates were 44.6% and employment rates were 34.9% for on-reserve members of ANA, lower than the provincial average. The unemployment rate stood at 18.9%, higher than Ontario's rate of 12.2%. Women in ANA reported higher participation and employment rates and lower unemployment rates than men (Statistics Canada 2022b).
- RLEF and NWOMC income: In Red Lake and Ear Falls, employment income was above the Ontario average, and significantly higher for men than for women. For NWOMC, average employment income was below or close to the provincial average, depending on whether the Métis population was residing in Kenora, Red Lake or Ear Falls. In terms of low-income prevalence, overall, the income rate was low among Indigenous people in Red Lake and Ear Falls as well as self-identified Métis in the Kenora District, reflected by the LIM-AT percentage (Statistics Canada 2023f; 2023g; 2023h). Red Lake and Ear Falls also had a high CWB Index score, reflecting strong income security and equitable distribution compared to other municipalities in Ontario.
- RLEF and NWOMC employment participation: According to 2021 Census data, Red Lake had participation rates of 66.6% and employment rates of 63.2%, higher than provincial average. Men reported higher participation and employment rates, while women had higher unemployment rates (Statistics Canada 2023f). The most prominent employment sectors in Red Lake were

mining, quarrying and oil extraction (24.4%), followed by health care and social assistance (13.5%) (Statistics Canada 2023f). The labor force in mining and extraction is predominantly male, with 42% of the male workforce being employed in this sector compared to 11% of the female workforce (Statistics Canada 2023f). Ear Falls had participation rates of 61.5% and employment rates of 54.2%, similar to the provincial average. Participation and employment rates were higher for men than women in Ear Falls, mirroring Ontario's trend (Statistics Canada 2023b; 2023i). The unemployment rate was the same for both genders in Ear Falls (Statistics Canada 2023i). The most substantial employment sectors in Ear Falls are manufacturing (19%), mining and quarrying (15%), retail trade (13%) and accommodation and food services (11%). Manufacturing and mining sectors are largely male dominated, while retail trade has a higher proportion of female workers (Statistics Canada 2023i). The Métis population in Red Lake experienced a workforce participation rate of 70.4% and an unemployment rate of 7.9% (Statistics Canada 2023f). The Métis population in Ear Falls experienced a workforce participation rate of 62.5% (Statistics Canada 2023g).

Education:

Educational attainment is closely tied to income security, employment opportunity, and health outcomes. Impact Statement Sections 10 to 14 (fVC Indigenous Peoples) and the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024) describe education levels for the Indigenous communities, as summarized below. It is important to recognize that publicly available statistics may not fully capture local realities or the role of community-based learning and IK systems:

- LSFN: In 2021, the percentage of adults 15 years and over who did not have a secondary (high) school diploma or equivalency certificate was 51.9%. Women+ made up a higher proportion of this population (53.1%) compared to men+ (52.9%). A college or non-university certificate had been obtained by 11.1% of the population, with women+ (14.1%) more likely than men+ (10.0%) to obtain this level of education. A university certificate or diploma was obtained by 3.7% of the population at a bachelor level or above, with women+ making up a higher proportion than men+ (4.7% and 2.9%, respectively). Men+ made up the entire proportion of the population to achieve an apprenticeship or trades certificate or diploma (5.2%) (Statistics Canada 2023c). These figures suggest persistent gaps in educational access and outcomes among the LSFN community, particularly at the high school level. The LSFN education department notes that students must leave the community to attend high school in Sioux Lookout, with daily transportation provided.
- WFN: Educational attainment at WFN remains below provincial averages, highlighting ongoing systemic barriers to accessing and completing formal education. Based on 2021 Census data, the percentage of adults 15 years and over who did not have a secondary (high) school diploma or equivalency certificate was 33.3%, with women+ slightly more likely than men+ (60.0% and 50.0%, respectively). A college or non-university certificate had been obtained by 33.3% of the population, with women+ comprising the entirety of the population to obtain this level of education. As of 2021 none of the population had achieved an apprenticeship or trades certificate, and none of the population had achieved a university certificate or diploma at a bachelor level or above (Statistics Canada 2023e).
- ANA: Based on 2021 Census data, educational attainment in ANA remains below provincial averages, highlighting ongoing systemic barriers to accessing and completing formal education. In 2021, the percentage of adults 15 years and over who did not have a secondary (high) school diploma or equivalency certificate was 61.4%. Women+ made up a higher proportion of this population (64.2%) compared to men+ (60%). The population (9.6%) had obtained a college or non-university certificate, with women+ making up the majority of this population (9.5%). A university certificate or diploma was obtained by 4.8% of the population at a bachelor level or above, with women+ making up a higher proportion than men+ (7.1% and 5%, respectively). Men+ made up the entire proportion of the on-reserve population to achieve an apprenticeship, or trades certificate or diploma (5%) (Statistics Canada 2023d 2023j). These patterns reflect not only the gap between ANA and Ontario but also gendered differences in access to and completion of formal education.

- NWOMC: Based on 2021 Census data, 30% of Métis adults had no certificate, diploma, or degree; and, postsecondary attainment is slightly higher among Métis women+ than men+, particularly in college and university programs. While Métis men+ are more likely to hold apprenticeship or trades certificates, Métis women+ are more likely to hold bachelor's degrees or higher, suggesting gendered educational pathways (Statistics Canada 2023f; 2023g; 2023h).
- RLEF: Based on 2021 Census data, in Red Lake, 42.6% obtained a high school diploma (or equivalency), 7.4% obtained an apprenticeship or trades certificate (11.5% of men+ and 0.0% of women+), 7.4% obtained a college certificate (7.7% of men+ and 10.7% of women+), and 16.7% obtained a university certificate at bachelor level or above (15.4% of men+ and 21.4% of women+) (Statistics Canada 2023k). In Ear Falls, 31.3% obtained only a high school diploma (or equivalency), 25% obtained an apprenticeship or trades certificate (33.3% of men+ and 0.0% of women+), and 18.8% obtained a college certificate (0.0% of men+ and 42.9% of women+) (Statistics Canada 2023i).

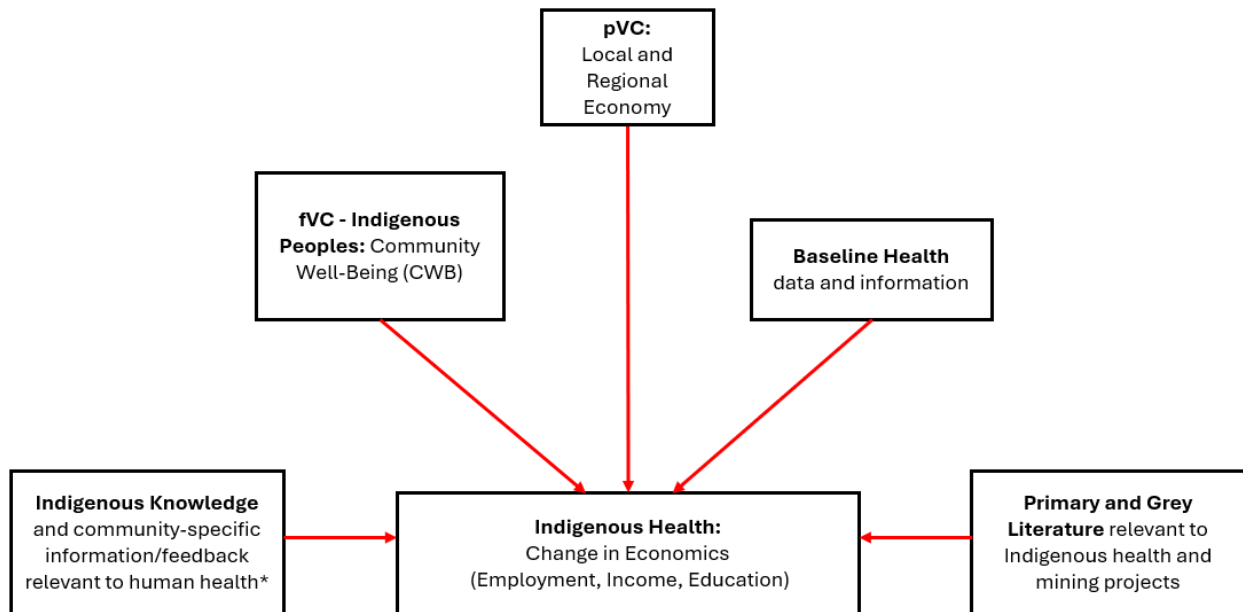
6.2.1.3 POTENTIAL EFFECTS

The following sections provide the inputs, assumptions, results from upstream analyses, Project information, primary and grey literature, and other evidence that supports the assessment of changes in economics in the context of Indigenous health. The assessment of potential effects first presents the available evidence, acknowledging any limitations and assumptions, followed by an assessment by Project phase (i.e., construction, operations and closure). Finally, a summary of the assessment findings is presented with a discussion regarding mitigation and / or enhancement measures, and GBA Plus considerations.

EVIDENCE FOR ASSESSMENT

The evidence used in the assessment of potential effects to Indigenous health from changes in economics included (i) findings from relevant upstream valued components (pVCs and fVCs); (ii) primary and grey literature sources; (iii) IK and community-specific information, and (iv) baseline health information (Figure 6-18).

Figure 6-18: Inputs for Economics (Employment, Income, Education)



Note: additional linkages between individual inputs are not shown
 * Where relevant and available

Each of these sources of information and evidence are further described in the sections below. Collectively, this body of evidence informed the assessment of potential effects described for each Project phase (i.e., construction, operations and closure).

Upstream Valued Components (pVCs)

The assessment of potential effects assessments for the linked pVCs are important in that they identify predicted changes in those upstream conditions that, in turn, have the potential to affect Indigenous health via changes in economics. A summary of the assessment, key mitigation measures, and predicted change after mitigation identified in the pVC and fVCs linked to Indigenous health, including Local and Regional Economy, is provided in Section 6 (Table 6-2).

One upstream pVC (Local and Regional Economy) was used as an input in the assessment of economics for the HIA to determine whether the Project will result in potential effects on Indigenous health. Project activities that result in changes to economics have the potential to influence the health of the Indigenous communities. The Project is expected to result in a net positive effect on the local and regional economy through employment and labour income, opportunities and income for local and regional businesses, and increased revenues to local and regional municipalities, Ontario, and Canada.

Upstream Conditions (fVC Indigenous Peoples)

In addition to the Local and Regional Economy pVC that influence various aspects of economics, there are also components of the fVC Indigenous Peoples assessment (Impact Statement Sections 10 to 14) that are both directly and indirectly linked to this determinant of health. Specifically, changes in cost of living and traditional economy, access to health and social services, and economic opportunity and inequality, were considered as part of the assessment of CWB. While these other sections did not consider health effects, they did evaluate changes to those upstream conditions that have the potential to influence downstream outcomes related to Indigenous health (Table 6-26).

Table 6-26: Summary of Results from CWB Effects Assessment used in the HIA

Potential Effect / Indicator	LSFN	WFN	ANA	NWOMC	RLEF
Cost of Living and Traditional Economy	Y	Y	Y	Y	Y
Access to Health and Social Services	Y (Regional)	Y (Regional)	Y (Regional)	Y	Y
Economic Opportunity and Inequality	Y	Y	N ⁽¹⁾	Y	Y

Notes:

1 Economic opportunity and inequality was not assessed for ANA as it was examined at a regional scale, referring to the evaluation for Red Lake and Ear Falls in Impact Statement Section 14 (fVC Indigenous Peoples: Red Lake and Ear Falls).

N = No Residual Effects identified under Community Well-Being

Y = Yes Residual Effects identified under Community Well-Being

ANA = Asubpeeschoseewagong Netum Anishinabek; CWB = community well-being; HIA = health impact assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; RLEF = Indigenous peoples living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation

Source: Table recreated with information from Impact Statement Sections 10 to 14 (fVC Indigenous Peoples: LSFN, WFN, ANA, NWOMC, RLEF).

The specific findings that were relevant and taken into consideration in the assessment of potential effects on economics in the HIA are further described in the sections below.

Influence of Cost of Living and Traditional Economy on Economics:

Various factors contribute to changes in economics. As described the assessment for CWB (Impact Statement Sections 10 to 14; fVC Indigenous Peoples), RLEF and members of NWOMC living in Red Lake and Ear Falls already face elevated costs for food, fuel, and housing. Due to the anticipated population growth from the influx of Project workers in this community, the Project may temporarily increase the demand for certain goods and services, potentially contributing to localized affordability pressures, particularly for those with fixed or lower incomes. With respect to LSFN, WFN and ANA, since there is no anticipated Project workforce presence expected on-reserve, no measurable changes to cost

of goods and services are expected for these communities; however, indirect effects are anticipated for the region. There may also be reduced confidence or access to traditional harvesting areas within the LSA and RSA due to restrictions to land access or perceived contamination risks from the Project, which may affect the Indigenous communities. Any disruption to access or change in the quality of experience on the land may also influence participation in land-based livelihoods, which can affect traditional economy. This may in turn change community reliance on market-based goods and services over time, which could affect household expenditures and perceived cost of living.

Influence of Access to Health and Social Services on Economics:

The Project workforce presence in Red Lake and Ear Falls is expected to affect services in the region, as the workforce and relocated families are anticipated to rely on access to health, social and education services in these communities, which are already experiencing staff shortages and capacity constraints. As described in the CWB assessment, added demand for childcare, mental health support, and education could contribute to longer wait times and reduced access, particularly for Indigenous residents who may already face barriers to culturally appropriate or geographically accessible care. Conversely, on-reserve service systems for LSFN, WFN and ANA, are not expected to be directly impacted given that workforce accommodations will be located off-reserve. However, individuals who travel off-reserve for regional specialized healthcare or social services may experience a strain on regional systems, particularly for services already operating at or near capacity. Members may experience delays or reduced access which may compound existing inequalities in access to health and social services. For ANA, changes to the landscape and industrial activities due to Project activities may contribute to emotional and psychological stress, particularly given their historical experiences with environmental issues. This could result in renewed concerns or an increased reliance on health, mental and social services in the region. An assessment of effects to Indigenous health associated with changes in access to health and social services is provided in Section 6.2.3 and an assessment of changes in mental wellness and community cohesion is provided in Section 6.2.5.

Influence of Economic Opportunity and Inequality on Economics:

As described in the CWB assessment, the Project is also expected to generate employment, training and skills development opportunities, improving short-term income stability for some residents participating in the workforce. These opportunities may enhance household financial stability and contribute to local and regional economic activity through increased consumer spending. However, unequal access to jobs due to barriers such as childcare, transportation, or qualifications may reinforce existing inequities. Wage inequality between Project workers and other residents could also contribute to uneven distribution of benefits and localized economic polarization. It is also noted that at the time of producing this report, ANA had not responded to requests for interviews; it is unknown if their community members will be seeking economic opportunities with the Project. Therefore, the potential influence of economic opportunity and inequality to economics were examined on a regional scale instead. Overall, the Project is anticipated to result in a net positive effect on the economy through job creations, increased income and disposable income, and business opportunities.

Primary and Grey Literature

The impact on economics from extractive resource projects have been explored extensively in the primary and grey literature, including the effects of the boom-and-bust cycles on Indigenous communities. Income is one of the most significant determinants of overall health and wellness (CPHA n.d.). The Canadian Public Health Association reports that financial insecurity contributes to increased rates of chronic disease, mental illness, and overall poorer health outcomes (CPHA n.d.). For example, in Canada, 8.1% of households experience food insecurity due to inadequate income, which leads to significant physical and mental health effects (Statistics Canada 2023; CPHA n.d.). Lower income populations tend to have lower life expectancy and higher rates of infant mortality (PHAC 2018). As reported by the National Collaborating Centre for Indigenous Health (NCCIH), *“economic development represents an opportunity for Indigenous communities to generate employment, improve education and skills, increase self-autonomy and self-sufficiency and, in turn, address poverty and improve the social conditions that lead to ill health”* (NCCIH 2020). Higher incomes and employment can reduce financial stresses that can contribute to mental health challenges, help alleviate poverty and strain on the healthcare system, and

has the potential to improve the health of the community (NCCIH 2020; CPHA n.d.). Further, being employed supports self-esteem and self-worth, which can subsequently improve mental health and reduce the prevalence of addictions (NCCIH 2020). Low self-rated mental health is more common among those with lowest income, lowest education attainment and unskilled occupations (PHAC 2018).

Research shows that higher income and educational attainment are closely linked to improved health outcomes, making support for education initiatives essential as part of resource development. For instance, the PHAC (2018) noted that individuals with lower income and lower levels of education consistently report higher rates of chronic diseases than those in higher socioeconomic groups. It also finds that arthritis, asthma, diabetes, and obesity occur more frequently among First Nations adults, whether living on-reserve, off reserve, or in northern communities, and among Métis adults, compared to non-Indigenous adults (PHAC 2018). Inequalities in disability and poor oral health were particularly pronounced between socioeconomic groups, depending on employment status, educational attainment, and income level (PHAC 2018). Lower income, lower educational attainment, and lower occupational skill levels are associated with higher rates of smoking, greater exposure to second hand smoke in the home, and increased lung cancer incidence (PHAC 2018). Rates of both heavy alcohol use and smoking are higher among Indigenous people living on reserve and off reserve than among non-Indigenous populations (PHAC 2018). Therefore, it is important to note that resource development can support community initiatives including those related to health, social, education and culture, to improve health outcomes. Increased population growth often leads to income growth, higher consumer spending and therefore a higher demand for goods and services (NCCIH 2020). This can ultimately lead to enhanced health and social services which indirectly leads to better health outcomes; however, economic disparities may also deepen existing inequities for those who do not benefit financially from Project activities (NCCIH 2020). An assessment of effects to Indigenous health associated with changes in access to health and social services is provided in Section 6.2.3.

While employment and income are tied to education and professional qualifications, this is influenced by access to programs in the local communities. With a lack of schools and post-secondary institutions in remote, rural and northern Indigenous communities, achieving adequate levels of education for potential job prospects can be difficult. For example, students in Ear Falls must commute to Red Lake to attend high school, there are limited post-secondary courses offered, and the nearest universities are in Winnipeg or Thunder Bay (MNP LLP 2020). The mining industry workforce has a higher representation of Indigenous people than most other sectors, although there is still more that can be done to improve employment outcomes for Indigenous communities (Mining Industry Human Resources Council 2019). The Indigenous mining workforce is becoming more highly educated: the proportion of Indigenous mining workers with a college or university certificate, degree or diploma has increased 3% over the past decade (Mining Industry Human Resources Council 2019). Training, certification and skill development programs and support are key factors in advancing hiring presence in the mining workforce. However, there are barriers adversely impacting economic security for adults, including limited adult literacy programs, cost of internet or limited access, and a shortage of subsidized childcare to participate in skills development opportunities (MNP LLP 2020). Particularly vulnerable groups to financial and economic insecurity therefore can include low-income earners, youth, women and single parents, but may also include individuals with underlying mental health and substance abuse issues, those experiencing housing affordability challenges and those that have shift-work jobs and cannot access part-time opportunities for higher education (MNP LLP 2020).

Increased income may also come with challenges. The Indigenous Services Canada's 2025–26 Departmental Plan reports that between 2023 and 2024, there were higher percentages of Indigenous people living in low-income situations, lower employment rates of the working-age population, and lower median income of the working-age population compared to non-Indigenous people (Indigenous Services Canada 2025). Especially in rural or remote communities that lack adequate mental health supports, having higher incomes can often exacerbate existing drug and alcohol addictions, which can subsequently lead to increased incidences of domestic violence, family breakdowns and sexual abuse (NCCIH 2020). For instance, across Canada, higher rates of alcohol consumption are more prevalent among people with higher income (PHAC 2018). The NCCIH (2020) also reports that impacts such as domestic violence and sexual abuse *"differentially affect the health of Indigenous girls and women, a population already experiencing high rates of domestic abuse, sexually transmitted diseases and*

pregnancies”. As noted earlier, education plays a key role in supporting better health outcomes; therefore, without the appropriate level of financial literacy, individuals who suddenly have higher disposable income may turn to harmful behaviours that can occur after natural resource-based rapid population growth such as substance use, domestic violence, and increased number of public order offences that can include alcohol or drug-related crimes or prostitution (Ruddell and Ray 2018). Further, while a resource development project may generate economic benefits as noted above, access to these benefits may not be evenly distributed. For example, while the Project and other resource-based employers may provide well-paying jobs to their workers, most of the other employment opportunities in Red Lake and Ear Falls are low-paying occupations, which may result in economic disparity among community members (MNP LLP 2020; Salerno et al. 2021).

It is also important to note that Indigenous women historically have not benefitted equally to the economic opportunities presented by natural resource development. A study by Baruah and Biskupski-Mujanovic (2023) looked at the barriers and opportunities that impede or facilitate Indigenous women’s entry, retention and advancement in natural resource employment in Canada. Their findings indicated that women face sexual harassment, racism, unequal access and lack of childcare while working in these industries. Advancement for Indigenous women in these industries are hindered by several barriers, including challenges gaining acceptance in the workforce, experiences of racial discrimination, being treated as token hires, and being passed over for promotion (Baruah and Biskupski-Mujanovic 2023). While Indigenous women generally have higher level of educational attainment than Indigenous men in the same industries, women are “*not gaining commensurate employment or income in these industries*” for various reasons, including the persistent sexist and racist biases and assumptions about their qualifications that limit employment opportunities (Baruah and Biskupski-Mujanovic 2023). Even some Elders have expressed concern about how women working outside the home could negatively affect community interests and cohesion, suggesting that the natural resource industry has the potential to create tensions between different Indigenous groups (Baruah and Biskupski-Mujanovic 2023). As women are typically responsible for childcare in their households, they must rely on extended family while they work due to limited availability of childcare facilities. While the study reported several challenges and barriers for women in these industries, there were also several positives that contribute to better health outcomes. Women that work the fly-in fly-out (FIFO) schedules reported being able to enjoy personal space, self-care and reflection, which contribute to overall health and wellness. Those with certain drug addictions also found it helpful to work at a dry camp, with access to addiction support and de-addiction counselling while on-site. At work, they interact with people from diverse cultures and backgrounds, which they see as a benefit because it broadens their personal networks and sense of community. During their time off work back in their communities, they can spend more time with family, and engage in their interests such as traditional activities, maintaining cultural practices or volunteering within their community. These benefits can contribute to lower stress levels, reduction in substance abuse, and overall better health for Indigenous women (Baruah and Biskupski-Mujanovic 2023). The issue of Indigenous women being underrepresented in the mining sector mirrors the underrepresentation of women in the mining sector (Baruah and Biskupski-Mujanovic 2023). An assessment of changes in mental wellness and community cohesion, which includes economic considerations is provided in Section 6.2.5.

Indigenous Knowledge and Community-specific Information

This section presents IK that was received from some of the local Indigenous communities, supplemented by other relevant community-specific information that was publicly available, to identify where and how IK was incorporated into the assessment of Indigenous health.

While the TKLUS provided by some of the local Indigenous communities did not include information or data on economics. General feedback on concerns pertaining to the Project were provided to Great Bear Resources by some communities, through both confidential reports and consultation activities; this information is summarized below. In addition, publicly available information and community-specific survey data were identified for inclusion, where available.

A confidential report prepared for NWOMC noted that some community members were considering the potential social impacts from an influx of workers, such as rising housing costs, and increased drug and alcohol issues. At the same time, some participants were optimistic that the Project could bring jobs,

economic growth, improved healthcare services, and opportunities for Métis businesses, along with broader community support. Through consultation and engagement, LSFN also raised concerns related to potential increases in cost of living and barriers to employment opportunities associated with the Project.

As described in Attachment A, the Great Bear Project Community Health Survey was a community feedback survey that was distributed to residents of Red Lake, Ear Falls, and surrounding areas in 2024, and these survey results were used to inform the assessment of economics. The survey aimed to better understand local residents' priorities regarding the consideration of health and wellness within the HIA; to gather information on respondents' self-reported physical, mental, and spiritual wellness; and to learn about local practices and land-use activities in and around the Project area. The survey allowed respondents to self-identify as Indigenous should they choose. It is noted that due to the small sample size of self-identified Indigenous respondents (n = 23), these survey results may not be representative of the interests, opinions, and values of the local Indigenous communities as a whole, or the interests, opinions, and values of individuals within those communities. Rather, the survey results were provided as a snapshot of information provided by some Indigenous survey respondents, specifically residing in the Red Lake and Ear Falls areas.

While the sample size of the responses was too small for statistical analysis, results from the survey were considered in the assessment of economics, including an analysis of results from Indigenous respondents specifically. These results are included in the Relevant Baseline Health Information section below.

Relevant Baseline Health Information

Baseline conditions related to economics are discussed in Existing Conditions, Section 6.2.1.2. Given the complex and varied interactions between economics and human health, there are a variety of health conditions and wellness indicators (e.g., chronic conditions, stress) that may be influenced by different economic factors. Existing health information can be found in the Baseline Health Profile (Attachment A). Existing conditions related to economics provide an indication of current conditions that may already be influencing baseline health status of communities in the region. Understanding these conditions helps establish the current economic context, in order to identify potential Project related effects on Indigenous health.

As described in the Baseline Health Profile (Attachment A), a community feedback survey was conducted to better understand local residents' priorities for consideration of health and wellbeing in the HIA, and focused on residents of Red Lake, Ear Falls, and surrounding areas. While results were limited in regard to economics, respondents expressed hope that the Project would create employment opportunities for Indigenous people and nearby residents. Specifically, they noted that the Project should "*hire local*" and asked, "*will the Indigenous population be considered in hiring for project?*". When respondents were asked to select what matters most to them in terms of community values, 14 out of 23 (i.e., approximately 61%) self-identified Indigenous respondents identified economics (employment, income, local business and revenue). It is noted that self-identified Indigenous respondents placed different values on community elements when compared to non-Indigenous respondents. For example, more non-Indigenous respondents selected economics as an element of value compared to self-identified Indigenous respondents. However, as described in Attachment A, it is important to note that the small sample size means that these findings are not intended to be extrapolated to an entire Indigenous community, group or region and are provided for informational purposes only.

Baseline demographic information for the Indigenous communities, including current employment rates, income and education attainment, are also available, details of which are provided in the Project's Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024). Baseline participation and employment rates are also discussed as part of Existing Conditions in Section 6.2.1.2. Income plays a significant role in an individual's health as it provides financial ability to purchase healthy foods, take part in activities that promote a healthy lifestyle, or access to health and social services. Both higher incomes and education attainment are closely linked to better outcomes, and financial insecurity contributes to increased rates of chronic disease, mental illness, and overall poorer health outcomes (CPHA n.d.). Financial insecurity, unemployment and education was one of the key priorities identified for Red Lake and Ear Falls according to the CSWB Plan. Based on 2016 Census data, Red Lake and Ear Falls had a

higher percentage of residents with less than a high school diploma and a lower percentage of residents with a university degree compared to Ontario as a whole. However, in the same year, members of Red Lake and Ear Falls had lower rates of unemployment than Ontario (MNP LLP 2020). Based on the CSWB scores ranking the key priority areas, poverty and financial insecurity had the fifth highest priority score, with unemployment or unstable employment as the sixth highest and insufficient education and development as the 9th highest priority score (MNP LLP 2020). Identified barriers to employment or education included, but were not limited to, the availability of subsidized childcare, cost of internet for online learning, or lack of public transportation to access education (MNP LLP 2020).

Overall, community feedback and baseline information indicate that health conditions in Indigenous communities are closely linked to economic factors such as employment, income, and education, and are further shaped by historical experiences and ongoing socio-economic barriers. This highlights the importance of equitable access to Project-related economic opportunities to support improved health and wellness.

CONSTRUCTION

The construction phase is expected to occur over a three-year period and will include site preparation, infrastructure development, and workforce mobilization. These activities are anticipated to result in a temporary population increase of 1,000 workers during construction and 1,300 during peak construction.

The Project will create temporary employment and contracting opportunities, providing increases in labour income and valuable work experience for members participating in the workforce. As described in the assessment of CWB, these opportunities may enhance individual and household financial stability and contribute to the local and regional economy through increased consumer spending. Economic modelling for the Project, as described in Impact Statement Section 18 (Summary of Benefits), has estimated that annual direct, indirect and induced effects generated during the assessment period include on average \$570 million per year, 3,430 persons employed in an average year, labour compensation averaging \$280 million per year, and \$190 million per year in government revenues on average.

During construction, economics can be influenced by factors such as cost of living and traditional economy. As stated in the assessment of CWB, Indigenous people in the region already face elevated costs for food, fuel, and housing due to limited supply chains and regional market conditions. The Project is expected to impact the cost of living in the area, including in Red Lake and Ear Falls, contributing to existing pressures during peak construction or hiring periods. Project-related activity may temporarily increase demand for certain goods and services during construction in these communities, which is expected to result in localized affordability pressures for residents, particularly those on fixed or lower incomes. For LSFN, WFN and ANA, as reported in the CWB assessment, no measurable change in the cost of goods and services is anticipated on-reserve. However, construction activities, such as site clearing and increased traffic, may also raise concerns about environmental disturbance near traditional harvesting areas, which could affect confidence in local traditional food and medicine sources. This may in turn change community reliance on market-based goods and services over time and affect household expenditures and perceived cost of living. For local Indigenous communities, reduced confidence or access to traditional harvesting areas could also influence their participation in land-based livelihoods, affecting their participation in traditional economy. Due to the complexities associated with Indigenous people's health and changes to the environment and landscapes, potential effects associated with cost of living and / or traditional economy are also discussed in relation to access and availability of traditional foods (Section 6.1.4) and food security (Section 6.2.4).

The demand for labour is expected to create more job opportunities, which can also influence access to health and social services in the region during construction. As presented in the CWB assessment, Project workforce accommodations are expected to be off-reserve, therefore, Project workers and relocated families in Red Lake and Ear Falls are anticipated to increase the demand for childcare, mental health support and education, which already face staff shortages and capacity constraints. Services may not be able to fully absorb the additional demand associated with population growth or increased service needs during construction; this is further discussed as part of access to health and social services (Section 6.2.3). Education services may also be affected by the arrival of new families, as the Red Lake and Ear Falls school systems already face challenges with recruiting and retaining teachers due to limited

housing and service infrastructure. Further, transportation barriers remain a challenge for Indigenous students traveling from more remote locations. For ANA, WFN and LSFN, no direct effects to service systems on-reserve are expected, but there is a potential for indirect strain on regional service systems, particularly for members who travel to other regional centres for services. Members who access these services may face longer wait times, reduced availability and delayed access due to the increased demand of regional services. This is a particular concern for elders and caregivers who face transportation, mobility, or financial barriers. This could result in deepened inequities in access and availability for populations already experiencing systemic barriers. Increased earnings during construction may also improve household stability and financial security for some families (and lessen strain on local services within the communities), but rotational work schedules and long periods of separation can strain relationships and caregiving capacity. Uneven income distribution and limited childcare options may also deepen existing stressors, heighten household / emotional stress and increase responsibilities for caregivers. Differences in income within households can create added strains and imbalances, affecting family dynamics.

As reported in the CWB assessment, Project construction is also expected to generate employment and training opportunities, improving income stability for some residents and their families. Broad regional benefits through employment and labour income are expected during construction. Project-related construction jobs may offer short-term income stability for workers who have recently experienced job displacement. However, unequal access to jobs due to barriers such as childcare, transportation, or qualifications may reinforce existing inequities. Wage inequality between project workers and other residents could also contribute to uneven distribution of benefits and localized economic polarization. In general, the demand for labour is expected to increase local and regional employment levels and labour income, and the demand for goods and services are expected to create opportunities for local and regional businesses to participate through procurement and contracting, further generating employment opportunities.

Employment and income play a large role in shaping health outcomes, as financial stability determines an individual's ability to access the resources necessary for maintaining a healthy lifestyle (Darin-Mattson et al. 2017). Income is one of the most significant determinants of overall health and wellness, and financial insecurity contributes to increased rates of chronic disease, mental illness, and overall poorer health outcomes (CPHA n.d.). Research further indicates that higher income levels and greater educational attainment are strongly associated with better health outcomes, highlighting the importance of supporting education initiatives with resource development. For example, the PHAC (2018) reported that individuals with lower income and less education consistently experience higher rates of chronic disease compared to those in higher socioeconomic groups. This is especially significant because conditions such as arthritis, asthma, diabetes, and obesity occur at higher rates among First Nations and Métis adults compared to non-Indigenous adults (PHAC 2018). Employment also plays an important role in supporting self-esteem and self-worth, which can in turn enhance mental health and reduce the prevalence of addictions (NCCIH 2020). Additionally, low self-rated mental health is more frequently reported among individuals with lower incomes, lower education attainment, and those working in unskilled occupations (PHAC 2018). Income and employment also are also linked to access to health care, but especially social services. Many social assistance programs, including mental health supports, are outside or only partially covered by Canadian universal health care. Affordability can be one of the most significant barriers for accessing adequate mental health services, as not being able to afford to pay was one of the most frequently reported reasons for having unmet or partially met mental health needs (Statistics Canada 2019).

It is noted that while higher income can influence individual personal behaviours such as substance use or increased domestic violence (Ruddell and Ray 2018), education such as financial literacy can help support better health outcomes. Unequal access to benefits from resource-based employers can also exacerbate existing economic disparity among community members, further demonstrating the need for appropriate mitigation measures to avoid potential adverse effects. Not only are effects to the wage-based economy expected, but construction activities are anticipated to influence traditional based economies due to potential environmental disturbance on traditional lands. This may result in a shift in household reliance on land-based activities and may influence health and wellness for communities that rely on traditional economy.

Overall, the economic opportunities (including employment, income and education) resulting from Project activities have the potential to support a range of health benefits through increased income to support individuals and their families, improvements in mental health through stable employment and wages, and disposable income that can be used for cultural practices and recreation and leisure. Regionally, the economic influx will help support local and regional businesses, including Indigenous-owned businesses, and provides education, training and mentorship opportunities for Indigenous youth and adults. While the findings above are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF, it is noted that at the time of producing this report, ANA had not responded to requests for interviews; it is unknown if their community members will be seeking economic opportunities with the Project. Therefore, it is unknown if their community members will benefit from the Project, even though they may be affected by certain economic indicators such as cost of living, traditional economy or access to regional health and social services. While increased income is one of the top determinants of health, it can also influence personal behaviours such as substance use, gambling and domestic violence. As discussed in the CWB assessment, available data suggests RLEF and NWOMC members who live in Red Lake and Ear Falls, have relatively strong income security compared to other regional communities. This is also evident by the LIM-AT score, which was notably lower than the provincial average. By contrast, data suggests that ANA and LSFN may be experiencing income insecurity and the LIM-AT score was notably higher than the provincial average. It is noted that a LIM-AT was not provided by Statistics Canada for WFN. Further, unemployment rates (%) for LSFN, WFN and ANA are either above or close to the provincial average. These differences highlight that existing economic conditions vary among the communities which can further influence existing barriers and vulnerabilities associated with employment, income and education. For individuals not employed in mining or a comparable high-paying industry, the higher cost of living can pose a considerable challenge. The results of the Great Bear Project Community Health Survey (Attachment A), as well as feedback from consultation and engagement activities, show interest that the Project should hire from the local Indigenous population.

While economic changes due to the Project is expected to result in a net positive benefit to Indigenous health overall, the implementation of carefully designed mitigations are key to mitigating harmful effects and enhancing the economic benefits of the Project such as education and training, employee benefits programs and indigenous procurement policies. A list of mitigation and enhancement measures for economics are presented in Section 6.2.1.4 and for the HIA overall in Section 7. Great Bear Resources has indicated that commercial project agreements are in progress with LSFN, WFN and NWOMC to minimize adverse social impacts and maximize economic opportunities for Indigenous communities. While the specifics of these agreements are confidential, the agreements are assumed to provide economic benefit to on-reserve communities and off reserve band members. As noted by the NCCIH (2020), *“economic development in Indigenous communities requires a holistic approach that incorporates elements of culture, community healing, traditional practice and empowerment. It must be guided by traditional knowledge, worldviews, and values including sharing resources, caring for and respecting the environment and all living things, and self-reliance.”* To further support economic development, Great Bear Resources plans to support community-driven economic development by partnering with local and Indigenous communities and prioritizing local hiring and procurement, as described in Impact Statement Section 18 (Summary of Benefits). These efforts are expected to increase incomes, build business capacity, and strengthen skills through training and on-the-job experience, with benefits extending beyond the mine life. Great Bear Resources has also committed to inclusive and culturally appropriate employment practices (e.g., equity-based hiring, Indigenous procurement policies, partnerships with Indigenous organizations, financial literacy support, etc.). The skills and experience gained through the Project will be transferable to other sectors and may help retain workers, including youth, in the region. Additional mitigations include, but are not limited to, retirement planning and support to help employees with longer term financial stability, an employee benefits program to support coverage for healthcare needs including medical, dental and mental services, and support for Indigenous-led education and training for land-based practices to promote skills and knowledge transmission among Indigenous communities.

Overall, available information indicates that changes in economics will likely occur as a result of Project activities during construction. While a net positive effect is expected as a result of economic changes (e.g., economic opportunities and income stability), some adverse effects (e.g., cost of living, boom-bust

cycle, uneven income distribution, personal behaviours) may affect Indigenous health and wellness for soters including their ability and willingness to participate in economic opportunities (e.g., employmme individuals; however, no measurable deviation from baseline population-level health resulting from Project activities is anticipated. While these findings are applicable to the local Indigenous communities, individual community benefits will depend on several facent, Project agreements, local businesses) noting the pre-existing barriers that may impede participation in employment and other opportunities. Mitigations and enhancements related to economics are presented in Section 6.2.1.4.

OPERATIONS

The operations phase will result in sustained workforce presence in the region anticipated to span 26 years. Project-related employment and contracting opportunities will continue to provide increased income to individuals working for the Project and their families. Peak employment is anticipated to reach approximately 1,100 workers during operations when both the open pit and underground mines are active; however, the workforce is expected to decrease to approximately 700 workers during the underground mining-only operations (after approximately year 9).

Although no population growth or direct workforce is anticipated on-reserve for LSFN, WFN and ANA, Project operations are expected to affect the local and regional economy (including RLEF and NWOMC) through temporary job creation and increased regional spending during operations. As described in the CWB assessment, this is also anticipated to increase labour income, provide valuable work experience for Indigenous members participating in the workforce, and strengthen income stability. The workforce is expected to stabilize during operations; thus, most potential interactions identified during construction are likely to persist or evolve over time.

Income is a key determinant of health, and higher earnings during operations can reduce financial stress, enhance self-esteem, and support improved mental health, including a reduced prevalence of addictions (NCCIH 2020). Increased income may also alleviate community-level poverty and enable participation in cultural and traditional practices, which promote healthier lifestyles and reduce the risk of obesity-related conditions such as diabetes and cardiovascular disease (NCCIH 2020). However, income is not the sole economic influence on health. Income, education, and occupational skill levels are closely linked, and individuals with lower socioeconomic status consistently experience higher rates of chronic conditions, including arthritis, asthma, diabetes, and obesity (PHAC 2018). Therefore, initiatives that support education and skills development during operations is key to increased employment opportunities, higher income over the long-term and better health. Increased consumer spending during operations can raise demand for goods and services, supporting improved health and social services and in turn, better health outcomes (NCCIH 2020). However, for some individuals, higher incomes may exacerbate substance use issues, potentially increasing risks of domestic violence, family disruption, and safety concerns for Indigenous women and girls (NCCIH 2020). Further, due to the expected demand for certain goods and services during operations, a temporary increase in the cost of living for communities that already face elevated costs for food, fuel and housing can contribute to localized affordability pressures.

During operations, potential effects to Indigenous health due to changes in economics (employment, income, education) from the Project are expected to be positive overall as steady employment and contracting opportunities could support income stability, local business activity and workforce skill development. However, higher income could also lead to negative health behaviours (e.g., substance use) for some individuals, and sustained operations may reinforce community concerns about affordability, service capacity, and long-term population change, as described in the CWB assessment. Further, for individuals not employed in mining or a comparable high-paying industry, the higher cost of living can pose a considerable challenge. While the findings above are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF, it is noted that at the time of producing this report, ANA had not responded to requests for interviews; it is unknown if their community members will be seeking economic opportunities with the Project. Therefore, it is unknown if their community members will benefit from the Project even though they may be affected by certain economic indicators such as cost of living, traditional economy or access to regional health and social services.

The implementation of carefully designed mitigations and enhancements are key to mitigating adverse effects and enhancing the economic benefits of the Project. A list of mitigation and enhancement

measures for economics are presented in Section 6.2.1.4 and for the HIA overall in Section 7. Great Bear Resources has indicated that commercial Project agreements are in progress with LSFN, WFN and NWOMC, which will continue to provide economic benefits to communities throughout operations. Great Bear Resources has also committed to support economic development and the ability for Indigenous people to gain economic benefit from the Project. One key commitment that will influence the operations phase is the effort to increase the labour force and business capacity by supporting training and hiring of Indigenous people, particularly in the operations phase (Impact Statement Section 18). This and other commitments, including supporting equitable benefits (employment, training, income equality) for Indigenous women, retirement planning and support, an employee benefits program, and Indigenous-led education and training for land-based practices, have the potential to improve conditions related to Indigenous health. Overall, available information indicates that changes in economics will likely occur as a result of Project activities during operations. While a net positive effect is expected as a result of economic changes (e.g., economic opportunities and income stability), some adverse effects (e.g., cost of living, boom-bust cycle, uneven income distribution, personal behaviours) may continue to affect Indigenous health and wellness for some individuals; however, no measurable deviation from baseline population-level health resulting from Project activities is anticipated following implementation of mitigation measures. Mitigations and enhancements related to economics are presented in Section 6.2.1.4.

CLOSURE

The closure phase will continue employment and contracting but at a substantial reduction from the operations phase. Project activities during the closure phase are expected to result in temporary and short-term population changes. As described in the CWB assessment, employment levels and labour income will decrease to pre-Project levels during the closure phase, after the active closure period.

While the Project workforce is not expected to reside on-reserve, local effects may be observed for members employed by the Project. Direct Project influence within Red Lake and Ear Falls that were expected during construction and operations, are anticipated to lessen as the workforce in this area declines during closure. As discussed in the CWB assessment, as employment opportunities decrease, some workers are expected to leave the region, reducing pressure on housing and easing affordability constraints within larger communities such as Red Lake and Ear Falls. Lower population and business activity may also reduce demand for goods and services in Red Lake and Ear Falls. While this may modestly ease cost-of-living pressures, it may also affect small or Indigenous-owned businesses that expanded during operations, contributing to localized economic decline or volatility. Direct interactions with closure activities are expected to be limited for LSFN, WFN and ANA, and no change in cost of goods and services is expected on-reserve for these communities.

With the expected changes in the local and regional economies during closure, potential benefits that were observed from having higher incomes and employment opportunities during construction and operations may return to baseline during the closure phase. Further, households that relied on Project-related income may also face financial stress and income instability during this transition, and limited alternative employment or training options may widen existing inequalities. As noted in the CWB assessment, these pressures can influence family dynamics and contribute to emotional strain, particularly for those with high care responsibilities or limited financial buffers. This may result in an eventual return to baseline conditions for Indigenous health, unless alternate employment is found or financial literacy training and support has enabled a more secure financial future.

Overall, effects to Indigenous health from changes in economics (employment, income and education) during closure will be largely dependent on the pre-closure transition planning (e.g., re-skilling, and financial literacy and planning) that occurred throughout operations. The loss of a large regional employer is known to have complex societal effects, typically attributed to boom-bust cycles of resource development. However, as effects to health are shaped more by long-term changes in the economic and social conditions within the region, mitigations such as retraining, transition support or alternative employment, an employee benefits programs and retirement planning and support, can reduce barriers to new opportunities after the Project ends. Mitigation and enhancement measures associated with the closure phase are designed to ease the transition to other employment opportunities in advance of mine closure.

As discussed in Impact Statement Section 18 (Summary of Benefits), Great Bear Resources proposes to address local priorities so that communities can benefit from the Project, including after the mine closes. With respect to economics, Great Bear Resources plans to support local initiatives that includes working with local suppliers to develop capacity and provide training opportunities, which may extend the benefits of the Project beyond the life of the mine. These initiatives are expected to have ongoing positive effects on the health of Indigenous people during and after closure.

6.2.1.4 MITIGATION AND ENHANCEMENT MEASURES

Table 6-27 outlines the key mitigation and enhancement measures recommended based on the assessment of changes to economics. These mitigation and enhancement measures are anticipated to apply across all Project phases unless otherwise specified. General mitigation measures for closure activities that relate to Indigenous health are also included.

Table 6-27: Mitigation, and Enhancement Measures for Economics

Mitigation and Enhancement Measures for Economics	Rationale
<u>Education and Training (Project)</u> : Provide budgeting and financial literacy tools available to all employees through the EAP, including a combination of organized workshops during working hours and optional individual supports that employees and their families can access on their own time. ⁽¹⁾	Financial literacy and money management skills have been shown to help to mitigate against adverse personal behavioural choices, including spending on alcohol and drugs. By making training available for all employees, and their families, this is expected to reduce the likelihood of adverse downstream health effects resulting from behaviours such as substance abuse, gambling and domestic violence.
<u>Education and Training (Region); Inclusive and Local Hiring Strategy (hiring policies)</u> : Partner with Indigenous training and employment organizations to support culturally appropriate recruitment and retention of Indigenous candidates, to support employment of Indigenous workers, provide training, priority hiring and work towards continuous improvement including training and employment opportunities for Indigenous women. ⁽¹⁾	Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. By prioritizing hiring of Indigenous workers where possible, the benefits of employment (income, skills training, health / dental benefits, retirement supports) can be realized by Indigenous communities. In addition, the hiring of Indigenous women specifically was one of the calls to action in the National Inquiry on MMIWG for the resource development industry.
<u>Social Closure Plan</u> : Support consistent communication and planning throughout closure with emphasis on legacy, continuity, and shared decision-making. Develop a community transition plan in consultation with local Indigenous communities and groups so that decisions are made with integrity, based on cultural, spiritual and Indigenous well-being in mind. The plan will include collaborative planning, implement job-matching, retraining programs, financial literacy workshops, and economic diversification supports in anticipation of closure. ⁽¹⁾	Evidence shows that closure of a large employer in northern rural areas can have adverse effects, particularly in terms of income and employment, which is a key determinant of health. These boom-bust cycles have been well documented, with pre-closure mitigations playing a large role in the successful transition of local economies. This measure is anticipated to help mitigate against adverse health and well-being effects related to closure.
<u>Retirement Planning and Support</u> : Offer a retirement pension plan, Registered Retirement Savings Plan matching or equivalent, to employees to help support longer term financial stability.	Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. Financial literacy and financial planning, including retirement planning and support, help to mitigate against a wide range of economic-related downstream health issues in elderly (retired) populations.
<u>Employee Benefits Program</u> : Benefits program will include coverage for health care, prescription drugs, dental and access to in-person and online mental health services for employees and their families.	Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. The inclusion of benefits for employees and their immediate families mitigates against broader affordability issues including access to health care, dental and mental health (including addiction) services.

Mitigation and Enhancement Measures for Economics	Rationale
<u>Indigenous Procurement (Local Procurement Policy)</u> : Help strengthen Indigenous participation in business opportunities by developing Project procurement policies that support Indigenous economic development and reconciliation.	Supporting the local Indigenous economy helps to protect against disparities that currently exist between Indigenous and non-Indigenous communities. Supporting Indigenous businesses, where appropriate, focuses more of the economic benefits of the Project on Indigenous communities broadly rather than concentrated on the working population (i.e., those employed by the Project). This is anticipated to mitigate against physical and mental health outcomes associated with lower socio-economic status.
<u>Support for Indigenous-led Education and Training for Land-Based Activities</u> : Support for Indigenous-led education and training for land-based activities (hunting, gathering, plant harvesting) in the region and promote skills and knowledge transmission among Indigenous communities, including Indigenous youth.	Primary literature indicates that land-based learning among Indigenous people has beneficial downstream effects on health, mental wellness and cultural / community cohesion. This mitigation is intended to act as a mitigation to minimize adverse effects and also an enhancement intended to support Indigenous practices, cultural continuity, traditional economy and growth of the eco-tourism industry in the area.

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC). EAP = employee assistance program; fVC = federal valued component; GBR = Great Bear Resources; HIA = Health Impact Assessment; MMIWG = Missing and Murdered Indigenous Women and Girls; OCAP = ownership, control access and possession; pVC = pathway valued component. The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2) are in place as planned.

6.2.1.5 GBA PLUS CONSIDERATIONS

In accordance with Health Canada guidance (Health Canada 2024a), the HIA takes an equity approach to assessing potential effects by examining the potential distribution of effects across different sub-populations within the Indigenous communities. This section highlights how Indigenous identity intersects with the other GBA Plus identity factors described below. Table 6-28 applies a GBA Plus lens that treats Indigenous identity as a central identity factor, and the other identity factors described below are discussed within this context. At the bottom of this table there is a section highlighting key intersectionality considerations, Indigenous identity is at the center of this qualitative analysis.

It is important to note that while this section identified subgroups that have the potential to experience effects uniquely from changes to economics, the analysis should be considered in the context of the potential effects assessment findings. The analysis below identifies populations that could be disproportionately affected and also discusses the potential health effects, or lack thereof, as identified in the assessment.

Table 6-28: GBA Plus and Equity Considerations – Economics

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Gender	Disproportionate (Women+)	Gender-specific differences in economics are expected to disproportionately affect Indigenous women and girls, and 2SLGBTQQIA+ individuals due to limited job or education / training opportunities, inadequate childcare options to pursue employment, or already face mental health challenges to pursue higher education or employment.
Age	Disproportionate (Youth, Elders)	Non-working age individuals (youth, Elders) are less likely to experience financial opportunities via employment, business, or training / education opportunities. Elders may also be disproportionately impacted through changes in cost of living and access to health services.

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Physical Ability	Disproportionate (Individuals with chronic health conditions and / or disabilities)	Evidence suggests that individuals with physical health conditions (e.g., disabilities) may have unique challenges accessing employment, income and education given their health may prevent or limit the ability to pursue work or education / training (Employment and Social Development Canada 2022).
Socioeconomic Status	Disproportionate (Low-income individuals and households)	Low-income individuals and households (e.g., single parents) may be more affected by increases in cost of living which can create local affordability pressures for housing or goods and services. Shift work employees who cannot access part-time opportunities for higher education may be limited to pursuing better employment opportunities. The Canadian Public Health Association reports that financial insecurity contributes to increased rates of chronic disease, mental illness, and overall poorer health outcomes (CPHA n.d).
Mental Ability	Disproportionate (Individuals with pre-existing mental health conditions)	Research shows that financial security is impacted by risk factors such as mental health (MNP LLP 2020). Underlying issues such as mental health status is expected to have an impact on economics, as mental health conditions may prevent individuals from finding or keeping employment or pursuing higher education, which can reduce financial stresses, enhance self-esteem, or promote healthier lifestyles (NCCIH 2020).
Intersectional Analysis:	Intersectional effects which can compound vulnerabilities around economics are expected due to the findings of the assessment on Indigenous health. Several of the identity factors above may intersect to further compound differences in the distribution of effects. For example, a non-working age female, who is also low-income would experience proportionately more barriers than any of those groups individually. It is acknowledged that Indigenous identity intersects with the identity factors listed above.	

Notes:
 GBA Plus = Gender Based Analysis Plus; 2SLGBTQIA+ = two-spirit, lesbian, gay, bisexual, transgender, queer, questioning, intersex, and asexual communities, along with other sexual and gender identities represented by the + symbol.

6.2.1.6 SUMMARY OF POTENTIAL EFFECTS: ECONOMICS

The following is a summary of the findings from the assessment of potential effects to Indigenous health based on changes to economics (Table 6-29). The specific mitigation and enhancement measures based on the assessment of changes to economics (employment, income, education), including a description and rationale, are described in Section 6.2.1.4.

Table 6-29: HIA Potential Effects Summary - Economics

Criteria	Description	Characterization
Health Determinant	Identify the determinant of health being assessed	<ul style="list-style-type: none"> Economics (Social Determinant of Health)
Direction of Potential Effect	Describe whether the potential effect may be beneficial or adverse	<ul style="list-style-type: none"> Beneficial (Economic Opportunity and Income Stability): the potential effect on human health may be beneficial, thereby improving conditions that support Indigenous health.
		<ul style="list-style-type: none"> Adverse (Cost of Living, Boom-Bust Cycle, Uneven Income Distribution, Personal Behaviours): the potential effect on human health may be adverse, thereby diminishing conditions that support Indigenous health.

Criteria	Description	Characterization
Scale of Potential Effect for this Determinant (post- mitigation)	Describes the expected scale of the Project-related effect to Indigenous health for this determinant	<ul style="list-style-type: none"> • Minor (Beneficial – Economic Opportunity and Income Stability): the beneficial effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures. The assessment findings identified that overall, Project-related changes to economic opportunities are expected to support beneficial outcomes for Indigenous health for some individuals; particularly those who receive benefits through employment or Project agreements. While some individuals and families may experience beneficial health effects, a population-level shift in Indigenous health is not expected. • Minor (Adverse – Cost of Living, Boom-Bust Cycle, Uneven Income Distribution, Personal Behaviours): the adverse effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures. The assessment findings identified that Project-related changes to population growth may increase the cost of goods and services, leading to localized pressures. Higher earnings may also lead to negative personal behaviours (e.g., substance use), and uneven income distribution may widen existing inequalities. While some individuals may experience adverse health effects, a population-level shift in Indigenous health is not expected.
Affected Populations	Refers to the distribution of the effects across Indigenous communities and includes equity considerations	<ul style="list-style-type: none"> • Assessment findings (i.e., Project-related changes) are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. However, current information suggests that while certain regional economic indicators may affect ANA, at the time of producing this report, ANA had not responded to requests for interviews and it is unknown if their community members will be seeking economic opportunities with the Project.
GBA Plus	Identify relevant GBA Plus considerations for this determinant	<ul style="list-style-type: none"> • There are groups that may experience effects differently for this determinant. Details are discussed in the economics GBA Plus section (Section 6.2.1.5).
Mitigations and Enhancements	Additional measures listed based on the assessment of potential effects for this determinant ⁽²⁾	<ul style="list-style-type: none"> • Additional measures, beyond what is included in the other pVC and fVC sections of the Impact Statement are listed below for economics with further details provided in Section 6.1.2.4 and a list of health measures is provided in Section 7: • Education and Training (Project)⁽¹⁾ • Education and Training (Region): Inclusive and Local Hiring Strategy (hiring policies)⁽¹⁾ • Social Closure Plan⁽¹⁾ • Retirement Planning and Support • Employee Benefits Program • Indigenous Procurement (Local Procurement Policy) • Support for Indigenous-led Education and Training for Land-Based Activities

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC).

2 Assumes measures included in upstream pVC and fVC sections of the Impact Statement are implemented.

ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); HIA = health impact assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; pVC = pathway valued component; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

While these findings are specific to this determinant of health (economics), an overall determination of the potential for residual effects for Changes to Health (fVC Indigenous Peoples) is provided in Section 8.

6.2.2 HOUSING

This section includes an assessment of Indigenous health from changes in housing (availability, home value, affordability and home ownership), including health linkages, relevant existing conditions, potential effects (construction, operations and closure), mitigation and enhancement measures and GBA Plus considerations.

6.2.2.1 HEALTH LINKAGES

The following section describes the generic exposure pathways and scenarios by which health can be influenced by housing (availability, home value, affordability and home ownership). The linkages described here are not specific to one sector or community, instead, this section provides an overview of the relevance of housing as a determinant of Indigenous health.

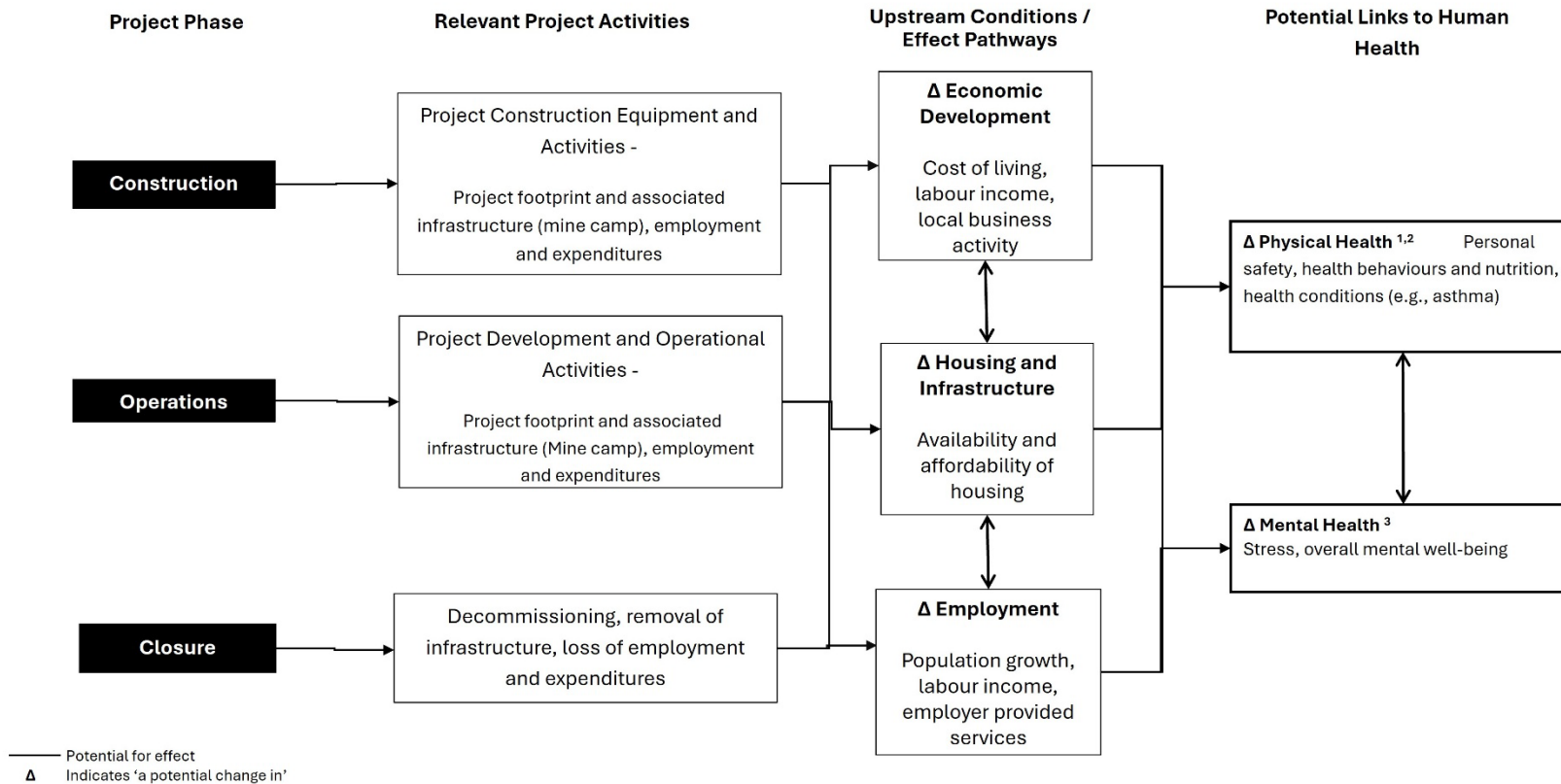
The conditions in which people grow, live, and age contribute to both their physical and mental health and wellness. Housing is a basic human right and access to housing of adequate condition is a key social determinant of health (CMHA 2014; PHAC 2018). Housing considered in its broadest form encompasses individual dwellings or residences and their communities at large. A dwelling or place of residence provides the basic shelter and sanitary facilities necessary for individual wellness. Adequate and affordable housing provides privacy and financial security, also having a symbolic value which contributes to psychological health and a sense of personal safety. Having access to secure and affordable housing is linked to better mental health outcomes, as it supports decreased stress, better sleep and nutrition and improved personal safety (CMHA 2014).

Living in poor quality housing (e.g., damp and mouldy conditions, overcrowding, toxins within the home, cold temperatures) have repeatedly been associated with a wide range of health conditions, including respiratory infections, asthma, injuries, and poor mental health (Rolfe et al. 2020). Housing may additionally indirectly influence health. Although the exact mechanisms through which access to housing is linked to health are not yet explicitly defined in the literature, an increasing number of studies are examining the different potential causal connections between housing and health and wellness beyond solely the physical conditions of a home (Rolfe et al. 2020; Swope et al. 2023). For example, housing affordability, residential stability, and neighbourhood or community conditions are interrelated factors with other mediating factors that influence health including economics, life stage, health behaviours, different vulnerabilities and access to services. Additionally, the same exposure to one of these housing factors can affect health outcomes for individuals and communities differently (Swope et al. 2023). Income and socioeconomic status are arguably the largest contributors to access to adequate housing (PHAC 2018). Therefore, it is reasonable to suggest that projects that change the socioeconomic landscape of the surrounding communities, have the potential to change access to housing, and in turn, the health and wellbeing of the surrounding communities.

An effect pathway diagram showing potential Project activities during all phases, relevant changes / exposure pathways and health and wellness effects is provided in Figure 6-19 to graphically depict the potential linkages between the Project and human health outcomes. The diagram shows the potential pathways of exposure or change in upstream conditions that may result in changes to health; however, the assessment of potential effects (Section 6.2.2.3) identifies those pathways where changes are predicted to occur.

Figure 6-19: Effect Pathway Diagram for Housing

Housing (Availability, Home Value, Affordability and Home Ownership)



Sources:
 1 – MNP LLP 2020; 2 – PHAC 2018; 3 – CMHA 2014

6.2.2.2 EXISTING CONDITIONS

This section provides a summary of existing conditions relevant to Indigenous health from changes in housing. The available baseline (existing conditions) data for Indigenous health, including physical health and wellness data, health-related behaviours and mental wellness are provided in the Baseline Health Profile (Attachment A) and should be viewed for detail. In addition, a description of existing conditions for the linked pVC, Local and Regional Economy, and existing conditions related to housing is provided in the following Impact Statement Sections:

- Local and Regional Economy (Existing Conditions): Impact Statement Section 2.17 (Environmental Setting – Local and Regional Economy) and Impact Statement Section 7.16 (pVC Local and Regional Economy – Existing Conditions)
- Housing (Existing Conditions): Impact Statement Section 2.16 (Environmental Setting – Social Environment), Impact Statement Sections 10.5 through 14.5 (fVC Indigenous Peoples – Community Services and Infrastructure) and Impact Statement Sections 10.8 through 14.8 (fVC Indigenous Peoples – Community Well-Being).

A brief description of existing conditions related to housing is presented below to provide context for the assessment of social determinants of health. The following paragraphs summarize existing conditions from various Impact Statement sections. Collectively, the information from these upstream assessments provided the existing conditions related to housing.

A summary of existing conditions for local and regional economy is provided in Section 6.2.1.2. The following paragraphs summarize existing conditions for CSI and CWB in the context of housing. Full details are presented in Impact Statement Sections 10 to 14 (fVC Indigenous Peoples).

- **LSFN:** The registered population of LSFN stood at 3,689 members as of May 2022, with a majority (73%) living off-reserve (Crown-Indigenous Affairs Canada 2022; Lac Seul First Nation 2019). The 2021 Census recorded 1,022 residents on the Reserve, a 4.9% increase from 2016 (Statistics Canada 2023c). At the time of the 2021 Census, LSFN had a total of 320 occupied private dwellings, and 255 of these were provided by the LSFN band. Housing tenure data shows that 68% of households live in band-owned housing, 26% in rented dwellings, and 7% in owner-occupied homes, indicating a strong reliance on community-managed housing. Of the occupied private dwellings in LSFN, 255 were in need of maintenance or minor repairs and 65 dwellings were in need of major repairs (Statistics Canada 2023c). National Occupancy Standard (NOS) considers the number of bedrooms relative to household size and composition. Within Lac Seul, 81.3% of households are living in suitable housing based on NOS (Statistics Canada 2023c). Further, 16.9% of households were classified as not suitable for their size with 18.3% reporting more than one person per room, both values being well above provincial averages.
- The LSFN Ke-nawind Housing Development Authority manages 120 rental units in addition to providing a home ownership program for community members. While these units rent for lower costs than the national and Kenora averages, Ke-nawind Housing Development Authority notes that the cost of living, particularly electricity costs, makes rent collection difficult at times (Lac Seul First Nation 2023a).
- In 2021, Lac Seul First Nation received a CWB Index score of 61, which is above the national average for Indigenous communities (approximately 58), with housing receiving the highest score of the four components (76) (Indigenous Services Canada 2021).
- Supportive and emergency housing are accessed by LSFN members through regional service hubs. LSFN reported long waitlists to access adequate housing in the region (Kocis 2025).
- **WFN:** WFN had a total registered population of 366, with 62% living off-reserve, 37% on-reserve and 1% registered on other Reserves, as of May 2022 (Crown-Indigenous Affairs Canada 2023a). The on-reserve population was 57 according to the 2021 Census, marking a 18.6% decline from 2016 (Statistics Canada 2023e). The WFN Housing and Infrastructure department

addresses housing issues and related requests, as well as the management of housing within the community.

- As of the 2021 Census, WFN has 20 occupied private dwellings, all of which are band-managed. Of the occupied private dwellings, 10 needed regular maintenance or minor repairs and 10 needed major repairs (Statistics Canada 2023e). Through the recently approved Lot Servicing Project, the total number of band-managed dwellings is expected to reach about 40 units (no timelines finalized) (Government of Canada 2025a; Executive Director 2025). In April 2025, a staff member at the Wabauskang Youth Centre noted that they experienced difficulty attracting new staff due to a lack of housing availability (Meekis 2025).
- Housing affordability statistics for WFN are not available likely due to small population size and privacy considerations. Further, CWB Index results are not available for 2021 due to data suppression, a common occurrence for smaller communities where confidentiality rules limit the publication of socio-economic indicators.
- Supportive and emergency housing may be accessed by WFN members through regional service hubs.
- **ANA:** The registered population of ANA stood at around 1,602 members as of May 2022, with 60% residing on-reserve, 37% off-reserve and 3% living on other Reserves (Crown-Indigenous Affairs Canada 2023b). According to the 2021 Census, the on-reserve population was 584, a decrease of 8.5% from 2016 (Statistics Canada 2023d). As of the 2021 Census, there was a total of 185 occupied private dwellings (Sakatchewan Anishinabe High School n.d.) of which 180 households were living in residences provided by the local government, Indigenous Nation leadership, or Band Council. Among the occupied private homes, 90 required regular maintenance or minor repairs, while 95 needed major repairs (Statistics Canada 2023j).
 - ANA has its own Housing Department which addresses and responds to the housing issues and related requests of the community.
 - To address ongoing housing needs, the community has secured federal funding commitments to support the construction of about 100 additional housing units over a three-year period, many of which are intended to replace older units (Stimpson 2024).
 - ANA is not included in the CWB Index program; therefore, no CWB score is available for this community.
 - Supportive and emergency housing may be accessed by ANA members through regional service hubs.
- **NWOMC:** According to the 2021 Census, 4,075 people self-identified as Métis in the District of Kenora (Statistics Canada 2021a). The Municipality of Red Lake had 350 self-identifying Métis individuals in 2021, down 12.5% from 2016, while the Township of Ear Falls saw a 33.3% decrease to 90 self-identifying Métis individuals (Statistics Canada 2023f).
 - The NWOMC Housing and Infrastructure Branch offers housing and homelessness services for members of the NWOMC. There is limited data on current capacity, waitlists, or availability in the region.
 - Existing conditions for Kenora District are provided below. While these figures reflect general conditions in the Kenora District, no disaggregated data on housing status or condition is available specifically for self-identified Métis households. However, the overrepresentation of Indigenous identities in homelessness data suggests that NWOMC members may be impacted by regional housing challenges.
 - The CWB Index does not report data specific to Métis populations, however many members of NWOMC live throughout the Red Lake and Ear Falls area. CWB scores for Red Lake and Ear Falls are provided below.
 - NWOMC access regional housing serviced through service hubs such as Red Lake, Ear Falls and Kenora.

- **RLEF – Kenora District:** As of 2021, Kenora District had 32,914 private dwellings, with 24,818 occupied by permanent residents. The majority (81%) were single-detached homes, reflecting district’s low-density settlement pattern. While 83% of dwellings required only regular maintenance or minor repairs, 17% were in need of major repairs, higher than the Ontario average of 5.7%. Homeownership remained relatively high at 60%, while 20% of households were renters (Statistics Canada 2023a). The 2021 CWB score for Kenora was 82, with housing receiving the highest score of the four components (94). However, the CWB housing metric is based on Census indicators related to structural condition and crowding, and does not consider factors such as affordability, availability, or housing options.

Key housing pressures reported by service providers include:

- Limited availability of affordable rental units, supportive housing, affordable homeownership programs
- Infrastructure gaps in transitional and emergency shelter services
- Barriers to recruitment and retention of staff in education, health care, and emergency services due to unaffordable or inaccessible housing
- Seniors, women experiencing domestic violence, and individuals with disabilities were identified as being particularly at risk of housing insecurity (Wesley 2025).

Rising homelessness, with the 2024 Point-in-time count (Kenora District Services Board 2025) identified 500 individuals experiencing homelessness across the district, up 168% from 2021. The data further showed that 76 individuals were residing in encampments and that 164 respondents had slept in jail, prison, or a remand centre the night before the count. Among respondents to the PIT Count:

- 58% identified as First Nations or Métis
- 81 individuals cited low income as a barrier to securing housing
- 89% expressed a desire to be housed.

The Kenora District Services Board (KDSB) offers affordable housing programs and services to residents of Kenora District including supportive housing, affordable housing, rental housing, rent-g geared-to-income and homelessness prevention programs. KDSB also provides rental assistance to eligible individuals and families. As of 2020, the waitlist for housing in the Kenora District increased by 346% from 2011, with single individuals and families making up the majority of people in need of housing (Kenora District Services Board 2021).

It is important to note that homelessness studies may not capture everyone experiencing housing insecurity. People who are couch-surfing, living in overcrowded homes, staying temporarily with friends or family, or in unsafe housing situations are often missed in traditional counts.

- **RLEF – Red Lake:** According to the 2021 Canadian Census, the total population in Red Lake was 4,094 in 2021 with 950 individuals identifying as Indigenous, representing 24% of the population. The municipality anticipates that the Indigenous population will continue to grow. As stated in Impact Statement Section 2 (Environmental Setting – Social Environment) the Red Lake population is expected to grow substantially in the future, with a Comprehensive 2011 review projecting that the population could increase to 9,079 by 2031 (Municipality of Red Lake 2022). As of the 2021 Census, Red Lake had 1,705 occupied private dwellings (1,425 single-detached houses, and 280 attached dwellings), and 420 tenant households. Of these dwellings, 1,560 needed regular maintenance or minor repairs, while 150 dwellings were in need of major repairs (Statistics Canada 2023k). Within Red Lake, 97.1% of households were deemed to be living in suitable housing based on NOS (Statistics Canada 2023k). The 2021 CWB score for Red Lake was 83, with housing receiving the highest score of the four components (94). However, the CWB housing metric is based on Census indicators related to structural condition and crowding, and does not consider factors such as affordability, availability, or housing options.

There are two shelters in Red Lake; the New Starts for Women Shelter, and the Red Lake Emergency Shelter. The New Starts for Women Shelter is a 10-bed facility available to women and their under-18 dependents. In 2024, they served 47 individuals and 61 children. The Red Lake Emergency Shelter is a 14-bed facility that is available to anyone over the age of 18 within Kenora District. In 2024, they provided 1,268 total bed nights. The shelter has not met or been above capacity in the last two years, but it does have additional overflow capacity to increase to 17 beds. The Emergency Shelter also has two transitional housing apartments to transition people out of homelessness (Mantle 2025). The Red Lake Indian Friendship Centre also provides a Homelessness Outreach Program that assists people obtain and maintain housing (Red Lake Indian Friendship Centre n.d.).

According to the 2020 CSWB Plan survey, housing insecurity was identified as the third highest priority for Red Lake. In Red Lake, the average home price as of early 2025 was below Ontario's average (Canada Mortgage and Housing Corporation 2021) but still challenging for lower-income households. House insecurity particularly affects low-income households and seniors who pay 30% or more of their income in accommodations (MNP LLP 2020). There are two seniors' complexes in Red Lake that are subsidized unassisted living apartments. The long-term care facility in Red Lake was reported as having a waitlist as of 2020 (MNP LLP 2020). The 2016 Census shows that the demand for senior housing is projected to grow by 57% between 2016 and 2025 (Statistics Canada 2017). Additionally, as of 2023, based on the average home price and average employment income of Red Lake, the average Red Lake resident is spending 53% of their yearly income on housing (Statistics Canada 2023k). Red Lake residents also have a higher portion of households in subsidized housing, 20.2% versus 11.7% nationally (Statistics Canada 2023k).

Challenges of the housing and accommodation programs in and around Red Lake include limited options for independent boys under the age of 18 seeking shelter, and that affordable housing is limited within the community (Mantle 2025).

Community feedback gathered through interviews emphasized the need for additional housing to meet the needs of temporary or transitional workers. It was also noted that the completion of an all-season bridge to Pikangikum, another remote Ojibwe community in northern Ontario, may further increase regional housing demand and affordability pressures (Stirling-Kattler 2025). Worker accommodations provided by mining companies have also affected the rental market by reducing housing availability for other community members, increasing demand and cost (Stirling-Kattler 2023).

The 2021 KDSB Homeless Enumeration Report indicated that 64.7% of respondents cited mental health and 76.5% cited substance use as contributing factors to their housing loss. The 2024 enumeration does not include equivalent quantitative breakdowns of these drivers, however, the 2024 survey saw a high rate of non-responses to sensitive questions related to health and substance use. The 2021 enumeration found that 88.14% of individuals experiencing homelessness in the Red Lake and Kenora District were Indigenous, highlighting the ongoing and disproportionate effect of homelessness on Indigenous communities in the region. These self-reported findings are nonetheless consistent with the broader narrative presented in the 2024 report, which identifies trauma, addictions, mental health challenges, and the lack of affordable housing as intersecting structural drivers of homelessness in the Kenora District.

Research indicates that domestic violence is a leading cause of housing instability for women and children in Canadian municipalities (Fustic et al. 2019). Given that there is only one shelter in the Red Lake and Ear Falls area that focuses on women experiencing domestic violence, there is a lack of support for women in need of alternative housing (Chukuni Communities Development Corporation 2021).

- **RLEF – Ear Falls:** The 2021 Census records a population of 924, with 195 individuals identifying as Indigenous, representing 19% of the population 6 (Statistics Canada 2021b). Reliance on the resource-based economy makes for difficulty in predicting projected populations in Ear Falls, with a 2015 estimate ranging between 882 to 1,098 by 2026 (Fotenn Planning and Urban Design 2015). Additional housing types will be required to support the population growth. As of the 2021 Census, Ear Falls had a total of 470 (305 single-detached houses, and 165 attached dwellings) occupied private dwellings, and 110 tenant households. Of the 470 occupied private dwellings in Ear Falls, 435 needed regular maintenance or minor repairs, and 35 of these dwellings needed major repairs (Statistics Canada 2023i). Within Ear Falls, 100% of households are living in suitable housing based on NOS (Statistics Canada 2023i). The 2021 CWB score for Ear Falls was 79, with housing receiving the highest score of the four components (97). However, the CWB housing metric is based on Census indicators related to structural condition and crowding, and does not consider factors such as affordability, availability, or housing options.

The housing issues Ear Falls is facing includes a lack of long-term care facilities for seniors, and housing costs (MNP LLP 2020). Based on the 2023 median home price in Ear Falls and the average employment income of Ear Falls residents in 2020, Ear Falls residents are spending 39% of their income on housing (Statistics Canada 2023i). There are no known long-term care or assisted living facilities currently operating in Ear Falls. As a result, older adults who require higher levels of care may need to relocate to nearby communities such as Red Lake or Kenora District, which may create social and logistical challenges for aging residents (Municipality of Red Lake 2020).

Housing affordability and availability continue to affect quality of life and service access in Ear Falls (Larson 2025). Service providers consistently reported that ongoing housing and transportation challenges have made it increasingly difficult to recruit and retain staff, particularly in more remote catchment areas.

6.2.2.3 *POTENTIAL EFFECTS*

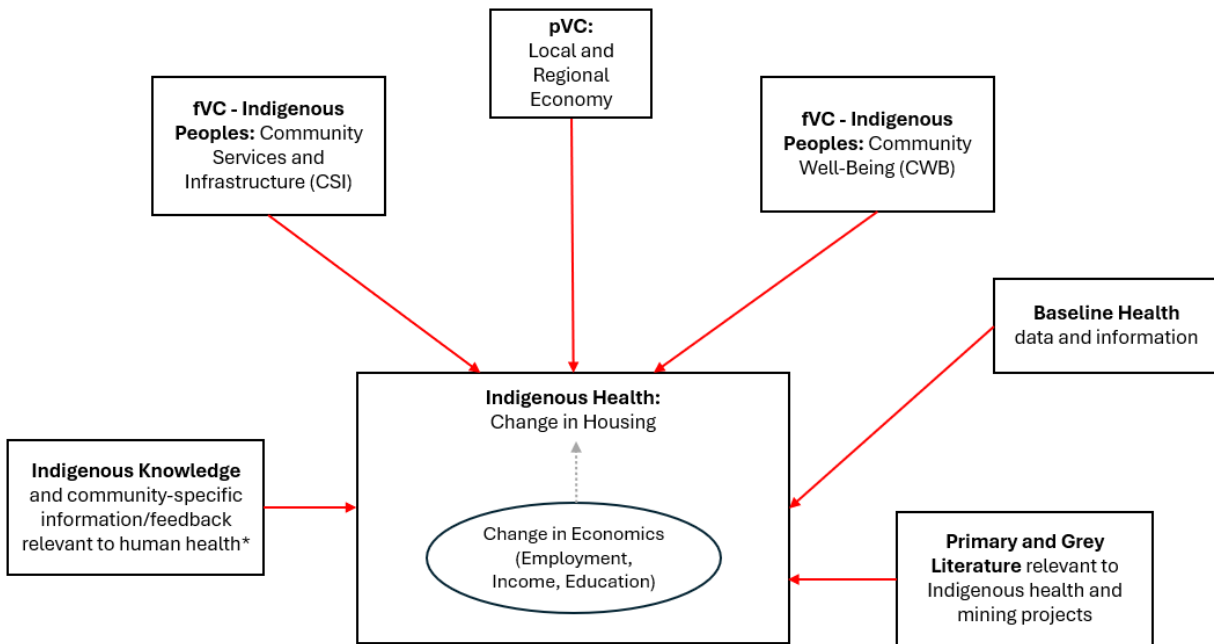
The following sections provide the inputs, assumptions, results from upstream analyses, Project information, primary and grey literature, and other evidence that supports the assessment of changes in housing in the context of Indigenous health. The assessment of potential effects first presents the available evidence, acknowledging any limitations and assumptions, followed by an assessment by Project phase for (i.e., construction, operations and closure). Finally, a summary of the assessment findings is presented with a discussion regarding mitigation and / or enhancement measures, and GBA Plus considerations.

EVIDENCE FOR ASSESSMENT

The evidence used in the assessment of potential effects to Indigenous health from changes in housing included (i) findings from relevant upstream valued components (pVCs and fVCs); (ii) primary and grey literature sources; (iii) IK and community-specific information; and (iv) baseline health information (Figure 6-20).

Each of these sources of information and evidence are further described in the sections below. Collectively, this body of evidence informed the assessment of potential effects described for each Project phase (i.e., construction, operations and closure).

Figure 6-20: Inputs for Housing



Note: additional linkages between individual inputs are not shown
 * Where relevant and available

Upstream Valued Components (pVCs)

The assessment of potential effects for the linked pVC is important in that it identifies predicted changes in those upstream conditions that, in turn, have the potential to affect Indigenous health via changes in housing. A summary of the assessment, key mitigation measures, and predicted change after mitigation identified in the pVCs linked to Indigenous health, including Local and Regional Economy, is provided in Section 6 (Table 6-2).

The assessment of potential effects presented in Impact Statement Section 7.16 (pVC Local and Regional Economy) indicated that employment opportunities from the Project may attract an influx of workers and create an increased demand for housing, which could lead to housing shortages and housing cost increases, if not properly mitigated.

Upstream Conditions (fVC Indigenous Peoples)

Components of the Indigenous Peoples assessment (Impact Statement Sections 10 to 14; fVC) are both directly and indirectly linked to this determinant of health. Specifically, changes in housing and accommodations were considered as part of the assessment of CSI. Additionally, population growth, housing availability and affordability, and cost of living and traditional economy, and economic opportunity and inequality were considered as part of the assessment of CWB. While these other sections did not consider health effects, they did evaluate changes to those upstream conditions that have the potential to influence downstream outcomes related to Indigenous health (Table 6-30).

Table 6-30: Summary of Results from CSI and CWB Effects Assessment used in the HIA

Potential Effect / Indicator	LSFN	WFN	ANA	NWOMC	RLEF
Housing and Accommodations	N	N	N	N	N
Population Growth, Housing Availability and Affordability	N	N	N	N	N
Cost of Living and Traditional Economy	Y	Y	Y	Y	Y
Economic Opportunity and Inequality	Y	Y	N ⁽¹⁾	Y	Y

Notes:

1 Economic opportunity and inequality was not assessed for ANA as it was examined at a regional scale, referring to the evaluation for Red Lake and Ear Falls in Impact Statement Section 14 (fVC Indigenous Peoples: Red Lake and Ear Falls).

N = No Residual Effects identified under Community Services and Infrastructure or Community Well-Being

Y = Yes Residual Effects identified under Community Services and Infrastructure or Community Well-Being

ANA = Asubpeeschoseewagong Netum Anishinabek; CSI = Community Services and Infrastructure; CWB = community well-being;

HIA = health impact assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; RLEF =

Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation

Source: Table recreated with information from Impact Statement Sections 10 to 14 (fVC Indigenous Peoples: LSFN, WFN, ANA, NWOMC and RLEF).

The specific findings that were relevant and taken into consideration in the assessment of potential effects on housing in the HIA are further described below.

Influence of Housing and Accommodations:

The assessment of CSI determined that due the distance between the PA and the LSFN, WFN and ANA communities, the Project is not anticipated to have an effect on housing on-reserve. For NWOMC and RLEF, the assessment of CSI indicated that the Project is anticipated to result in population growth in the region associated with the Project workforce. Given the current limitations in housing availability and affordability in Red Lake and Ear Falls, even modest additional demand from operations-phase staff could intensify existing challenges. Without expansion of local housing supply, the Project workforce may intensify existing barriers to access to housing for Indigenous and non-Indigenous community members. However, the CSI assessment concluded that with the implementation of mitigation measures including an on-site work camp to accommodate workers while on-shift, local hiring policies and collaboration between Great Bear Resources and local municipalities and Indigenous communities to support considerations for potential housing improvement, residual effects to housing and accommodations are not anticipated.

Influence of Population Growth, Housing Availability, Affordability, and Cost of Living and Traditional Economy on Housing:

The assessment of CWB indicated that no Project effects are anticipated for population growth, housing availability and affordability, or cost of living on-reserve for LSFN, WFN or ANA due to distance from the Project, and because on-reserve housing is reserved for members of the Indigenous communities only. While some members of the Indigenous communities currently living off-reserve may return to the area to pursue Project-related employment, housing pressures are anticipated to be modest and would likely be met within existing households.

For NWOMC and RLEF, the assessment of CWB indicated that the Project is anticipated to result in population growth in the region associated with the Project workforce. This may result in short-term affordability pressures, particularly for renters, low- to moderate-income households, and individuals already experiencing housing precarity, thereby contributing to broader stress on community well-being by exacerbating existing housing precarity and deepening socio-economic divides. However, the CWB assessment concluded that with the implementation of mitigation measures, residual effects to population growth, housing availability and affordability are not anticipated. As stated in the CWB assessment, the increased workforce-related population may increase demand for certain goods and services during construction, contributing to localized affordability pressures for residents, particularly those on fixed or lower incomes. Additionally, perceived changes to the environment may result in reduced use of the land

for traditional practices by some individuals (see Sections 6.1.4.3; access and availability of traditional food) with potentially adverse effects including reduced income from traditional economy and increased reliance on market goods. These affordability and income changes may potentially reduce economic resources available for securing suitable housing. As such, residual effects are anticipated for LSFN, WFN, ANA, NWOMC and RLEF related to changes in traditional economy based on physical or perceived changes to access and quality of the land, however, the CWB assessment concluded that these effects are not anticipated to result in changes to housing after the implementation of planned mitigation and monitoring measures are expected to effectively reduce risks to cost of living and traditional economic stability. Therefore, Project-related changes to these indirect factors of housing are not anticipated to result in changes to housing.

Influence of Employment Opportunity and Inequality on Housing:

The CWB assessment also indicated that employment opportunities from the Project may result in economic opportunities for individuals employed by the Project and their families; however, if systemic barriers to employment are not addressed, certain groups may be disproportionately excluded from Project benefits. Additionally, at Project closure, the loss of direct and indirect employment opportunities could result in income instability and reduced community-level spending, particularly if transitions are not supported through advance planning or workforce development. However, the CWB assessment of residual effects after mitigation concluded that the potential for benefit-sharing, training programs, and collaborative employment planning can mitigate long-term economic disruption. Economic opportunities from the Project, especially for those who are employed, may increase income and enhance financial stability. This may affect the ability of some families to improve their housing.

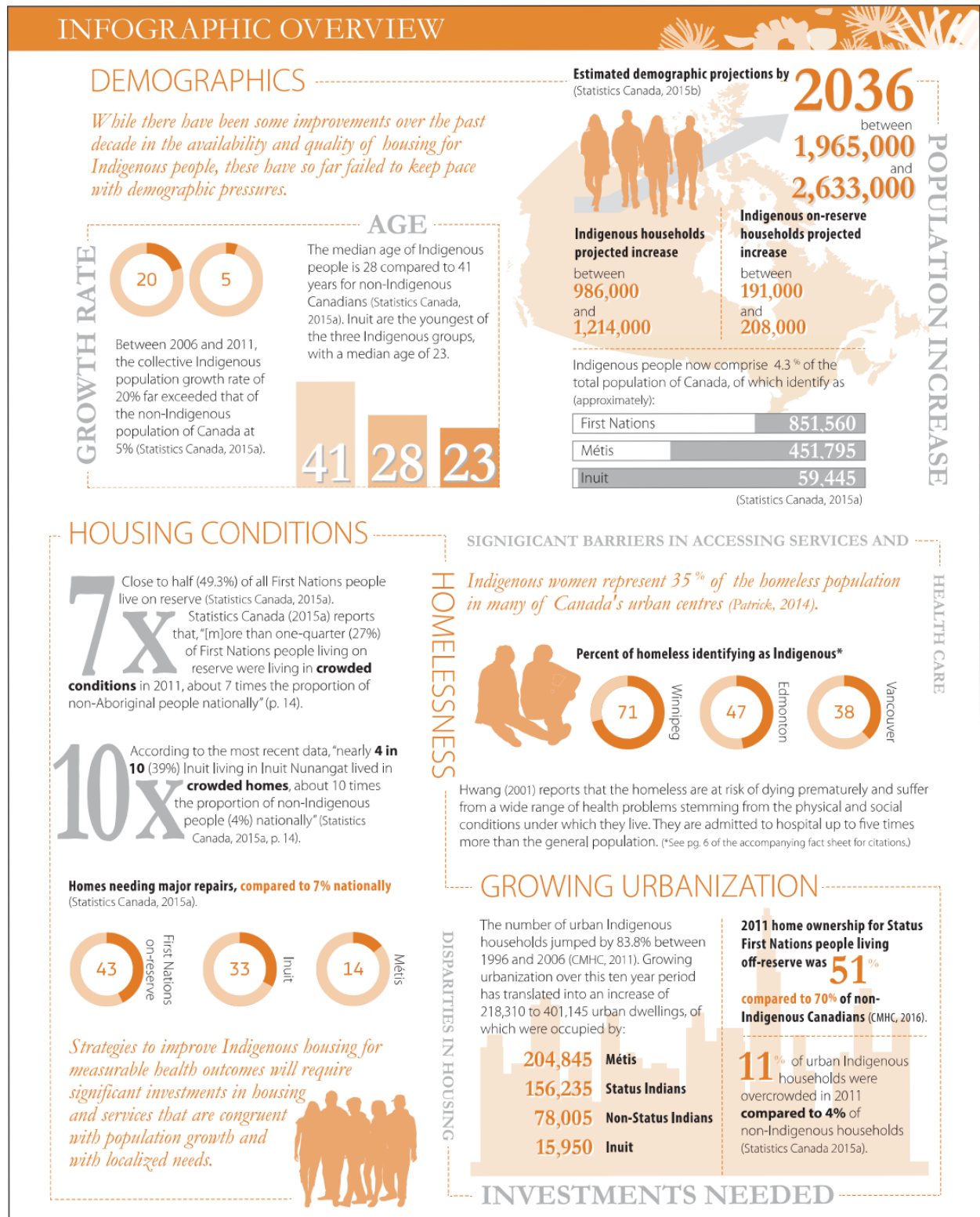
Overall, the findings of the CSI and CWB assessments concluded that following implementation of identified mitigation measures, no residual adverse effects associated with housing and accommodations were expected for any of the local Indigenous communities.

Primary and Grey Literature

As described in the Health Linkages in Section 6.2.2.1, housing is a key determinant of one's quality of life, and access to secure and affordable housing is linked to better physical and mental health outcomes (Rolfe et al. 2020; CMHA 2014). A summary of additional information identified in primary and grey literature is provided in the following paragraphs.

The National Collaborating Centre on Aboriginal Health (NCCAHA) provided a snapshot of housing and homelessness statistics for First Nations, Métis and Inuit populations in Canada (National Collaborating Centre for Aboriginal Health 2017). As presented in Figure 6-21, First Nations individuals living on-reserve and Inuit individuals have higher proportions of their populations living in crowded conditions compared to non-Indigenous people across Canada. First Nations, Inuit and Métis peoples also live in homes requiring major repairs at much higher rates (43%, 33% and 14%, respectively) than the national average (7%). Based on 2011 data, First Nations people living off-reserve were less likely to own their own homes compared to non-Indigenous people in Canada. The NCCAHA infographic also reported that Indigenous women represent a notable portion of the homeless population in many Canada major cities (National Collaborating Centre for Aboriginal Health 2017).

Figure 6-21: First Nations, Inuit and Métis Housing Infographic



Source: NCCAH 2017.

A study by Tsui et al. (2025) involved an online survey and focus group interviews with 35 self-identifying members of the Métis Nation of Ontario (MNO) to glean insight into MNO's opinions on the connection between their housing conditions and their health. Based on responses to the survey and interviews, common themes of responses were identified across the focus groups. Unmet needs for housing repairs due to financial limitations was described to cause stress, feelings of helplessness and general poor mental health effects for the majority of respondents. Long waitlists for adequate and affordable housing were described as discouraging, and leading to feelings of stress and anxiety for a number of respondents. Financial stress associated with housing including mortgage or rental payments, property taxes or building fees and utilities were reported to result in adverse effects to mental health and emotional state. Another common theme among focus group responses was that high housing costs and limited availability of affordable housing led to respondents living in homes with crowded conditions and / or poor conditions (e.g., homes with infestations, disrepair and poor sanitation). In addition to poor mental health outcomes related to stress and feelings of hopelessness described by respondents, physical effects such as respiratory symptoms and conditions and sleep disorders were also reported. Overall, the study found a direct impact on mental and emotional health from housing conditions (Tsui et al. 2025).

In extreme cases, poor mental and emotional health for some individuals can lead to life-altering physical consequences. Although rates of self-harm and suicide are very community-specific, research over the past decade (Inuit Tapiriit Kanatami n.d.) has identified poor housing and sanitary conditions are common factors that relate to self harm and suicides within Indigenous communities.

Overall, available literature provides evidence that housing is linked to mental, emotional and physical health.

Indigenous Knowledge and Community-specific Information

This section presents IK that was received from some of the local Indigenous communities, supplemented by other relevant community-specific information that was publicly available, to identify where and how IK was incorporated into the assessment of Indigenous health.

While the TKLUS provided by some of the local Indigenous communities did not include information or data on housing; publicly available information and community-specific survey data were identified for inclusion.

As presented in the Influence of Consultation and Engagement discussion (Impact Statement Sections 10 to 14; fVC Indigenous Peoples), changes to population growth, housing and / or cost of living were identified as key concerns for LSFN, WFN, NWOMC and RLEF. As stated in Impact Statement Section 12 (fVC Indigenous Peoples; ANA), ANA has not raised direct concerns related to housing in relation to the Project activities to date. Potential effects to Indigenous health resultant from changes in housing are assessed for all Project phases in the construction, operations and closure subheadings below.

Relevant Baseline Health Information

Baseline conditions related to housing are discussed in Existing Conditions, Section 6.2.2.2 and the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024). Given the complex and varied interactions between housing and human health, and interrelated factors including economics, there are a variety of health conditions and wellness indicators (e.g., chronic conditions, stress) that may be influenced by different housing-related factors. Existing health information can be found in the Baseline Health Profile (Attachment A). Existing conditions related to housing provide an indication of current environmental conditions that may already be influencing baseline health status of communities in the region. These existing conditions provide an understanding of current environmental exposures, in order to identify potential Project related effects on Indigenous health.

As described in the Baseline Health Profile (Attachment A), a report published by the Northern Policy Institute and authored by Parsons (2022) titled *More than Just a Number: Addressing the Homelessness, Addiction, and Mental Health Crisis in the North*, examines the homelessness, addiction, and mental health crisis in northern Ontario using data from district social services administration boards (DDSABs) in northern Ontario communities and regions. The report highlights how the rising rates of homelessness and substance use in northern Ontario suggest a growing trend of mental health crises among vulnerable

populations. In 2021, the District of Kenora region reportedly had 3.1 homeless individuals per 1,000 persons, which was the third highest of the regions included in the study and represent larger homeless populations than some of the most populous cities in Ontario (Attachment A). In the District of Kenora, 65% and 75% of homeless individuals in 2021 reported they struggled with mental health and addiction, and 88% of homeless individuals in the District of Kenora self-identified as Indigenous in 2021. Given the high percentage of homeless individuals reporting to be struggling with addiction, it is noteworthy that addiction-related emergency department visits and deaths between 2017 and 2021 more than doubled in the NWHU (Attachment A).

As stated in Section 6.2.2.1, exact mechanisms through which access to housing is linked to health are not yet explicitly defined in available literature (Rolfe et al. 2020; Swope et al. 2023). Therefore, existing health information related to housing found in Attachment A may not represent an exhaustive snapshot of health conditions and wellness indicators that may be influenced by housing.

Overall, Indigenous communities in the region, may be experiencing higher rates of homelessness than other parts of the province outside of northern Ontario, and addiction and mental health status may be a contributing factor.

CONSTRUCTION

The construction phase of the Project is expected to occur over a three-year period and will include site preparation, infrastructure development and mobilization of the construction workforce. These activities are anticipated to result in a temporary population increase of 1,000 workers during construction and 1,300 during peak construction. As stated in the CSI and CWB assessments, the influx of non-local workforce associated with the Project during construction is expected to result in short-term population growth which may impact demand for housing and temporary accommodations. It is anticipated that the Project workforce will consist of approximately 1,300 workers in the first year with approximately 1,000 workers staying at the Project on-site camp at any given time. The camp is designed to accommodate approximately 1,000 people on a temporary basis during construction. If on-site accommodations are not available at the time when workers are needed, particularly during early construction activities, or if non-local workers relocate with their families who will not be accommodated on-site, there may be short-term demand for off-site housing or other temporary accommodations (i.e., hotels, motels, lodges). The Project will aim to source workers locally where possible and minimize the need for off-site accommodations through the on-site work camp which is expected to accommodate all but a small portion of workers during construction.

The CSI and CWB assessments concluded that no changes to housing during construction are anticipated on-reserve for LSFN, WFN and ANA due to distance from the Project, and because on-reserve housing is reserved for members of the Indigenous communities only. Population changes and housing pressures are anticipated to be limited to regional hubs in Kenora District including Red Lake and Ear Falls. During construction, the increased Project-related workforce may intensify existing regional housing availability and affordability pressures and may increase demand for certain goods and services contributing to localized affordability pressures during construction, particularly for renters, low- to moderate-income households, and individuals already experiencing housing precarity. This may exacerbate socio-economic divides by reinforcing existing barriers to secure and affordable housing for certain groups, including Indigenous people, women and youth. Contrarily, for those individuals employed by the Project, and their families, improved income stability is expected which may improve housing opportunities. However, unequal access to jobs due to barriers such as childcare, transportation, or qualifications may reinforce existing inequities.

Housing is influenced by a number of interrelated factors that both directly and indirectly affect upstream social and economic conditions. Access to housing of adequate condition is linked to better mental health outcomes, as it supports decreased stress, better sleep and nutrition and improved personal safety (CMHA 2014). The available evidence from upstream pVCs and fVCs indicated that no Project effects to population growth, housing availability and affordability, or cost of living are anticipated for LSFN, WFN or ANA communities on-reserve. The Project is anticipated to result in population growth in the region associated with the Project workforce which could intensify existing housing concerns for RLEF and NWOMC. As such, mitigation measures were identified as part of the CSI and CWB assessments to

minimize potential increased need for housing. These mitigations, including the on-site camp accommodations, community financial support for housing including Great Bear Resources working collaboratively to support for culturally appropriate housing initiatives led by Indigenous and municipal partners, local hiring objectives, and education and training to support local hiring, are expected to help limit the extent of Project-related housing challenges. A list of mitigation and enhancement measures for housing are presented in Section 6.2.2.4 and for the HIA overall in Section 7.

Overall, no changes to housing are expected on-reserve, and given this upstream finding, a change in Indigenous health and wellness for LSFN, WFN and ANA is also not expected. While mitigation measures are expected to limit the extent of Project-related housing pressures in Kenora District including Red Lake and Ear Falls, given the existing precarity of the housing scenario, changes to housing may result from the Project with potential adverse effects to Indigenous health and wellness for some individuals; no measurable deviation from baseline population-level health resulting from Project activities is anticipated. These findings are applicable to NWOMC members living in Red Lake and Ear Falls and RLEF.

OPERATIONS

The operations phase is anticipated to be a 26-year period and will include workforce stabilization. The Project is expected to result in sustained population growth in the Red Lake and Ear Falls area due to a long-term workforce presence during operations. Peak employment is anticipated during operations (when LP Central pit and underground mines are active simultaneously) is 1,100 workers, which is less than peak construction employment. When only underground mining is underway, the workforce is expected to decrease to approximately 700 workers.

During operations, the on-site camp reduces to a capacity of 300 intended to house a portion of the workforce on a rotational basis. Operational staff are expected to be accommodated while on-shift. As the on-camp site is not intended to house workers while off rotation, some workers may acquire permanent off-site residences to use while off rotation. Some mine personnel will have fixed hours weekly rather than rotational shift work and will not be accommodated by the on-site camp, therefore these personnel will reside off-site permanently. Accommodations for occasional short-term contractors are expected to be met by the on-site camp. Non-local workforce related housing pressures expected during construction will continue in operations, with the demand for permanent housing being dependent on the proportion of the operations workforce that is sourced from the local population compared to non-local hires. No change to on-reserve housing for LSFN, WFN or ANA is anticipated during operations. The influx of workforce related population in Kenora, including Red Lake and Ear Falls, may result in increased demand for permanent housing and rental accommodations which can add additional strain to existing housing availability and affordability concerns. Given the existing limitations, even modest additional demand for housing and accommodations could intensify existing challenges. As stated in the CWB assessment, affordability concerns related to increase demand for goods and services resultant from Project-related population growth noted in construction are anticipated to continue through operations. These affordability changes can reduce economic resources available for securing suitable housing. However, employment and income stability throughout operations may improve housing opportunities for individuals employed by the Project, and their families.

Mitigation measures were identified as part of the CSI and CWB assessments to minimize potential increased need for housing during operations, as well as to minimize disruption to cost of living. These mitigations, including the on-site camp, community financial support for housing including Great Bear Resources working collaboratively to support for culturally appropriate housing initiatives led by Indigenous and municipal partners, local hiring objectives and education and training to support local hiring are expected to limit the extent of housing and cost of living challenges. A list of mitigation and enhancement measures for housing are presented in Section 6.2.2.4 and for the HIA overall in Section 7.

Overall, during operations no changes to housing are expected on-reserve, and given this upstream finding, a change in Indigenous health and wellness for LSFN, WFN and ANA is also not expected. Given the existing precarity of the housing scenario in Kenora district including Red Lake and Ear Falls, while mitigation measures are expected to minimize effects, changes to housing may result from the Project with potential adverse effects to Indigenous health for some individuals; no measurable deviation

from baseline population-level health resulting from Project activities is anticipated. These findings are applicable to NWOMC members living in Red Lake and Ear Falls and RLEF.

CLOSURE

The closure phase is anticipated to occur over a three-year period, immediately after operations stop. As discussed in the CSI and CWB assessments, closure activities will include the removal of the on-site work camp. As such, short-term contractors may rely on the limited hotel and motel capacity in the region during closure, adding pressure to existing availability concerns. For the portions of the closure workforce with long-term assignments, housing pressures expected during construction and operations will continue. As the workforce declines through the closure phase, the reduced population will lighten the pressure for housing and rental demand; however, this could result in adverse effects to vacancy rates, and property values. No changes to on-reserve housing for LSFN, WFN or ANA is anticipated during any Project phase.

As stated in the CSI an CWB assessment, population reduction as the workforce leaves the region can improve affordability of goods and services but can result in negative effects to small or Indigenous-owned businesses that expanded during operations. Households that relied on Project-related income may face financial stress during this transition, and limited alternative employment or training options may widen existing inequalities, particularly for those with high care responsibilities or limited financial resiliency. Mitigations related to community financial support and a social plan for closure will be required to minimize changes to housing resultant from income instability at Project closure.

Overall, no changes to housing are expected on-reserve, and given this upstream finding, a change in Indigenous health and wellness for LSFN, WFN and ANA is also not expected. During closure, regional social and economic conditions will undergo a period of transition. While mitigation plans for closure will minimize potential effects, given the existing precarity of the housing scenario in Kenora district including Red Lake and Ear Falls, continued changes to housing during closure may result from the Project with potential adverse effects to Indigenous health and wellness for some individuals. However, no measurable deviation from baseline population-level health resulting from Project activities is anticipated. These findings are applicable to NWOMC members living in Red Lake and Ear Falls and RLEF.

6.2.2.4 MITIGATION AND ENHANCEMENT MEASURES

Table 6-31 outlines the key mitigation and enhancement measures recommended based on the assessment of changes to housing. These mitigation and enhancement measures are anticipated to apply across all Project phases unless otherwise specified. General mitigation measures for closure activities that relate to Indigenous health are also included.

Table 6-31: Mitigation, and Enhancement Measures for Housing

Mitigation and Enhancement Measures for Housing	Rationale
<p><u>Education and Training (Region); Inclusive and Local Hiring Strategy (hiring policies):</u> Partner with Indigenous training and employment organizations to support culturally appropriate recruitment and retention of Indigenous candidates, to support employment of Indigenous workers, provide training, priority hiring and work towards continuous improvement including training and employment opportunities for Indigenous women. ⁽¹⁾</p>	<p>Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. By prioritizing hiring of Indigenous workers where possible, the benefits of employment (income, skills training, health / dental benefits, retirement supports) can be realized by Indigenous communities. In additional, the hiring of Indigenous women specifically was one of the calls to action in the National Inquiry on MMIWG for the resource development industry.</p>

Mitigation and Enhancement Measures for Housing	Rationale
<p><u>Community Financial Support (Change in Housing and Accommodations)</u>: Great Bear Resources will work collaboratively to support culturally appropriate housing initiatives led by Indigenous and municipal partners. This will include development of a housing strategy and plans for ongoing monitoring of housing capacity issues, and an adaptive management approach (as part of the Social Performance Plan) to address additional pressures imposed from the influx of workers and their families. ^(1,2)</p>	<p>Housing is a key determinant of health, influencing both physical and mental health outcomes for individuals and families. Homelessness and cascading effects (e.g., mental health and substance abuse) are a pre-existing issue in the region, with an influx of workers and their families posing additional pressures. This measure is anticipated to support ongoing efforts to minimize additional pressures placed on local housing through development of a housing strategy and adaptive management of the issue over time, as needed.</p>
<p><u>Social Closure Plan</u>: Support consistent communication and planning throughout closure with emphasis on legacy, continuity, and shared decision-making. Develop a community transition plan in consultation with local Indigenous communities and groups so that decisions are made with integrity, based on cultural, spiritual and Indigenous well-being in mind. The plan will include collaborative planning, implement job-matching, retraining programs, financial literacy workshops, and economic diversification supports in anticipation of closure. ⁽¹⁾</p>	<p>Evidence shows that closure of a large employer in northern rural areas can have adverse effects, particularly in terms of income and employment, which is a key determinant of health. These boom-bust cycles have been well documented, with pre-closure mitigations playing a large role in the successful transition of local economies. This measure is anticipated to help mitigate against adverse health and well-being effects related to closure.</p>
<p><u>Exploration of a Community Health and Well-being Survey</u>: Consider options for Indigenous-led survey and data collection on project related metrics and health indicators, funded by GBR. This program could be further developed as part of the Social Performance Plan.</p>	<p>Data and information about health and wellness can be important tools for Indigenous self-determination. There is currently a lack of local Indigenous health and well-being data available, especially at the community-level. A community health and well-being survey, led by local Indigenous communities, would help to fill this data gap and monitor key project-related health determinants and indicators prior construction and then at regular intervals throughout the life of the Project. This information can help validate assessment assumptions, provide evidence regarding effectiveness of mitigation and enhancement measures, and empower Indigenous communities through data OCAP principles</p>

Notes:

- 1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC).
- 2 The change in housing is expected to be regional and will not change on-reserve systems. Mitigation is relevant for off-reserve housing in the region, including Red Lake and Ear Falls.

EAP = Employee Assistance Program; fVC = federal valued component; GBR = Great Bear Resources; HIA = Health Impact Assessment; MMIWG = Murdered Indigenous Women and Girls; OCAP = ownership, control access and possession; pVC = pathway valued component.

The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2) are in place as planned.

6.2.2.5 GBA PLUS CONSIDERATIONS

In accordance with Health Canada guidance (Health Canada 2024a), the HIA takes an equity approach to assessing potential effects by examining the potential distribution of effects across different sub-populations within the Indigenous communities. This section highlights how Indigenous identity intersects with the other GBA Plus identity factors described below. Table 6-34 applies a GBA Plus lens that treats Indigenous identity as a central identity factor, and the other identity factors described below are discussed within this context. At the bottom of this table there is a section highlighting key intersectionality considerations, Indigenous identity is at the center of this qualitative analysis.

It is important to note that while this section identified subgroups that have the potential to experience effects uniquely from changes to housing, the analysis should be considered in the context of the potential effects assessment findings. The analysis below identifies populations that could be disproportionately affected and also discusses the potential health effects, or lack thereof, as identified in the assessment.

Table 6-32: GBA Plus and Equity Considerations – Housing

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Gender	Disproportionate (Women+)	Research indicates that domestic violence is a leading cause of housing instability for women and children in Canadian municipalities (Fustic et al. 2019). Given that there is only one shelter in the Red Lake and Ear Falls area that focuses on women experiencing domestic violence, there is a lack of support for women in need of alternative housing (Chukuni Communities Development Corporation 2021). Existing housing concerns in the region included the limited availability and limited access to transitional and emergency shelter services outside of major centres such as the City of Kenora, with few facilities available in smaller municipalities such as Red Lake. Women+ experiencing domestic violence were identified as being particularly at risk of housing insecurity (Wesley 2025). Based on the assessment findings, the Project is not expected to affect Indigenous health through Project-related changes to housing for LSFN, WFN or ANA; therefore, effects to GBA Plus subgroups are not expected for these communities. Effects to GBA Plus subgroups may occur for NWOMC and RLEF.
Age	Disproportionate (Youth and older adults / Elders)	There is a lack of independent or assisted living options and long-term care availability in the region which contributes to vulnerability among older adults. The long-term care facility in Red Lake was reported as having a waitlist as of 2020 (MNP LLP 2020). The 2016 Census shows that the demand for senior housing is projected to grow by 57% between 2016 and 2025 (Statistics Canada 2017). Older adults were identified as being particularly at risk of housing insecurity (Wesley 2025). Further, there are limited housing options for independent males under the age of 18 (Mantle 2025). Based on the assessment findings, the Project is not expected to affect Indigenous health through Project-related changes to housing for LSFN, WFN or ANA; therefore, effects to GBA Plus subgroups are not expected for these communities. Effects to GBA Plus subgroups may occur for NWOMC and RLEF.
Physical Ability	Disproportionate (Individuals with disabilities and / or Individuals with chronic health conditions)	Existing housing concerns in the region included the limited availability of supportive housing, rising maintenance costs, and limited access to transitional and emergency shelter services outside of major centres such as the City of Kenora, with few facilities available in smaller municipalities such as Red Lake. Individuals with disabilities were identified as being particularly at risk of housing insecurity (Wesley 2025). Based on the assessment findings, the Project is not expected to affect Indigenous health through Project-related changes to housing for LSFN, WFN or ANA; therefore, effects to GBA Plus subgroups are not expected for these communities. Effects to GBA Plus subgroups may occur for NWOMC and RLEF.
Socioeconomic Status	Disproportionate (Individuals and families of low socioeconomic status)	House insecurity particularly affects low-income households and older adults who pay 30% or more of their income in accommodations (MNP LLP 2020). As of 2023, the average Red Lake resident is spending 53% of their yearly income on housing (Statistics Canada 2023k). Red Lake residents also have a higher portion of households in subsidized housing, 20.2% versus 11.7% nationally (Statistics Canada 2023k). Based on the assessment findings, the Project is not expected to affect Indigenous health through Project-related changes to housing for LSFN, WFN or ANA; therefore, effects to GBA Plus subgroups are not expected for these communities. Effects to GBA Plus subgroups may occur for NWOMC and RLEF.

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Mental Ability	Disproportionate (Individuals with mental health and substance abuse conditions)	Mental health status may result in disproportionate barriers to housing. The OPP and shelter staff both reported that mental health and substance use are drivers of homelessness and emergency housing use. The 2021 KDSB Homeless Enumeration Report indicated that 64.7% of respondents cited mental health, and 76.5% cited substance use, as contributing factors to their housing loss (Kenora District Services Board 2021). Based on the assessment findings, the Project is not expected to affect Indigenous health through Project-related changes to housing for LSFN, WFN or ANA; therefore, effects to GBA Plus subgroups are not expected for these communities. Effects to GBA Plus subgroups may occur for NWOMC and RLEF.
Intersectional Analysis:	Intersectional effects may occur for individuals who are women+, older adults / Elders, individuals with disabilities, lower-income, and individuals with mental health or substance abuse conditions. Intersectional effects may also occur for individuals who are males under the age of 18, with disabilities, lower-income, and with mental health or substance abuse conditions. Intersectional effects may occur, as the combined influence of gender, age, physical ability, mental ability and reduced financial resources can compound vulnerabilities around housing. These vulnerabilities are pre-existing and systemic. Based on the assessment findings, the Project is not expected to affect Indigenous health through Project-related changes to housing; therefore, intersectional effects to GBA Plus subgroups are not expected for these communities. Intersectional effects to GBA Plus subgroups may occur for NWOMC and RLEF.	

Notes:
ANA = Asubpeeschoseewagong Netum Anishinabek; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); KDSB = Kenora District Services Board; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; OPP = Ontario Provincial Police; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation; % = percent.

6.2.2.6 SUMMARY OF POTENTIAL EFFECTS: HOUSING

The following is a summary of the findings from the assessment of potential effects to Indigenous health based on changes to housing (Table 6-33). The specific mitigation and enhancement measures based on the assessment of changes to housing, including a description and rationale, are described in Section 6.2.2.4.

Table 6-33: HIA Potential Effects Summary: Housing

Criteria	Description	Characterization
Health Determinant	Identify the determinant of health being assessed	<ul style="list-style-type: none"> Housing (Social Determinant of Health)
Direction of Potential Effect	Describe whether the potential effect may be beneficial or adverse	<ul style="list-style-type: none"> Adverse: the potential effect on human health may be adverse, thereby diminishing conditions that support Indigenous health. However, the determination of actual effects is based on the assessment findings.
Scale of Potential Effect for this Determinant (post-mitigation)	Describes the expected scale of the Project-related effect to Indigenous health for this determinant	<ul style="list-style-type: none"> Negligible (LSFN, WFN, ANA): there is limited to no effect on Indigenous health expected as a result of Project activities for this determinant following implementation of mitigation measures. The assessment findings did not identify adverse effects on Indigenous health from Project-related changes to housing on-reserve following the implementation of mitigation measures.

Criteria	Description	Characterization
		<ul style="list-style-type: none"> Minor (NWOMC, RLEF): the effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures. The assessment findings identified that Project-related changes to population growth is expected to increase the cost of goods and services and increase demand for housing, exacerbating existing challenges related to housing affordability and availability. These potential effects are anticipated in Kenora district hubs including RLEF. While some individuals may experience adverse health effects, a population-level shift in Indigenous health is not expected.
Affected Populations (Indigenous Communities)	Refers to the distribution of the effects across Indigenous communities and includes equity considerations	<ul style="list-style-type: none"> Assessment findings (i.e., Project-related changes) indicated that potential effects may differ across Indigenous communities. <ul style="list-style-type: none"> Distribution of potential effects is expected to be even between LSFN, WFN and ANA, wherein assessment findings indicated that there will be no Project-related changes to housing on-reserve. Distribution of potential effects is expected to be disproportionate for NWOMC members living in Red Lake and Ear Falls, and RLEF. Given the existing housing precarity, even modest additional demand for housing and accommodations could intensify existing challenges.
GBA Plus	Identify relevant GBA Plus considerations for this determinant	<ul style="list-style-type: none"> There are groups that may experience effects differently for this determinant. Details are discussed in the housing GBA Plus section (Section 6.2.2.5).
Mitigations and Enhancements	Additional measures listed based on the assessment of potential effects for this determinant ⁽²⁾	<ul style="list-style-type: none"> Additional measures, beyond what is included in the other pVC and fVC sections of the Impact Statement are listed below for housing with further details provided in Section 6.2.2.4 and a list of health measures provided in Section 7: <ul style="list-style-type: none"> Education and Training (Region): Inclusive and Local Hiring Strategy (hiring policies) ⁽¹⁾ Community Financial Support (Change in Housing and Accommodations) ⁽¹⁾ Social Closure Plan ⁽¹⁾ Exploration of a Community Health and Well-being Survey

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC).

2 Assumes measures included in upstream pVC and fVC sections of the Impact Statement are implemented.

ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; pVC = pathway valued component; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

While these findings are specific to this determinant of health (housing), an overall determination of the potential for residual effects for Changes to Health (fVC Indigenous Peoples) is provided in Section 8.

6.2.3 ACCESS TO HEALTH AND SOCIAL SERVICES

This section includes an assessment of Indigenous health from changes in access to health and social services, including health linkages, relevant existing conditions, potential effects (construction, operations and closure), mitigation and enhancement measures and GBA Plus considerations.

6.2.3.1 HEALTH LINKAGES

The following section describes the generic scenarios by which human health can be influenced by access to health and social services. The linkages described here are not specific to one sector or community, instead, this section provides an overview of the relevance of access to health and social services as a determinant of Indigenous health.

Access to health care can be defined as the *“timely use of personal health services to achieve the best possible health outcomes.”* (US Institute of Medicine 1993). Access and use of health services of decent quality is recognized as a social determinant of health, as it allows individuals to prevent and treat disease, and preserve or improve their health (Gulliford et al. 2002; WHO 2024).

Determining access to health and community services is a complex process, as it does not merely depend on the supply of services but also the affordability, physical accessibility and acceptability of the services (Gulliford et al. 2002; Health Canada 2024a). In addition, access barriers can also include *“distances separating industrial camps from health and social services; service shortages; stigmatization of testing for sexually transmitted infections and assault reporting; lack of trust and fear of being re-traumatized when seeking health or social services; lack of childcare; fear of losing one’s job, if help-seeking efforts for addictions are discovered; reduction of health and social services during bust period”* (Health Canada 2024a).

The publicly funded health care system is part of Canada’s national identity and Canada represents one of the healthiest countries in the world (PHAC 2018). Importantly however, some Canadians are healthier and have more opportunity to live a healthy lifestyle than others. For example, in 2017-2020, higher proportions of First Nations people living off reserve (20.3%), Métis (17.9%) and Inuit (56.5%) across Canada reported being without a regular health care provider, compared with their non-Indigenous counterparts (14.5%) (Yangzom et al. 2023).

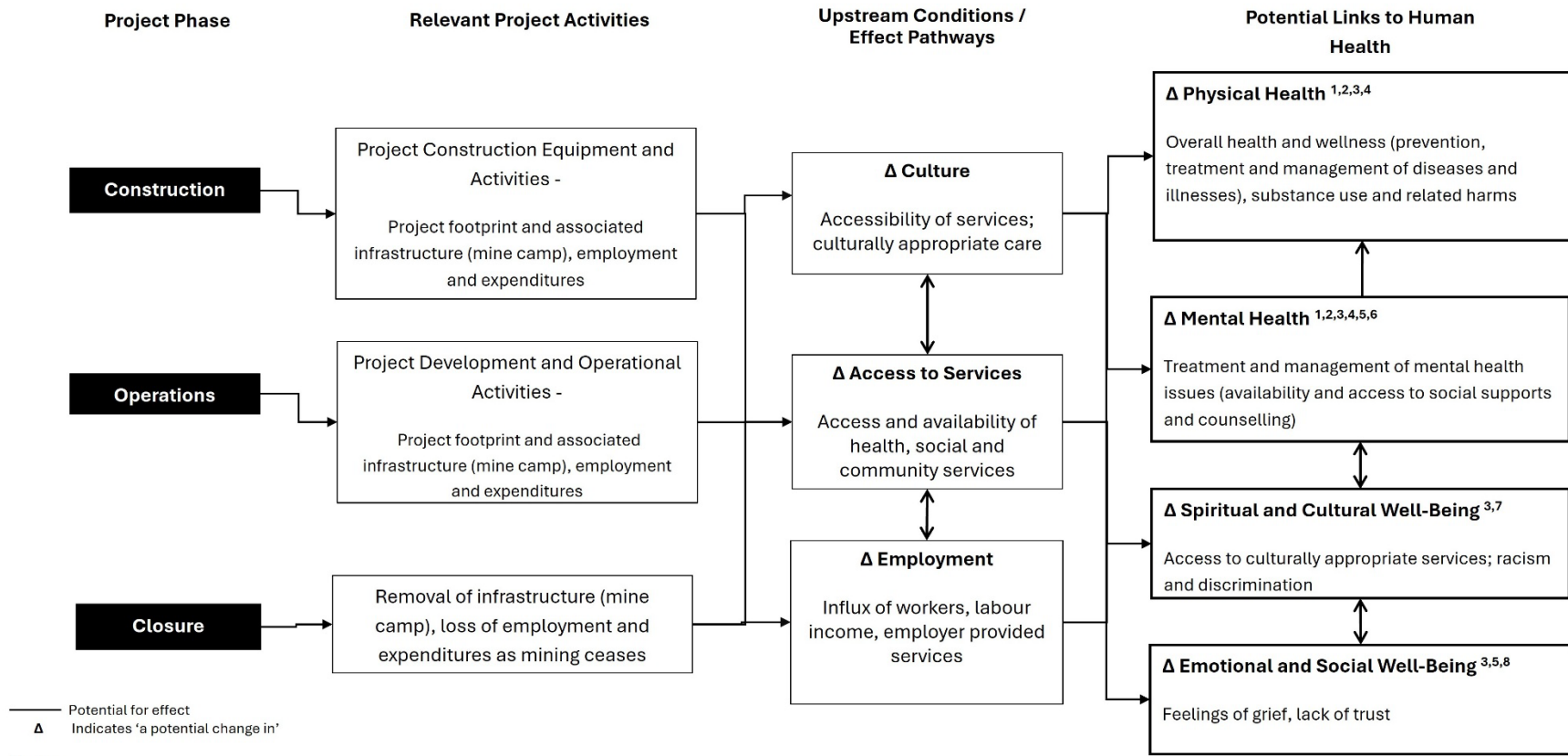
In addition, many Canadians experience challenges accessing mental health services (CIHI 2024). Financial barriers often play a role in determining access to mental health and social services because they are often not fully covered by the public health care system (CIHI 2024). As a result, patients predominantly are required to pay out of pocket or with private insurance plans (CIHI 2024). A 2018 survey of Canadians (not including Quebec) aged 12 and older found that among individuals who reported being diagnosed with a mood or anxiety disorder (14% of Canadians), nearly 8% reported they needed mental health care in the past 12 months but had not received it. Further, the 2019 Canadian Community Health Survey reported that Indigenous people living off reserve (27%) were more likely to seek help for mental health problems than other Canadians (16%) (Statistics Canada 2019).

Adequate access to both health and mental health services is important and supports good mental health, especially for those with mental illness and substance use problems, as well as their caregivers and families (CIHI 2023; CMHA 2021).

An effect pathway diagram showing potential Project activities during all phases, relevant changes / exposure pathways and health and wellness effects is provided in Figure 6-22 to graphically depict the potential linkages between the Project and human health outcomes. The diagram shows the potential pathways of exposure or change in upstream conditions that may result in changes to health; however, the assessment of potential effects (Section 6.2.3.3) identifies specific pathways where changes are predicted to occur.

Figure 6-22: Effect Pathway Diagram for Access to Health and Social Services

Access to Health and Social Services



Sources:
 1 – PHAC 2022c; 2 – PHAC 2018; 3 – NCCIH 2019; 4 – Oke and Wilson 2024; 5 – Salerno et al. 2021; 6 – Steele et al. 2007; 7 – Statistics Canada 2024a; 8 – SLFNHA 2024b

6.2.3.2 EXISTING CONDITIONS

This section provides a summary of existing conditions relevant to Indigenous health from changes in access to health and social services. The available baseline (existing conditions) data for Indigenous health, including physical health and wellness, health-related behaviours and mental wellness are provided in the Baseline Health Profile (Attachment A) and should be viewed for detail. The Baseline Health Profile also includes information on health and social services within each of the local Indigenous communities, where available. In addition, a description of existing conditions for access to health and social services is provided in the following Impact Statement appendix:

- Socio-economics (Existing Conditions): Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP, 2024)

A brief description of existing conditions related to access to health and social services is presented below to provide context for the assessment of social determinants of health. The following paragraphs summarize existing conditions from the Project's Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024). Collectively, the information from this upstream assessment provided the existing conditions related to access to health and social services.

A summary of existing services and programs is provided below for each community:

- **LSFN:** LSFN community resources include the Lac Seul Events Centre, along with social services such as the Sahkatcheway Access Centre for elder and disability assistance, and Ontario Works for financial and employment support (Lac Seul First Nation 2023b). Health care is delivered through clinics in Frenchman's Head, Kejick Bay, and Whitefish Bay, offering visiting physicians, dental and vision services, home-care programs, prenatal care, health education, telemedicine, medical transportation, and addiction support including a Suboxone program (211 Ontario North – Lakehead Social Planning Council 2023a; 211 Ontario North – Lakehead Social Planning Council 2023b; 211 Ontario North – Lakehead Social Planning Council 2023c). These services are largely overseen by the Lac Seul First Nation Health Department (Lac Seul First Nation 2023c). The community operates three schools (one within each settlement) with cultural and language programming, access to local daycare options, and connections to off-reserve post-secondary institutions (211 Ontario North 2023a; 211 Ontario North 2023b; 211 Ontario North 2023c). Housing is supported by the Ke-nawind Housing Development Authority, which manages rental units and homeownership programs (Lac Seul First Nation 2023a). Emergency services include volunteer fire crews and the Lac Seul Police Service, and LSFN has access to community-wide internet support as well as several local churches and retreat centres providing spiritual and wellbeing resources (WSP 2024). In addition, LSFN is served by the Sioux Lookout Meno Ya Win Health Centre (SLMHC). SLMHC is a care facility serves the Municipality of Sioux Lookout and 28 First Nation communities, including LSFN, in the Sioux Lookout region (SLMHC n.d.). SLMHC is a hospital and care facility that also offers virtual care and provides health services including ambulatory care, assault care and treatment, cancer care, diabetes care, diagnostic imaging, dialysis and renal services, emergency department, heart and stroke, laboratory, mental health and addictions counselling, prenatal and maternity, rapid access addictions medicine clinic, rehabilitation, specialty clinic, surgical services, telemedicine, and traditional program.
- **WFN:** For WFN members, a range of community resources including health and social services are available, including a community hall and annual gatherings, a licensed daycare, a youth centre with Indigenous-focused library resources, and Ontario Works services for employment and financial support (211 Ontario North – Lakehead Social Planning Council 2022a; 211 Ontario North 2024a; 211 Ontario North 2024b). Health services are provided through the Wabauskang Health Office, which coordinates visiting clinicians, runs wellness, mental health, diabetes, prenatal, home-care, and medical transportation programs, and supports individuals through advocacy and referrals (Wabauskang First Nation 2025). Education supports include off-reserve school arrangements through the Wabauskang First Nation Education Authority which receives support from the Bimose Tribal Council Education Authority and on-reserve education is available

for individuals 14 years or older through the Seven Generations Education Institute (211 Ontario North 2024c). The community also maintains local housing and fire services, receives policing from Treaty 3 Police, and is part of an on-going initiative supporting regional high-speed internet upgrades (211 Ontario North 2024d; Wabauskang First Nation 2025; 211 Ontario North 2024e; Treaty Three Police n.d.). Several churches and wellness programs contribute additional spiritual and well-being support (Northwest Healthline 2023).

- **ANA:** A range of community services and resources, including health and social services, is available for ANA. Health services are delivered through the community medical centre, which coordinates visiting clinicians, runs health education workshops, provides chronic disease, communicable disease, and prenatal care, offers home visits, and supports addiction services through the National Native Alcohol and Drug Abuse Program (Northwest Health Line 2025a). The community also relies on hospital care in Kenora. Social services include family support and child welfare programs through Kitapinoonjiiminaanik Family Services and the Migizi Wazason Child Care Centre which provide early childhood programs grounded in Indigenous culture, as well as an Ontario Works building that operates out of ANA for financial and employment assistance. In terms of education, ANA has one school, Sakatcheway Anishinabe School, which hosts students in kindergarten to grade 12 (Northwest Health Line 2024; Grassy Narrows Education Authority n.d.; Northwest Health Line 2025b). ANA also has a housing department that manages maintenance and repairs, volunteer fire services, policing through Treaty 3 Police and other regional forces, high-speed internet access via Starlink, and local churches that provide spiritual and wellbeing support (Grassy Narrows First Nation - Band Office 2025; Northwest Health Line 2025c; WSP 2024). The community is also in the process of developing a Mercury Care Home and Wellness Centre for long term treatment related to mercury poisoning with specialized services dedicated to addressing the ANA community's health needs associated with mercury exposure (Government of Canada 2025b). Once completed, it will offer primary and long-term care services for individuals affected by mercury exposure from historical contamination of the English-Wabagoon river system, and provide holistic care, treatment and services that incorporate culture and tradition (Government of Canada 2025b).
- **NWOMC:** NWOMC members have access to a range of culturally grounded programs through services and programs associated with the MNO, including an Extra-Curricular Reimbursement Program that supports children's participation in camps, sports, and community activities, as well as early learning science, technology, engineering and math and arts programs and courses (The Métis Nation of Ontario 2023). Social services include supports for elderly or chronically ill individuals (e.g., Community Support Services Program, Meals on Wheels), MNO Justice Program (assists MNO citizens with alternatives to the justice system and legal information), family wellbeing programs, diversion programs, anti-human trafficking initiatives, and community development supports. Health services provide mental health and addictions counselling for all ages, as well as prenatal and early childhood wellness programs, in addition to those available in the municipalities in which they live. Educational services include advocacy within schools, post-secondary programs, early learning initiatives, and employment and training programs tailored to Métis learners and job-seekers (e.g., Summer Career Placement Program, Métis Employability Program, Métis Wage Subsidy Program, Métis Youth Program, Métis Apprenticeship Program) (The Métis Nation of Ontario 2025a; The Métis Nation of Ontario 2025b; The Métis Nation of Ontario 2025c; The Métis Nation of Ontario 2025d; The Métis Nation of Ontario 2025e; The Métis Nation of Ontario 2025f). Housing services are available through the Métis Nation of Ontario's Housing and Infrastructure Branch and help with stabilization, emergency repairs, homebuyer support, and financial literacy (The Métis Nation of Ontario 2023). Additional services for NWOMC members include access to municipal emergency services, community technology assistance, and holistic healing and wellness programming delivered through the MNO's Healing and Wellness branch (WSP 2024).
- **RLEF - Red Lake:** There are six health clinics, hospitals and medical centres in Red Lake. The Municipality of Red Lake identified a physician and nursing shortage in the community, with personnel gaps currently being filled with agency nurses and locums (Stirling-Kattler 2023). The closest mental health facility is in the City of Kenora. Within Red Lake, health care is largely

centered around the Red Lake Margaret Cochenour Memorial Hospital, supported by other clinics and services such as Goldcorp Red Lake Regional Medical Centre, the NWHU, Northwood Lodge long-term care, and children's therapy services. Social services include childcare centres, Indigenous family programs, elder supports, mental health and addiction services, child welfare agencies, shelters and homelessness supports (e.g., New Starts for Women, Red Lake Emergency Shelter) (Red Lake Margaret Cochenour Memorial Hospital 2018a; Red Lake Clinic 2025; 211 Ontario North – Lakehead Social Planning Council 2021). However, the community faces gaps in local addictions treatment, mental health counselling capacity, and crisis stabilization services (Red Lake Margaret Cochenour Memorial Hospital 2018b). Education includes multiple kindergarten to grade 12 schools, adult learning programs, Indigenous alternative schooling, and a Confederation College campus (Keewatin Patricia District School Board n.d.). Housing options include rentals and shelters, though affordability and availability remain significant challenges (Mantle 2025). Emergency services include volunteer fire services, Ontario Provincial Police (OPP), paramedic services, and mine rescue operations. In terms of recreation opportunities, Red Lake community members have access to a large recreation centre, skating rinks, trails, beaches, parks, and numerous clubs for arts, sports, and cultural activities. The Red Lake Regional Heritage Centre and the Red Lake Indian Friendship Centre provide cultural, educational, and community programming (Riddell 2025).

- **RLEF - Ear Falls:** Local health services in the Township of Ear Falls include the Ear Falls Community Health Centre with a physician and nurses, a dental clinic, pharmacy, and NWHU office. Residents rely on Red Lake for hospital and emergency inpatient care, and the regional women's shelter serves both communities (Township of Ear Falls 2022a; Red Lake Margaret Cochenour Memorial Hospital 2018a). Social services in Ear Falls are limited, with many residents accessing services provided in Red Lake. The township offers a local daycare run by KDSB and has a social service organization called the Ear Falls Non-Profit Housing Corporation. Most child, youth, and family programs are delivered regionally rather than locally (Chukuni Communities Development Corporation 2021; Township of Ear Falls 2022b). Education consists of one elementary school, with secondary students travelling to Red Lake (MNP LLP 2020). Housing includes apartments, temporary accommodations, and seasonal campgrounds, although there is no long-term care facility and affordability remains a concern (MNP LLP 2020). Ear Falls community members have access to a recreation centre, gym, arena, parks, playgrounds, trails, golf course, community gardens, waterfront access, and various clubs and volunteer groups (Township of Ear Falls 2020; Township of Ear Falls 2022c; McCarthy 2020; Ballance 2025; Wigle 2023). The Whispering Pines Seniors Centre supports local older adults with recreational and educational programs (211 Ontario North – Lakehead Social Planning Council 2022b). Emergency services include a volunteer fire department, local OPP office, and a municipal emergency plan supported by CodeRED alerts, which provides emergency notification by text (Township of Ear Falls 2022d).

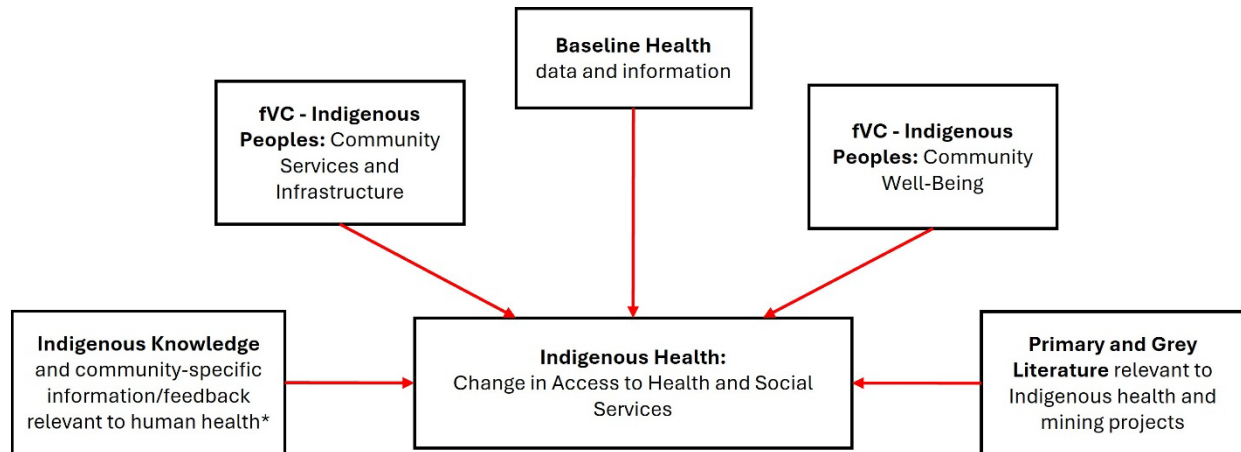
6.2.3.3 POTENTIAL EFFECTS

The following sections provide the inputs, assumptions, results from upstream analyses, Project information, primary and grey literature, and other evidence that supports the assessment of changes in access to health and social services in the context of Indigenous health. The assessment of potential effects first presents the available evidence, acknowledging any limitations and assumptions, followed by an assessment by Project phase (i.e., construction, operations and closure). Finally, a summary of the assessment findings is presented with a discussion regarding mitigation and / or enhancement measures, and GBA Plus considerations.

EVIDENCE FOR ASSESSMENT

The evidence used in the assessment of potential effects to Indigenous health from changes in access to health and social services included (i) findings from relevant upstream valued components (pVCs and fVCs); (ii) primary and grey literature sources; (iii) IK and community-specific information, and (iv) baseline health information (Figure 6-23).

Figure 6-23: Inputs for Access to Health and Social Services



Note: additional linkages between individual inputs are not shown
 * Where relevant and available

Each of these sources of information and evidence are further described in the sections below. Collectively, this body of evidence informed the assessment of potential effects described for each Project phase (construction, operations and closure).

Upstream Conditions (fVC Indigenous Peoples)

There are components of the Indigenous Peoples assessment (Impact Statement Sections 10 to 14; fVC) that are both directly and indirectly linked to access to health and social services. Specifically, changes in municipal, provincial, and non-profit service delivery capacity was considered as part of the CSI assessment, and access to health and social services was considered as part of the assessment of CWB. While these other sections did not consider health effects, they did evaluate changes to those upstream conditions that have the potential to influence downstream outcomes related to Indigenous health (Table 6-34).

Table 6-34: Summary of Results from CSI and CWB Effects Assessment used in the HIA

Potential Effect / Indicator	LSFN	WFN	ANA	NWOMC	RLEF
Municipal, Provincial, and Non-Profit Service Delivery Capacity (CSI)	N	N	N	Y	Y
Access to Health and Social Services (CWB)	Y (Regional)	Y (Regional)	Y (Regional)	Y	Y

Notes:
 N = No Residual Effects identified under CSI or CWB.
 Y = Yes Residual Effects identified under CSI or CWB.
 ANA = Asubpeeschoseewagong Netum Anishinabek; CSI = community services and infrastructure; CWB = community well-being; HIA = health impact assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.
 Source: Table recreated with information from Impact Statement Sections 10 to 14 (fVC Indigenous Peoples: LSFN, WFN, ANA, NWOMC, RLEF).

The specific findings that were relevant and taken into consideration in the assessment of potential effects on access to health and social services in the HIA are further described in the sections below.

Influence of Municipal, Provincial, and Non-profit Service Delivery (CSI):

The CSI assessment identified how the Project may affect municipal, provincial and non-profit service delivery across Indigenous communities. Potential effects of the Project on this CSI indicator may be experienced differently by each of the local Indigenous communities:

- As presented in the CSI assessments for LSFN, WFN and ANA, no residual effects are anticipated with respect to community services and infrastructure, including municipal, provincial and non-profit service delivery. Existing conditions are expected to remain unchanged, and Project activities will not place additional demand on, or otherwise affect, community services within the LSFN, WFN or ANA on-reserve communities.
- As presented in the CSI assessments for NWOMC and RLEF, Project-related workforce increases may result in additional demand for local social services, childcare, daycare, and healthcare services. While mitigation measures are expected to reduce potential effects, broader systemic limitations related to staffing, service capacity and funding are expected to persist. These pressures may be experienced by RLEF, including NWOMC community members living in Red Lake and Ear Falls, who often face additional barriers to culturally appropriate care and support. Additionally, there is limited information available regarding the current capacity, reach, or utilization of these services, making it difficult to determine whether they could absorb any increase in demand. Therefore, the CSI assessments concluded that NWOMC and RLEF may experience direct and indirect changes to municipal, provincial and non-profit service delivery capacity.

Influence of Access to Health and Social Services (CWB):

The CWB assessments identified how the Project may affect access to health and social services across Indigenous communities. Potential effects of the Project on this CWB indicator may be experienced differently by each of the local Indigenous communities:

- As presented in CWB assessments for LSFN, WFN, and ANA, population growth linked to Project development may worsen existing barriers to accessing health, social and education services in the region. For LSFN, WFN and ANA, no direct effect is anticipated on community-based services on-reserve; however, some community members may rely on regional specialized services located in Red Lake and Ear Falls or regional centres in the LSA such as the City of Kenora, Sioux Lookout, Dryden or Thunder Bay. The Project-related population increases could contribute to longer wait times, reduced service availability or added pressure on regional systems, and members who travel for care may experience delays or reduced access, particularly for services already operating at or near capacity. These indirect effects may compound existing inequities in access and negatively affect community well-being. For ANA, these indirect effects may also result in renewed concerns or increased need for culturally appropriate mental health supports given ANA's experiences from historical industrial development; however, given the Project is not anticipated to introduce direct population pressure on ANA's services, these responses may be perception-based rather than capacity-driven.
- As presented in the CWB assessments for NWOMC and RLEF, population growth linked to Project development may worsen existing barriers to accessing health, social, and education services. These challenges include longer wait times, inconsistent availability, staffing shortages, transportation barriers, and limited culturally appropriate care, which can negatively affect individual and community well-being. While planned supports and mitigation measures are expected to improve service capacity and coordination, pre-existing systemic limitations may persist, particularly for Indigenous residents and vulnerable groups. For NWOMC members, it is acknowledged that they may have access to a broader set of services, including those available to the Red Lake and Ear Falls population as well as NWOMC-specific programs, which may enhance their overall service access. However, in the absence of detailed information on the current capacity, uptake, or effectiveness of these additional services, it is not possible to determine whether this access substantively offsets anticipated pressures.

Primary and Grey Literature

It is generally understood that a rapid influx of workers from extractive industries such as mining, can lead to pressures on local infrastructure and services (Oke and Wilson 2024). With respect to health, the size of the workforce coming into an area, relative to the size of the existing community, has a direct influence on determining the amount of additional pressure that will be placed on health and social services. This influx can particularly affect individuals with vulnerabilities or who are higher risk with histories of medical

conditions, and communities that have limited flexibility to absorb additional demands (Oke and Wilson 2024). Access to healthcare is widely considered fundamental in preventing, managing and treating illness and chronic diseases. Healthcare provides the necessary resources to obtain preventative care through routine check-ups and screenings, as well as management of chronic conditions such as diabetes or high blood pressure. However, Indigenous people often have unmet health needs as they continue to face barriers due to health disparities. For example, in addition to current barriers to accessing health services, mental health disparities for Indigenous people are rooted in historical factors such as colonialism and adverse intergenerational impacts (Statistics Canada 2024a). A lack of access to healthcare for Indigenous populations leads to poor health outcomes, including lower life expectancies, higher rates of chronic diseases, later-stage diagnoses, increased mental health challenges, higher infant mortality, and greater risks from preventable conditions like obesity (PHAC 2018; CMA 2026). Conversely, having sufficient access to health and social services, improves community health and wellbeing outcomes.

For many northern Indigenous communities, geographic remoteness is a major challenge for accessing adequate health care services and creates a barrier for timely treatment (PDAC 2022). The time it takes to access healthcare facilities can impact individual and community health outcomes, particularly in emergency situations. The distance to the nearest hospitals that offer specialized services can be significant, and long wait times can lead to delays in diagnosis or continuity of care (NCCIH 2019). Challenges with staff recruitment and retention already create barriers to delivering health and social services to these remote communities, and the influx of population into the region can place additional pressures on these services. The combination of geographic isolation and limited healthcare infrastructure exacerbates existing health problems (Manifold 2024), particularly as Indigenous populations in northern Ontario are more susceptible to experiencing chronic health conditions, such as diabetes and heart disease (Manifold 2024). Health and social service providers working in the mining industry have also reported that during boom times of a mining project, there are increases in pregnancies, sexually transmitted infections, and mine-related injuries (Shandro et al. 2011). Indigenous Services Canada (Indigenous Services Canada 2025) reports in their 2025-2026 Departmental Plan that between 2021 and 2024, only 37.8% of First Nations adults living on reserve reported being in very good or excellent health, and that only 55.25% rated their quality of health care services delivered in their community as good or excellent. Further, as noted by the National Collaborating Centre for Indigenous Health (NCCIH 2019), *“Indigenous people are more likely to be diagnosed at a later stage of a disease than non-Indigenous people, thus contributing to poorer health outcomes and higher mortality rates”* (NCCIH 2019).

Red Lake and Ear Falls respondents in the CSWB Plan (MNP LLP 2020) identified that mental health is the second-highest priority risk factor in their communities, where suicide risk was reported as a major issue from mobile crisis responses (MNP LLP 2020). Vulnerable groups range from children to seniors, survivors of abuse, or individuals with fetal alcohol spectrum disorder or a history with the welfare system (MNP LLP 2020). For RLEF or Indigenous people travelling to Red Lake and Ear Falls, healthcare delivery capacity poses a significant challenge. For instance, long wait times for medical healthcare for patients with chronic conditions (e.g., mental health challenges) can result in a decline in quality of life, lost opportunities for effective treatment, and in some cases increased risk of mortality (Ali et al. 2025). Timely access to health care services plays a key role in mental and physical wellness; beyond exacerbating physical health issues, delayed appointments can worsen perceived mental health outcomes (Shiraz et al. 2024). Collectively, these challenges have the potential to contribute to pre-existing issues around proximity and access to quality physical and mental health care in northern and rural areas.

Project design and accommodations have an influence on whether the workforce has an impact on local health and social services. A study by Oke and Wilson (2024), reported that *“projects where workers were housed in well-managed camps, were supported by high quality industry medical clinics and / or were hired from the local population and / or moved into the community on a permanent basis, were seen to be much less disruptive to health services”*. Their research also found that the primary negative pressures on the healthcare systems include increased impacts to emergency departments, primary care services and staffing pressures (Oke and Wilson 2024). These findings indicate the importance of the management of on-camp accommodation strategies and the provision of on-camp health services to mitigate potential

impacts to regional health care systems. The study identifies that a typical mitigation often provided to employees of industrial projects is the employee assistance program, which offers supports that can help offset the demand for services such as mental health supports (Oke and Wilson 2024).

Equitable access to quality healthcare for Indigenous people is a nation-wide problem as access to health care is not equally or universally available to Indigenous people across Canada (NCCIH 2019). There are differences and disparities in funding for health and social services across Indigenous communities, and stigmas attached to accessing care if there is a perception of social or cultural bias. Racism and discrimination continue to exist in the Canadian healthcare system, especially for specific Indigenous groups such as the Métis who often face specific healthcare challenges as they are not status First Nations individuals (Healthcare Excellence Canada 2024). Even when accessing urban healthcare services, issues related to racism and discrimination, long wait times and culturally unsafe care can lead to the perceptions that the health care system is “*uncaring and disrespectful to Indigenous clients*” (NCCIH 2019).

Indigenous Knowledge and Community-specific Information

This section presents IK that was received from some of the local Indigenous communities, supplemented by other relevant community-specific information that was publicly available, to identify where and how IK was incorporated into the assessment of Indigenous health.

While the TKLUS reports provided by some of the local Indigenous communities did not include information or data on local services general feedback on concerns pertaining to the Project were provided to Great Bear Resources both through confidential reports and consultation activities, and this information is summarized below. In addition, publicly available information and community-specific survey data were identified for inclusion.

A confidential report prepared for NWOMC noted that some community members had expressed concerns regarding the potential social impacts from an influx of workers, such as rising housing costs, strain on infrastructure and healthcare, and increased drug and alcohol issues. At the same time, some participants were optimistic that the Project could bring jobs, economic growth, improved healthcare services, and opportunities for Métis businesses, along with broader community support.

As noted previously, the Great Bear Project Community Health Survey was distributed to residents of Red Lake and Ear Falls and surrounding areas in 2024. Survey results were used to inform the assessment of access to health and social services based on feedback from both Indigenous and non-Indigenous respondents. Approximately 83% of Indigenous respondents identified that access to services was a top priority and ranked this community value as very important.

A 2020 CSWB Plan for the Municipality of Red Lake and the Township of Ear Falls was developed by MNP LLP (2020). Engagement from local governments, service providers, community organizations, and residents was conducted to capture the community’s safety and wellness needs. Through interviews, focus groups, a public workshop, and a survey of 141 responses, the process identified the priority areas for safety and wellness affecting community members, the gaps that limit service effectiveness, and opportunities for strengthened community well-being (MNP LLP 2020). Specifically, respondents noted several key gaps and barriers associated with access to health and social services in Red Lake and Ear Falls, including but not limited to, the lack of available local and residential detox facilities, lack of available local psychiatric and psychological services, shortage of regional in-patient complex care beds, shortage of homecare / personal support, long wait lists for mental health counselling, lack of public transportation to access health providers, limited post-secondary education options, and shortage of subsidized childcare. The CSWB Plan was able to identify opportunities to address these gaps, such as maximizing the use of Telehealth, offering shuttle or coordinated travel to access health providers, or offering co-op education programs.

The community-specific survey data and publicly available information were considered in the Relevant of Baseline Health Information section below.

Relevant Baseline Health Information

Baseline conditions related to access to health and social services are discussed in Existing Conditions, Section 6.2.3.2. Given the complex and varied interactions between access to services and human health, there are a variety of health conditions and wellness indicators (e.g., chronic conditions, mental health) that may be influenced by different upstream conditions. Existing health information can be found in the Baseline Health Profile (Attachment A). Existing conditions information related to access to services provides an indication of current conditions that may already be influencing baseline health status of communities in the region. Understanding these conditions helps establish the current context related to access to health and social services, in order to identify potential Project related effects on Indigenous health.

As reported in the Baseline Health Profile (Attachment A), publicly available data for the years 2015-16 and 2017-18 indicate that both men and women in the NWHU were less likely to have a regular medical provider than elsewhere in the province (Statistics Canada 2022c). Men in the NWHU were also less likely than women to have regular access to care. This suggests that access to healthcare services may be a challenge for Indigenous communities near the Project.

Emergency room visits, hospitalization rates and incidence rates of physical and mental health conditions also help describe the baseline health conditions of the Indigenous communities and indicate the types of health and social services that can provide support for diagnosing, preventing and managing these health outcomes. For example, health data from the Sioux Lookout First Nations Health Authority (SLFNHA), which includes LSFN and WFN, indicate that First Nations adults aged 20 and older in the Sioux Lookout area visit emergency departments for diabetes at approximately three times the Ontario average and are hospitalized for diabetes at about four times the provincial rate (SLFNHA 2019a). Rates of communicable diseases are also notably higher, with chlamydia infection rates estimated to be roughly ten times higher than those in Ontario overall (SLFNHA 2019a). In contrast, overall cancer incidence rates among Sioux Lookout area First Nations are lower than those reported for other public health units and the province (SLFNHA 2025). Mental health indicators show elevated need for services, as emergency department visits and hospitalizations related to mental health and substance use per 1,000 population are above both provincial averages and rates observed in the NWHU. A report published by the NWHU on child and youth mental health (NWHU and Yusuf 2023) examined mental health trends among individuals aged 10 to 24 within the NWHU from 2012 to 2021 and reported that across the mental health indicators, the NWHU experienced notably higher rates of mental health challenges compared to Ontario overall. Together, these findings highlight the ongoing need for improved access to health and social services in the region.

For the development of the CSWB Plan for the Municipality of Red Lake and Ear Falls, survey participants were provided with a set of factors that influence community safety and wellbeing and were asked to rate each factor on a scale of 0 to 10 (0 was low, 10 was high) (MNP LLP 2020). Based on the results of the survey, some of the key areas of priority for addressing in the CSWB Plan for Red Lake and Ear Falls included substance abuse issues (rating of 7.7), mental health and cognitive issues (rating of 7.4), emotional violence (rating of 6.0) and sexual violence (rating of 6.0), all of which had relatively high ratings. This is supported by baseline public health information for Red Lake and Ear Falls, which found that hospitalizations and emergency room visits related to mental health and substance abuse are between 1.6 and 4 times higher than in Ontario as a whole (MNP LLP 2020).

In general, physical conditions such as disabilities can also affect an individual's access to health and social services. For example, in 2022, Statistics Canada (2025) also reported that individuals with very severe disabilities were two times as likely to report having unmet needs for health care services or prescription medication, and almost four times more likely of having unmet needs for assistive aids or devices or help with daily activities, compared with their counterparts with milder disabilities (Statistics Canada 2025).

Overall, Indigenous communities in the region may be experiencing challenges with access to a regular medical provider, and higher rates of pre-existing physical and mental health challenges than the rest of the province. This suggests the need for adequate and appropriate health and social services, and the importance of access to these services. Access to healthcare is widely considered fundamental in

preventing, managing and treating illness and chronic diseases. A lack of access to healthcare for Indigenous populations can lead to poor health outcomes including increased mental health challenges, higher rates of chronic diseases and lower life expectancies (PHAC 2018; CMA 2026). This is also reflected in the Great Bear Community Health Survey, where about 83% of self-identified Indigenous respondents in Red Lake and Ear Falls and nearby areas indicated that access to services is very important to their community.

CONSTRUCTION

The construction phase is expected to occur over a three-year period and will include site preparation, infrastructure development, and workforce mobilization. Construction activities are anticipated to result in a temporary population influx of 1,000 workers to the region. As described in the CWB assessment, during construction, the Project workforce and any relocated families are expected to rely on community-based health, social and education services for non-emergency and specialized care. These systems already face staff shortages and capacity constraints, which may be compounded by population changes during construction. Local service providers have indicated that certain health and social programs such as elder care, home support, and community transportation, are already operating near or at capacity, particularly for vulnerable or aging members. Added demand for childcare, mental health support, and education could contribute to longer wait times and reduced access, particularly for Indigenous residents who may already face barriers to culturally appropriate or geographically accessible care. This includes Elders and caregivers who may face transportation, mobility, or financial barriers.

The Project is not expected to directly interact with service delivery systems on-reserve for LSFN, WFN and ANA due to the distance between the communities and the planned off-reserve Project workforce accommodations; however, regional service access may be affected, particularly for Indigenous individuals and families who travel off-reserve to access these services. As reported in the CWB assessment, while a variety of social services operate within LSFN, certain services are often still lacking in-community, such as emergency women's shelters, or maternity and birthing services. For WFN, hospital services are not located within the community, and the closest major hospital (Red Lake Margaret Cochenour Memorial Hospital) is located approximately 108 km away. Similarly, the closest centre offering specialized health, mental health, and social services for ANA is in the City of Kenora, although it is noted that the Mercury Care Home and Wellness Centre is currently being developed for ANA members. There are services dedicated to Métis that provide culturally specific mental health services and are tailored to Métis citizens, but access to these regional services within the RSA remains limited and may not be able to fully absorb additional demand associated with population growth needs during construction. In addition, education services may also be affected by the arrival of new families as increased enrollment may outpace available classroom space, staff capacity, or specialized programming, including supports for students with special needs or culturally relevant curriculum. Overall, the change in temporary or permanent population from the Project in the region during the construction phase, may contribute to a higher demand for these already limited health and social services.

Access to good quality health care allows individuals to prevent and treat disease and preserve or improve their health (Gulliford et al. 2002; WHO 2024). For people with chronic conditions, including mental health challenges, long waits for medical care can lower quality of life, delay effective treatment, and in some cases increase mortality risks (Ali et al. 2025). As described in the CWB assessment, while the change in access to health and social services may not affect on-reserve service delivery systems in LSFN, WFN and ANA, members of these communities currently access specialized care in the region. As is common in northern Ontario, typically only larger population centres have a range of specialty health services. In addition, geographic remoteness of reserves is a major challenge for accessing adequate health and social care services (PDAC 2022) and creates a barrier for timely treatment. While equipped with some services, Red Lake and Ear Falls do not have the same level of service provision as larger population centres. For instance, in Red Lake there are currently no withdrawal management, residential addictions treatment facilities, or mental health centres providing psychiatric or psychological services, requiring members to travel to Kenora or Thunder Bay for these services (MNP LLP 2020). Also, while Red Lake has two shelters, only one is specifically for women experiencing domestic and sexual violence. Conditions are more challenging in Ear Falls, where residents must travel to Red Lake to access most

social services. These challenges would affect RLEF and NWOMC members living in Red Lake and Ear Falls who rely on these services.

Geographic isolation combined with limited healthcare infrastructure can worsen existing health issues (Manifold 2024), particularly given that Indigenous populations in northern Ontario experience higher rates of chronic conditions such as diabetes and heart disease (Manifold 2024). The National Collaborating Centre for Indigenous Health notes, *“Indigenous people are more likely to be diagnosed at a later stage of a disease than non-Indigenous people, thus contributing to poorer health outcomes and higher mortality rates”* (NCCIH 2019). This reiterates the need for adequate and appropriate health and social services, and the importance of access to these services. This is also reflected in the Great Bear Community Health Survey results for the Project (Attachment A), where about 83% of people in Red Lake and Ear Falls and nearby areas said that access to services is very important to their community.

Appropriate services and programs are particularly important for Indigenous women and girls during industrial development as there have been well documented evidence of negative outcomes, such as domestic violence, for this population. Health care-related services often fail to provide the support needed for victims of physical and sexual abuse or violence (National Inquiry into Missing and Murdered Indigenous Women and Girls 2019). Project interactions and their resulting potential health effects for Indigenous women and girls are further discussed in Section 6.2.7 (Safety of Indigenous Women and Girls).

Further, access to health care is not equally or universally available to Indigenous people across Canada (NCCIH 2019). While Project activities during construction can improve household financial security that can be put towards transportation to access specialized care, better insurance coverage for health and social supports, or access to childcare options, equitable health care for Indigenous people remains an issue nationally. Differences in funding, racism or discrimination when accessing care, and culturally unsafe care are challenges Indigenous people continue to face. Further, mental health disparities for Indigenous people are rooted in historical factors such as colonialism and adverse intergenerational impacts (Statistics Canada 2024a). As described in the CWB assessment, the added demand for health and social services during construction may deepen inequities in access and availability for populations already experiencing systemic barriers. With respect to the influx of workers into the area during construction, the potential for this population increase to put additional pressure on regional services depends in part on Project design and camp accommodations. Specifically, health service leaders have reported that worker accommodation arrangements can directly affect local health services (Oke and Wilson 2024). Oke and Wilson (2024) found that projects with well-managed work camps, access to high-quality on-site medical clinics, or a workforce drawn from the local population or that is permanently settled in the community, were generally much less disruptive to regional health services. Without well-managed camps, their research identified that extractive industry projects can result in increased demand on emergency departments, primary care services, and healthcare staffing as the main sources of pressure on local health systems. These findings highlight the importance of effective camp management and the provision of on-site health services to reduce potential impacts on regional healthcare capacity.

During construction, regional changes to access to health and social services due to Project activities may result in adverse effects to Indigenous health for some individuals; however, no measurable deviation from baseline population-level health resulting from Project activities is anticipated following implementation of mitigation measures. These findings are applicable to the local Indigenous communities, including regional effects for LSFN, WFN, ANA, and local effects to NWOMC and RLEF. Proactive planning and mitigation measures can help workers obtain appropriate levels of care in-camp to avoid straining regional systems and provide Indigenous community members the appropriate financial supports to access additional health and social services they may need. Mitigation measures and monitoring plans related to access to health and social services are expected to be protective of Indigenous health during construction. As discussed in Impact Statement Section 18 (Summary of Benefits), Great Bear Resources plans to develop local partnerships aligned with community-identified priorities to provide benefits to communities from the Project. These initiatives are expected to generate social and economic benefits that may help reduce pressure on regional health and social services and support Indigenous health outcomes. Recent support from Great Bear Resources included funding for health care equipment, facility upgrades, recruitment efforts, and social service initiatives, including a

\$200,000 contribution to local health care. These measures are intended to help existing services manage anticipated increases in demand. To further support Indigenous health and wellness, Great Bear Resources has committed to implementing other measures such as Telus telehealth or similar services for employees and immediate family members, medical management and response to track on-site medical responses and referrals for off-site health services, and develop an employee benefits program that includes medical, mental and dental services for employees and their families. This is in addition to an established Employee Assistance Program (EAP) that will be available to employees and their families to alleviate pressures on local health-supportive services (e.g., mental health, addiction counselling and prescriptions). This is expected to improve timely access to care and help minimize pressure on regional health and social services resulting from Project activities during construction. A list of mitigation and enhancement measures for access to health and social services are presented in Section 6.2.3.4 and for the HIA overall in Section 7.

Overall, available information indicates that changes in access to health and social services will likely occur as a result of Project activities during construction. Potential adverse effects for some individuals (e.g., strain on service delivery and inequitable care) may affect Indigenous health and wellness. Mitigations and enhancements related to access to health and social services are presented in Section 6.2.3.4.

OPERATIONS

The operations phase, anticipated to span 26 years, will result in sustained workforce presence in the region, potentially contributing to ongoing regional service demands. Peak employment is anticipated to reach approximately 1,100 workers during operations when both the open pit and underground mines are active; however, the workforce is expected to decrease to approximately 700 workers during underground mining operations (approximately after year 9).

While no population growth or direct workforce is expected on-reserve for LSFN, WFN and ANA, potential effects to regional health and social services are anticipated. The extended duration of activities during operations means that potential effects related to access to services identified during construction may persist or evolve over time during operations. As such, there may be both direct and indirect effects to Indigenous people's health for individuals that rely on regional health and social services, due to ongoing Project activity in the region. Existing barriers associated with timely access to health and social services within the region due to geographic location, capacity and staff constraints, and lack of childcare options to attend medical appointments, are expected to continue with the additional workforce during operations. These challenges can directly influence Indigenous people's health outcomes particularly in emergency medical or crisis (mental health) situations.

For Indigenous people living off-reserve in Red Lake and Ear Falls, or for Métis living within these communities, potential effects to Indigenous health related to access to services during operations is expected to continue even as the Project workforce stabilizes. While a portion of the workforce will reside in on-site accommodations, other workers and their families may relocate to nearby communities, placing ongoing pressure on existing service systems. Community members living on-reserve who travel to Red Lake and Ear Falls to access municipal, provincial, and non-profit health, social and emergency services may continue to be exposed to the potential regional service pressures. With respect to on-site camp accommodations, strong management strategies and the adequate provision of on-site medical services is critical to reduce the impact on regional healthcare services (Oke and Wilson 2024).

Both the CWB and CSI assessments acknowledge that steady employment and contracting opportunities during operations could support income stability and local business activity (including health and social services), community stability, encourage workforce retention and support incremental improvements in municipal revenues and location service delivery capacity over time. It is noted however, that despite some improvements, participation barriers may continue to limit equitable access for some residents.

During operations, potential effects to Indigenous health due to changes in access to health and social services is expected to be similar to construction and experienced primarily through access to regional services rather than direct changes within on-reserve communities. While there may be limited beneficial effects from Project-related changes that can improve service delivery over time (e.g., employment and employee benefits), adverse effects associated with regional constraints on the service delivery system or

reinforcing systemic barriers related to access to services are expected due to added demand on services from the Project workforce. Therefore, community health will be shaped more by long-term adjustments in economic, social, and demographic conditions across Red Lake and Ear Falls and surrounding areas. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. Great Bear Resources has committed to establish several initiatives that are expected to have several key social benefits, including supporting local initiatives that can contribute to better health outcomes for Indigenous people. Mitigation measures and monitoring plans are expected to be protective of Indigenous health during operations. As discussed in Impact Statement Section 18 (Summary of Benefits), this includes supporting local initiatives, community-based land use, social activities and recreational activities, as well as funding health and social services and organizations locally and regionally. Additional mitigations include medical management and response to track on-site medical responses and referrals for off-site health services, and development of an employee benefits program that includes coverage for health care including medical, mental and dental services for employees and their families. These initiatives are expected to improve the health of Indigenous people in the region. A list of mitigation and enhancement measures for access to health and social services are presented in Section 6.2.3.4 and for the HIA overall in Section 7.

Overall, available information indicates that changes in access to health and social services will likely occur as a result of Project activities during operations. While beneficial effects (e.g., employment and employee benefits) may occur for some individuals, potential adverse effects on the regional service system due to Project activities (e.g., further strain on capacity / service delivery and inequitable care) may affect Indigenous health and wellness; however, no measurable deviation from baseline population-level health resulting from Project activities is anticipated following implementation of mitigation measures. Mitigations and enhancements related to access to health and social services are presented in Section 6.2.3.4.

CLOSURE

The closure phase will result in a substantial reduction in the Project workforce. The withdrawal of a major employer in the region will introduce a period of social and economic adjustment. As employment opportunities decrease, some workers are expected to leave the region, reducing pressure on the health and social services. Less pressure on services can lead to lower wait times, increased capacity, additional assets available for mobile crisis response, and additional childcare options to attend treatment or counselling. This can lead to improved health outcomes for Indigenous people in the region; however, with the loss of economic opportunity from the Project, realized benefits may also diminish ultimately leading to a return to baseline conditions for access to health and social services.

The removal of steady employment and income for some Indigenous people and their families can result in added challenges during closure. In some cases, mine closure has been shown to coincide with higher reporting of stress, anxiety, depression and alcoholism (Shandro et al. 2011). Households that relied on Project-related income may face financial stress during the closure transition. Therefore, some individuals may seek health and social support services during this transition time, but likely to a lesser extent than the pressures of construction and operations workforces.

Overall, closure-phase Project interactions with Indigenous health related to access to health and social services are expected to be limited and generally improve capacity pressures relative to earlier phases. Since Indigenous health is a complex issue shaped more by long-term changes in the economic and social conditions in the region, and historical injustices associated with colonialism, pre-existing barriers to accessing quality, timely, and culturally appropriate care is expected to remain. Effects to Indigenous health from changes to access to health and social services will depend largely on the pre-closure transition planning (e.g., re-skilling, economic diversification supports, and similar). Mitigation measures and monitoring plans are expected to be protective of Indigenous health during closure.

As discussed in Impact Statement Section 18 (Summary of Benefits), Great Bear Resources proposes to address local priorities so that communities can benefit from the Project, including after the mine closes. With respect to health and social services, Great Bear Resources plans to support local initiatives that includes funding local and regional health and social services. These initiatives are expected to have ongoing beneficial effects on the health of Indigenous people during and after closure.

6.2.3.4 MITIGATION AND ENHANCEMENT MEASURES

Table 6-35 outlines the key mitigation and enhancement measures recommended based on the assessment of changes to access to health and social services. These mitigation and enhancement measures are anticipated to apply across all Project phases unless otherwise specified. General mitigation measures for closure activities that relate to Indigenous health are also included.

Table 6-35: Mitigation, and Enhancement Measures for Access to Health and Social Services

Mitigation and Enhancement Measures for Access to Health and Social Services	Rationale
<p><u>Camp Operations and Services (healthcare):</u> Provide emergency response and basic health services to the on-site workforce. On-site medical facilities and staff will be in place to address health services for emergencies, injuries, and other routine needs. Medical personnel will be trained on supports that are available through Employee Assistance Program (EAP), Telus telehealth (or similar service / provider), and local / regional providers to foster connected health care on and off-site. Information about these services and supports (available to employees and their immediate families), will be posted in a visible location at the medical facilities and accommodations.⁽¹⁾</p>	<p>Studies have shown that some of the primary negative pressures on local health services include increased use of emergency departments and primary care services within the local community, highlighting the importance of the provision of on-camp health services. This mitigation around camp and worker health care mitigates against adverse health effects through on-site medical care, plans to educate / support employees and their families with additional resources, and dissemination of important health and wellness information throughout the camp and site facilities. This measure is also anticipated to mitigate against underutilization of health supports and services provided through EAP and Telus telehealth (or similar), due to lack of awareness and uptake. It also helps to promote connected healthcare on and off site.</p>
<p><u>Camp Operations and Services (telehealth):</u> Create access to Telus telehealth or similar provider for employees (and immediate family members) throughout the life of the Project, helping to alleviate pressures on local services.⁽¹⁾</p>	<p>Evidence shows that timely access to quality health care is protective of health and wellness. Benefits of access to a 'telehealth' service are far reaching, promoting convenient access to health (including mental health) and social services (including addiction services), also reducing barriers related to service capacity and transportation.</p>
<p><u>Community Financial Support (Access to Services):</u> Great Bear Resources will work collaboratively to fund programming through the Friendship Centre and community partners, including programming and supports to promote physical and mental health outcomes for Indigenous adults and youth.⁽¹⁾</p>	<p>Providing funding and resources for programming for Indigenous adults and youth has the potential to provide downstream benefits to health. Specifically including physical and mental health programs as an outcome of the funding is important to mitigating the additional pressure that will be placed on local / regional health (including mental health) services.</p>
<p><u>Community Financial Support (Access to Services):</u> Support local communities regarding access to social services and health care services in the region, including mental health and addiction services, and implement an adaptive management approach (as part of the Social Performance Plan) to address additional pressures resulting from the influx of workers and their families.⁽¹⁾</p>	<p>Evidence shows that timely access to quality health (and mental health) care is protective of health and wellness. This measure (capacity building for health care services) was one of the calls to action in the National Inquiry on MMIWG for the resource development industry and is anticipated to mitigate against the increased pressures placed on local health care services (including mental health and addiction services). This measure is also anticipated to support ongoing adaptive management surrounding access to health and social services over time.</p>
<p><u>Medical Management and Response:</u> Track on-site medical responses needed for employees (anonymously) and referrals for off-site health services. GBR will continue to work with local health care service providers if capacity issues should arise in relation to an influx of employee referrals.</p>	<p>Medical resources are constrained across much of northern rural Ontario, and access to services by Indigenous populations can be precarious. This measure is anticipated to mitigate against additional pressures placed on local health care services by implementing a plan to track on site medical response and off site referrals, thereby monitoring the impact of the Project on local medical and emergency services. This mitigation is expected to minimize broader community effects related to access to services and associated downstream health outcomes.</p>

Mitigation and Enhancement Measures for Access to Health and Social Services	Rationale
Employee Benefits Program: Benefits program will include coverage for health care, prescription drugs, dental and access to in-person and online mental health services for employees and their families.	Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. The inclusion of benefits for employees and their immediate families mitigates against broader affordability issues including access to health care, dental and mental health (including addiction) services.

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC). EAP = Employee Assistance Program; fVC = federal valued component; GBR = Great Bear Resources; HIA = Health Impact Assessment; MMIWG = Murdered Indigenous Women and Girls; OCAP = ownership, control access and possession; pVC = pathway valued component.

The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2) are in place as planned.

6.2.3.5 GBA PLUS CONSIDERATIONS

In accordance with Health Canada guidance (Health Canada 2024a), the HIA takes an equity approach to assessing potential effects by examining the potential distribution of effects across different sub-populations within the Indigenous communities. This section highlights how Indigenous identity intersects with the other GBA Plus identity factors described below. Table 6-36 applies a GBA Plus lens that treats Indigenous identity as a central identity factor, and the other identity factors described below are discussed within this context. At the bottom of this table there is a section highlighting key intersectionality considerations, Indigenous identity is at the center of this qualitative analysis.

It is important to note that while this section identified subgroups that have the potential to experience effects uniquely from changes to access to health and social services, the analysis should be considered in the context of the potential effects assessment findings. The analysis below identifies populations that could be disproportionately affected and also discusses the potential health effects, or lack thereof, as identified in the assessment.

Table 6-36: GBA Plus and Equity Considerations – Access to Health and Social Services

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Gender	Disproportionate (Women+)	Gender-specific differences in access to health and social services are expected to disproportionately affect Indigenous women as there are existing gaps in certain women-specific services including women’s shelters or birthing centres. In addition, women often play caregiving roles and cannot always obtain childcare in order to attend appointments. Further, evidence indicates that health-care services often fail to provide the support needed for Indigenous women and girls who are victims of physical and sexual abuse or violence (National Inquiry into Missing and Murdered Indigenous Women and Girls 2019).
Age	Disproportionate (Youth, Young adults and older adults / Elders)	While barriers to accessing services can affect individuals at any age, the elderly often have more health care needs. Youth and young adults specifically can struggle with mental health and need health and social service supports, particularly within the NWHU, as shown by notably higher rates of mental health challenges for individuals aged 10 to 24 from 2012 to 2021 compared to Ontario (NWHU and Yusuf 2023).

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Physical Ability	Disproportionate (Individuals with disabilities)	Evidence suggests that individuals with pre-existing health conditions (e.g., disabilities) requiring ongoing care may have unique challenges accessing health and social services given their health may prevent or limit the ability to make or attend appointments, or travel to get care. For example, in 2022, individuals with very severe disabilities were two times as likely to report having unmet needs for health care services or prescription medication, and almost four times more likely of having unmet needs for assistive aids or devices or help with daily activities, compared with their counterparts with milder disabilities (Statistics Canada 2025). The additional demand from the population growth in the region may contribute to longer wait times and reduced access to health services. A lack of access to healthcare for Indigenous populations has shown to lead to poor health outcomes, including lower life expectancies, higher rates of chronic diseases, later-stage diagnoses, increased mental health challenges, higher infant mortality, and greater risks from preventable conditions like obesity (PHAC 2018; CMA 2026).
Socioeconomic Status	Disproportionate (Low-income individuals and households)	Low-income individuals and households (e.g., single parents) may be more affected by the increased strain on the health and social delivery systems, as they may not have the means (money, transport, childcare) to access these services (PHAC 2018).
Mental Ability	Disproportionate (Individuals with pre-existing mental health conditions)	The population growth in the region may create a strain on regional services that are already at or near capacity. Added demand may contribute to longer wait times and reduced access, particularly for individuals who have pre-existing mental health conditions and require ongoing and regular mental health support. These challenges can directly influence Indigenous people's health outcomes particularly in emergency medical or crisis (mental health) situations.
Intersectional Analysis:	Intersectional effects which can compound vulnerabilities around access to health and social services are expected due to the findings of the assessment on Indigenous health. Several of the identity factors above may intersect to further compound differences in the distribution of effects. For example, a low-income woman with pre-existing health conditions may experience proportionately more barriers (e.g., lack of childcare or money for transportation to attend medical appointments that have increasingly higher wait times) than any of those groups individually. Indigenous people also continue to face culturally unsafe care, or racism and discrimination when accessing care, which are rooted in historical factors such as colonialism (Statistics Canada 2024a). It is acknowledged that Indigenous identity intersects with the identity factors listed above.	

Notes: GBA Plus = Gender Based Analysis Plus.

6.2.3.6 SUMMARY OF POTENTIAL EFFECTS: ACCESS TO HEALTH AND SOCIAL SERVICES

The following is a summary of the findings from the assessment of potential effects to Indigenous health based on changes to access to health and social services (Table 6-37). The specific mitigation and enhancement measures based on the assessment of changes to access to health and social services, including a description and rationale, are described in Section 6.2.3.4.

Table 6-37: HIA Potential Effects Summary – Access to Health and Social Services

Criteria	Description	Characterization
Health Determinant	Identify the determinant of health being assessed	<ul style="list-style-type: none"> Access to Health and Social Services (Social Determinant of Health)
Direction of Potential Effect	Describe whether the potential effect may be beneficial or adverse	<ul style="list-style-type: none"> Adverse (Capacity / Service Delivery Constraints, Inequitable Care): the potential effect on human health may be adverse, thereby diminishing conditions that support Indigenous health.
Scale of Potential Effect for this Determinant (post-mitigation)	Describes the expected scale of the Project-related effect to Indigenous health for this determinant	<ul style="list-style-type: none"> Minor (Adverse – Capacity / Service Delivery Constraints, Inequitable Care): the adverse effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures. The assessment findings identified that Project-related changes to population growth may cause increased strain on service delivery systems that are at or near capacity. This may result in long wait times and delayed access to care, which can result in adverse outcomes for Indigenous health. Equitable access is expected to remain a challenge, given childcare options are limited for primary caregivers or insurance coverage may not be sufficient to access appropriate or adequate care. Additional challenges to equitable access for Indigenous people include culturally unsafe care, differences in funding, or racism and discrimination experienced when accessing care, which may result in health disparities. While some individuals may experience adverse health effects, a population-level shift in Indigenous health is not expected.
Affected Populations	Refers to the distribution of the effects across Indigenous communities and includes equity considerations	<ul style="list-style-type: none"> Assessment findings (i.e., Project-related changes) are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.
GBA Plus	Identify relevant GBA Plus considerations for this determinant	<ul style="list-style-type: none"> There are groups that may experience effects differently for this determinant. Details are discussed in the access to health and social services GBA Plus section (Section 6.2.3.5).
Mitigations and Enhancements	Additional measures listed based on the assessment of potential effects for this determinant ⁽²⁾	<ul style="list-style-type: none"> Additional measures, beyond what is included in the other pVC and fVC sections of the Impact Statement are listed below for access to health and social services with further details provided in Section 6.1.2.4 and a list of health measures is provided in Section 7: <ul style="list-style-type: none"> Camp Operations and Services (healthcare) ⁽¹⁾ Camp Operations and Services (telehealth) ⁽¹⁾ Community Financial Support (access to services)⁽¹⁾ Medical Management and Response Employee Benefit Program

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC)

2 Assumes measures included in upstream pVC and fVC sections of the Impact Statement are implemented.

ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBA Plus = Gender-based Analysis Plus; HIA = health impact assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; pVC = pathway valued component; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

While these findings are specific to this determinant of health (access to health and social services), an overall determination of the potential for residual effects for Changes to Health (fVC Indigenous Peoples) is provided in Section 8.

6.2.4 FOOD SECURITY

This section includes an assessment of Indigenous health from changes in food security, including health linkages, relevant existing conditions, potential effects (construction, operations and closure), mitigation and enhancement measures and GBA Plus considerations.

6.2.4.1 HEALTH LINKAGES

The following section describes the generic exposure pathways and scenarios by which health can be influenced by food security. The linkages described here are not specific to one sector or community, instead, this section provides an overview of the relevance of food security as a determinant of Indigenous health.

Food security is defined as a “*situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life*” (Leblanc-Laurendeau 2020; Statistics Canada 2023I). Food security is largely influenced by an individual’s income but can also be influenced by the local environment (NIMHD 2024; Statistics Canada 2023I). For example, the term food desert has been used to describe geographic areas where residents’ access to affordable, healthy food options (especially fresh fruits and vegetables) is restricted or non-existent due to the absence of grocery stores within convenient traveling distance (Caporuscio 2024).

Food insecurity is associated with chronic health conditions and poor mental health (Leblanc-Laurendeau 2020; Statistics Canada 2023I). Studies indicate that food insecurity may increase the risk of developing cardiovascular disease (e.g., hypertension, heart disease and heart failure), diabetes, and some forms of cancer (Odoms-Young et al. 2024; Te Vazquez et al. 2021). In a literature review of 35 studies involving adults, researchers found that food insecurity can be linked to a higher prevalence of obesity, particularly among women (Te Vazquez et al. 2021). Moreover, Levi et al. (2023) identified various interconnected pathways that link food insecurity and diabetes, noting that the stress associated with food insecurity can trigger both physiological and psychological responses.

In Canada, food insecurity tends to be higher and disproportionately affect Indigenous people, potentially contributing to higher rates of certain health conditions (PHAC 2018; Statistics Canada 2023I). The PHAC reported the prevalence of adult food insecurity to be several times higher for Inuit adults (3.7 times higher), First Nations living off reserve (2.7 times higher), and Métis (2.2 times higher), than their non-Indigenous Canadian counterparts (PHAC 2018).

Even for those living above the poverty line, Indigenous families are more likely to be food insecure. The rate of food insecurity for “*Indigenous families above the poverty line living off reserve [was] (31%)*”, twice that of non-Indigenous families (15%) (Statistics Canada 2023I). The higher prevalence of food insecurity in Indigenous families may be attributed to various interconnected factors including the isolated nature of many of their community locations, social and financial disparity compared to the non-Indigenous population, intergenerational impacts of colonization, alterations to traditional food practices due to climate change, loss of traditional lands, and the contamination of the environment (Leblanc-Laurendeau 2020).

Food security has been impacted in a multitude of ways for Canadian Indigenous people (Shafiee et al. 2022). Traditional food practices and consumption have decreased, many Indigenous communities have limited availability of traditional foods and market foods, those market foods which are available are often of poor nutritional quality, and knowledge gaps related to both traditional food practices and market food nutrition and preparation have been reported in literature (Shafiee et al. 2022). Different aspects of food security (i.e., availability, utilization, and accessibility) are influenced by a combination of factors. Theorized causes of the changes to Indigenous food security include socio-economic disparity between Indigenous and non-Indigenous communities, prohibitive affordability of food, limited transportation availability, high equipment costs, land access restrictions, government policies related to traditional foods, and erosion of traditional food sharing networks (Shafiee et al. 2022). For instance, a study that analyzed data from the FNFNES found that “*high proportions of individuals who experience income-related food insecurity affirmed that they experience a shortage of traditional foods*”, and correlated this

traditional food shortage to issues of accessibility (i.e., affordability, ability to access traditional lands, loss of traditional techniques) and availability (i.e., environmental contamination influencing traditional foods, industry-induced changes to landscape and animal migration) (Marushka et al. 2021). However, there are still a lack of published studies that investigate health outcomes specifically of Indigenous people as a result of food insecurity (Shafiee et al. 2022).

The term food sovereignty more accurately encompasses these additional aspects related to food, and can be defined as “*the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems*” (International Forum on Food Sovereignty 2007). Food sovereignty allows a community to “*exercise jurisdiction and protect, manage, and control the food systems and ensure access to healthy, local acceptable foods*” (Wittman 2011). Throughout this section, the term food security is used but the intent is for it to be inclusive of Indigenous food sovereignty.

Food security, which is often closely tied to an individual’s socio-economic status, plays a crucial role in health because when people have sufficient financial resources, they can access a diverse range of nutritious foods, which can support better diet quality and reduce chronic disease risk (Ziso et al. 2022). Income is considered a clear measure of material resources, and income and longevity consistently exhibit a strong positive correlation in the literature (Chetty and Stepner 2016; Rehnberg and Fritzell 2016). There is strong and growing evidence that higher social and economic status is associated with better health. In fact, these two factors considered in tandem are one of the most important determinants of health based on the scientific evidence available to date (PHAC 2022c). PHAC reported that household food insecurity increased as household income decreased (PHAC 2018).

Food security is influenced by physical, economic, and cultural factors, and is part of a feedback loop that influences and promotes cultural integrity, community wellness, and health.

An effect pathway diagram showing potential Project activities during all phases, relevant changes / exposure pathways and health and wellness effects is provided in Figure 6-24 to graphically depict the potential linkages between the Project and human health outcomes. These diagrams show the potential pathways of exposure or change in upstream conditions that may result in changes to health; however, the assessment of potential effects (Section 6.2.4.3) identifies those pathways where changes are predicted to occur.

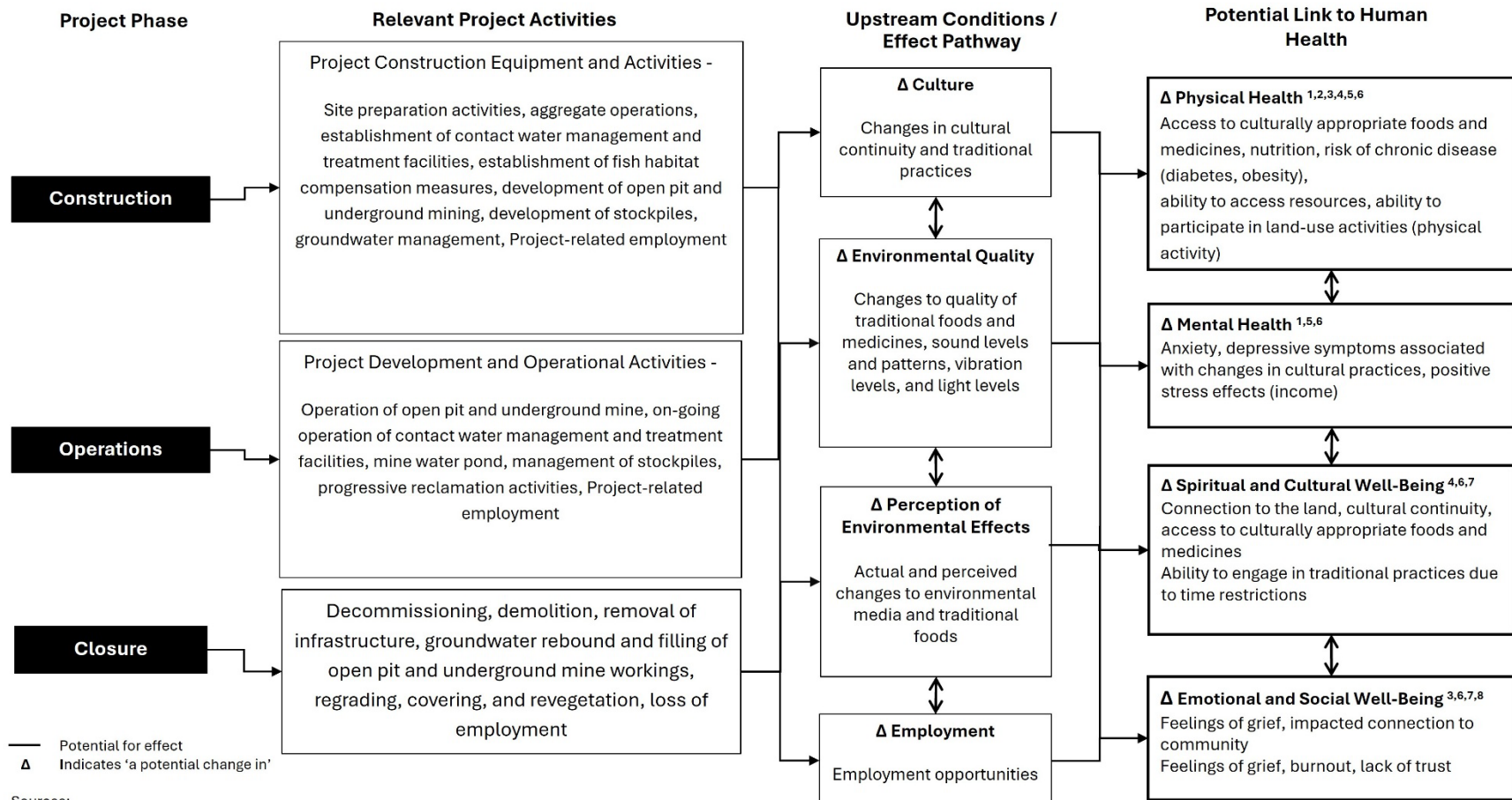
6.2.4.2 EXISTING CONDITIONS

This section provides a summary of existing conditions relevant to Indigenous health from changes in food security. The available baseline (existing conditions) data for Indigenous health, including physical health and wellness (e.g., chronic conditions, communicable diseases, demographics), health-related behaviours (e.g., food consumption, physical activity, substance use) and mental wellness (depression, stress / anxiety, perception of risk) are provided in the Baseline Health Profile (Attachment A) and should be viewed for detail. Food security in the context of Indigenous health is a complex issue with many interdependencies, including those related to multi-media environmental quality and traditional foods. Therefore, there are a number of linked pVCs and fVCs that would be considered upstream of potential health effects from changes in food security. As such, a description of existing conditions for linked pVCs (Air Quality, Water Quality, Sound, Vibration, Vegetation Communities, Wild Rice, Moose, Other Wildlife, SAR, Local and Regional Economy), linked fVCs (Fish and Fish Habitat, and Migratory Birds), descriptions for each environmental media (i.e., soil, water, traditional foods) and existing conditions related to food security is provided in the following Impact Statement Sections:

- **Air Quality (Existing Conditions):** Impact Statement Section 2.4 (Environmental Setting – Air Quality) and Impact Statement Section 7.2 (pVC Air Quality – Existing Conditions)
- **Soil Quality (Existing Conditions):** Attachment A2 of the HHERA (Impact Statement Appendix N-1; WSP 2026a)

Figure 6-24: Effect Pathway Diagram for Food Security

Food Security



Sources:

1 – PHAC 2018; 2 – Statistics Canada 2023l; 3 – Marushka et al. 2021; 4 – Leblanc-Laurendeau 2020; 5 – PHAC 2022c; 6 – Shafiee et al. 2022; 7 – Salerno et al. 2021; 8 – Dennis and Robin 2020

- **Water Quality (Existing Conditions):** Impact Statement Section 2.10 (Environmental Setting – Water Quality) and Impact Statement Section 7.7 (pVC Water Quality – Existing Conditions)
- **Traditional Foods Quality (Existing Conditions):** Attachment A (Baseline Data) of the HHERA (Impact Statement Appendix N-1; WSP 2026a), Attachment A2 (Soil and Traditional Food Sampling Program) of the HHERA, Attachment A4 (Baseline Data from Other Sources) of the HHERA and Impact Statement Section 8.4 (Analysis of Change to Fish and Fish Habitat – Existing Conditions)
- **Sound (Existing Conditions):** Impact Statement Section 2.6 (Environmental Setting – Sound and Vibration) and Impact Statement Section 7.3 (pVC Sound – Existing Conditions)
- **Vibration (Existing Conditions):** Impact Statement Section 2.6 (Environmental Setting – Sound and Vibration) and Impact Statement Section 7.4 (pVC Vibration – Existing Conditions)
- **Vegetation Communities (Existing Conditions):** Impact Statement Section 2.12 (Environmental Setting – Vegetation Communities) and Impact Statement Section 7.8 (pVC Vegetation Communities)
- **Wild Rice (Existing Conditions):** Impact Statement Section 2.13 (Environmental Setting – Wild Rice) and Impact Statement Section 7.9 (pVC Wild Rice – Existing Conditions)
- **Moose (Existing Conditions):** Impact Statement Section 2.14 (Environmental Setting – Migratory Birds, Moose, and Other Wildlife) and Impact Statement Section 7.10 (pVC Moose – Existing Conditions)
- **Other Wildlife (Existing Conditions):** Impact Statement Section 2.14 (Environmental Setting – Migratory Birds, Moose, and Other Wildlife) and Impact Statement Section 7.11 (pVC Other Wildlife – Existing Conditions)
- **Species at Risk (Existing Conditions):** Impact Statement Section 2.15 (Environmental Setting – Species at Risk) and Impact Statement Section 7.12 (pVC Species at Risk – Existing Conditions)
- **Fish and Fish Habitat (Existing Conditions):** Impact Statement Section 2.11 (Environmental Setting – Fish and Fish Habitat) and Impact Statement Section 8.4 (fVC Fish and Fish Habitat– Existing Conditions)
- **Migratory Birds (Existing Conditions):** Impact Statement Section 2.14 (Environmental Setting – Migratory Birds, Moose, and Other Wildlife) and Impact Statement Section 9.4 (fVC Migratory Birds – Existing Conditions).

A brief description of existing conditions related to food security is presented below to provide context for the assessment of social determinants of health. Given the overlap among upstream conditions that affect food security; several of these existing conditions summaries are presented in other sections of the HIA:

- A summary of existing conditions for air quality is provided in Section 6.1.1.2 of the HIA
- A summary of existing conditions for water quality and traditional foods quality is provided in Section 6.1.2.2 of the HIA
- The HHERA includes baseline (existing conditions) data for identified POPCs in environmental media in order to show the incremental effect of the Project on baseline; these results are provided below in the assessment of potential effects for all Project phases (Impact Statement Appendix N-1; WSP 2026a)
- A summary of existing conditions for sound and vibration is provided in Section 6.1.5.2 of the HIA
- A summary of existing conditions for vegetation communities, wild rice, moose, other wildlife, SAR, fish and fish habitat, and migratory birds are presented in Section 6.1.4.2 of the HIA.

The following paragraphs summarize existing conditions for CWB in the context of food security.

Collectively, the information from these upstream assessments provided the existing conditions related to food security.

Full details are presented in the Indigenous Peoples sections (Impact Statement Sections 10 to 14; fVC). As stated in the CWB assessment, food insecurity represents a public health concern in northwestern Ontario. Food insecurity in the Kenora- Rainy River Districts (21%) is higher than provincial and regional averages (19%) (NWHU 2024). The monthly cost to feed a family of four in the region reached \$1,537.84 in 2024, representing a 9% increase from 2023. For those living on minimum wage or social assistance, food costs can consume 50% or more of monthly income, leaving minimal funds for housing, transportation, or other basic needs. It is noted that these values were calculated using the Nutritious Food Basket tool which may underestimate the true cost of food, as it does not reflect cultural preferences, processed or specialty diets, or real-world conditions such as limited time or access to quality stores (NWHU 2024).

Community food programs such as hampers, school nutrition programs, and food banks provide necessary short-term relief, however, the NWHU emphasizes that income-based policy responses are needed to address the root causes of food insecurity. High food costs in northern Ontario are related to transportation costs and food spoilage associated with required long-distance shipping, and a lack of stores to support competition. The disruption of traditional food sources across the region has also forced dietary changes towards market foods which has contributed to food insecurity.

- **LSFN:** As stated in the CWB assessment, to work toward improving food access and sovereignty, LSFN developed the 2022 Lac Seul Community Comprehensive Plan identifies food self-sufficiency as a community priority, with initiatives such as community gardens, support for traditional harvesting practices, and exploration of greenhouse agriculture. These efforts aim to reduce reliance on imported foods, enhance nutritional outcomes, and strengthen resilience through local food systems (Lac Seul First Nation 2022).
- **WFN:** Information related to specific WFN food security programs was not available.
- **ANA:** Information related to specific ANA food security programs was not available. However, some ANA-specific information is provided below in the Potential Effects Section, Evidence for Assessment (Section 6.2.4.3).
- **NWOMC:** Information related to specific NWOMC food security programs was not available.
- **RLEF:** As stated in the CWB assessment, RLEF relate food insecurity challenges with the increased cost-of-living that community members are facing. The community has expressed concerns about population increased due to Project activities increasing pressure on access to food security and food bank program, decreasing availability food and baby necessities parents and / or caregivers.

There are two shelters in Red Lake; the New Starts for Women Shelter, and the Red Lake Emergency Shelter that provide food to those using the shelter. 1,347 people accessed the New Starts for Women Shelter food share program in 2024 (Chamberlin 2025). However, staffing shortages limit the frequency of grocery store pickups, affecting the program's capacity to meet demand (Chamberlin 2025). The Red Lake Emergency Shelter served 7,455 meals in 2024. The Red Lake Indian Friendship Centre also maintains the Red Lake Food Bank Program (Red Lake Indian Friendship Centre n.d.).

In Ear Falls, The Community Garden is relied upon by many community members, especially those with limited access to food. Community gardening and home food production are common in EF, where residents frequently engage in canning, growing vegetables, and breadmaking to address limited grocery availability and high prices. The municipal community garden has been expanded in response to demand, and local service providers noted the home-steady culture as an important source of informal food security (Ballance 2025).

6.2.4.3 POTENTIAL EFFECTS

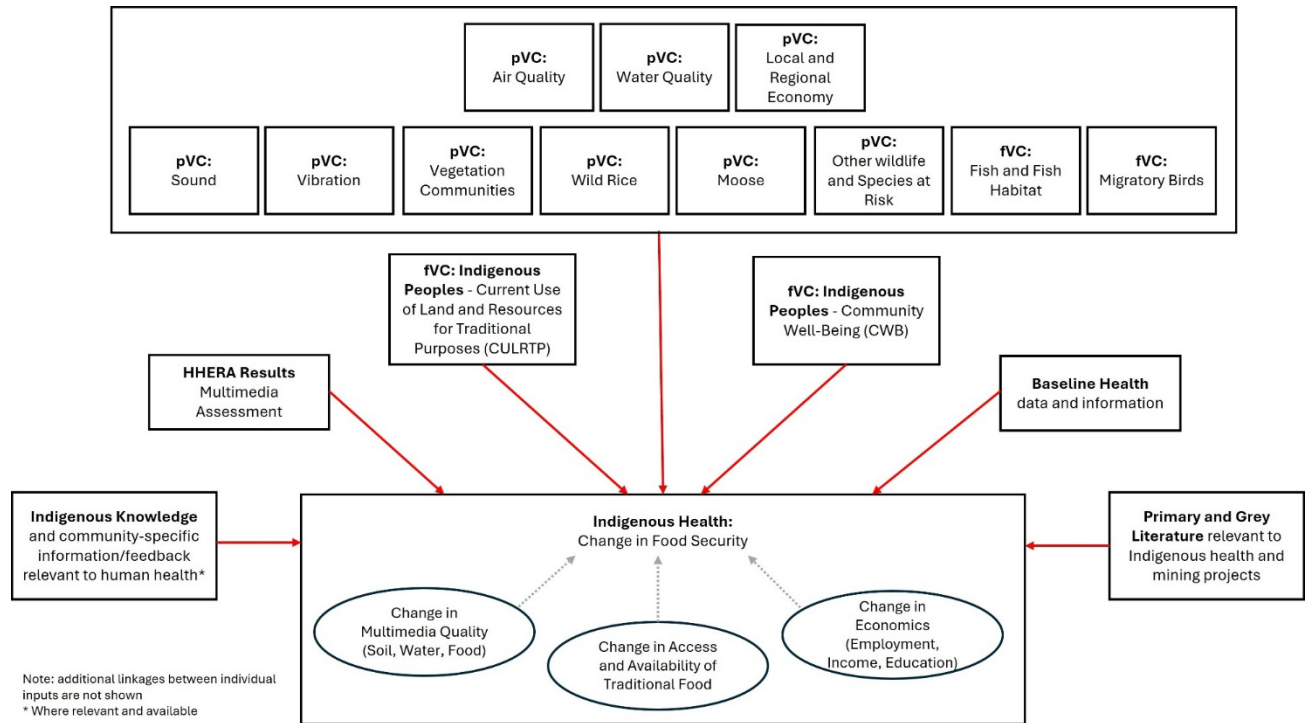
The following sections provide the inputs, assumptions, results from upstream analyses, Project information, primary and grey literature, and other evidence that supports the assessment of changes in

food security in the context of Indigenous health. The assessment of potential effects first presents the available evidence, acknowledging any limitations and assumptions, followed by an assessment by Project phase (i.e., construction, operations and closure). Finally, a summary of the assessment findings is presented with a discussion regarding mitigation and / or enhancement measures, and GBA Plus considerations.

EVIDENCE FOR ASSESSMENT

The evidence used in the assessment of potential effects to Indigenous health from changes in food security included (i) findings from relevant upstream valued components (pVCs and fVCs); (ii) results from the HHERA; (iii) primary and grey literature sources; (iv) IK and community-specific information; and (v) baseline health information (Figure 6-25).

Figure 6-25: Inputs for Food Security



Each of these sources of information and evidence are further described in the sections below.

Collectively, this body of evidence informed the assessment of potential effects described for each Project phase (i.e., construction, operations and closure).

Upstream Valued Components (pVCs and fVCs)

The assessment of potential effects for the linked pVCs are important in that they identify predicted changes in those upstream conditions that, in turn, have the potential to affect Indigenous health via changes in food security. A summary of the assessment, key mitigation measures, and predicted change after mitigation identified in the pVCs and fVCs linked to Indigenous health, including pVCs: Air Quality, Water Quality, Sound, Vibration, Vegetation Communities, Wild Rice, Moose, Other Wildlife, SAR, and Local and Regional Economy, and fVCs: Fish and Fish Habitat, and Migratory Birds, are provided in Section 6 (Table 6-2).

Food security is influenced not only by changes to environmental, social, cultural and economic conditions, but is also influenced by other determinants of health (Figure 6-25).

Two upstream pVCs were used as inputs in the assessment of multi-media environmental quality, namely Air Quality and Water Quality. Specifically, determining whether the Project will result in changes to air, water and soil quality from airborne emissions and / or discharge of Project contact water that could affect plants, wildlife, and fish, which may be consumed as traditional foods, were the relevant inputs into the assessment of potential effects on Indigenous health via food security. Specifically, consumption of traditional foods is an important strategy for addressing food security (Skinner et al. 2013; Banerji et al. 2023; SLFNHA 2019b), and reduced reliance on traditional foods due to real or perceived changes in environmental quality can adversely impact food security. Where Project releases into the environment were identified, potential exposure to human and ecological receptors was evaluated into the multi-media assessment in the HHERA to identify potential risks to health (Impact Statement Appendix N-1; WSP 2026a), the results of which are summarized below (see HHERA Results subheading).

The upstream pVCs (Sound, Vibration, Vegetation Communities, Wild Rice, Moose, Other Wildlife and SAR) and fVCs (Fish and Fish Habitat, and Migratory Birds) that informed access and availability of traditional foods. Determining whether the Project will result in changes to plants, wildlife, and fish populations, which may be harvested as traditional foods, were the relevant inputs into the assessment of potential effects on Indigenous health via changes in food security.

Pre-existing sociocultural barriers to access of traditional foods, such as on-going effects of colonization, cost, time constraints, lack of traditional knowledge and skills, and perception of contamination (Waasegiizhig Nanaandawe'iyewigamig 2020) may be perpetuated or exacerbated with Project development. Perception of environmental quality and safety may also lead to self-imposed reduction in use of traditional foods. As described above, reduced reliance on traditional foods due to real or perceived changes in environmental quality can adversely impact food security. The use of traditional foods may also have implications for intergenerational knowledge sharing, community cohesion and mental health, which are assessed in Section 6.2.5.

Food security is also heavily influenced by economics. The assessment of economics in Impact Statement Section 7.16 (pVC Local and Regional Economy) indicated that the Project will result in overall net positive effects on the regional economy. Potential adverse economic effects included the possibility of a reduction in traditional land-based activities or traditional economic activities due to Project employment and shift schedules, as well as perception of environmental quality.

Upstream Conditions (fVC Indigenous Peoples)

In addition to the multitude of pVCs that influence various aspects of food security, there are also components of the assessments provided in Impact Statement Sections 10 to 14 (fVC Indigenous Peoples) that are both directly and indirectly linked to this determinant of health. Specifically, changes in availability, access to and experience related to traditional terrestrial wildlife harvesting (hunting and trapping), traditional aquatic harvesting (fishing), and traditional plant harvesting (for food and medicinal purposes), were considered as part of the assessment of CULRTP. Additionally, cost of living and economic opportunity and inequality were considered as part of the assessment of CWB. While these other sections did not consider health effects, they did evaluate changes to those upstream conditions that have the potential to influence downstream outcomes related to Indigenous health (Table 6-38).

Table 6-38: Summary of Results from CULRTP and CWB Effects Assessment used in the HIA

Potential Effect / Indicator	Sub-Indicators	LSFN	WFN	ANA	NWOMC	RLEF
Change in availability, access to, and experience related to traditional terrestrial wildlife harvesting (hunting and trapping), traditional aquatic harvesting (fishing), traditional plant harvesting (food and medicinal purposes) ⁽¹⁾	Availability	Y ^{W,P}	Y ^W	Y ^W	Y ^W	Y ^{W,P}
	Access	Y ^{W,P}	N	N	Y ^W	Y ^{W,P}
	Experience	Y ^{W,P}	Y ^{W,P}	Y ^W	Y ^{W,P}	Y ^{W,P}
Cost of Living and Traditional Economy		Y	Y	Y	Y	Y
Economic Opportunity and Inequality		Y	Y	N ⁽²⁾	Y	Y

Notes:

- Superscript letters are used to indicate for which land-based practice residual effects were identified. W = Residual Effects identified under Current Use of the Land and Resources for Traditional Purposes for traditional wildlife harvesting (hunting and trapping); P = Residual Effects identified under Current Use of the Land and Resources for Traditional Purposes for traditional wildlife harvesting (food and medicinal purposes).
 - Economic opportunity and inequality was not assessed for ANA as it was examined at a regional scale, referring to the evaluation for Red Lake and Ear Falls in Impact Statement Section 14 (fVC Indigenous Peoples: Red Lake and Ear Falls). N = No Residual Effects identified under Current Use of the Land and Resources for Traditional Purposes or Community Well-Being; Y = Yes Residual Effects identified under Current Use of the Land and Resources for Traditional Purposes or Community Well-Being
- ANA = Asubpeeschoseewagong Netum Anishinabek; CULRTP = Current Use of Lands and Resources for Traditional Purposes; CWB = community well-being; HIA = health impact assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation
 Source: Table recreated with information from Impact Statement Sections 10 to 14 (fVC Indigenous Peoples: LSFN, WFN, ANA, NWOMC, RLEF).

The specific findings that were relevant and taken into consideration in the assessment of potential effects on food security in the HIA are further described in the sections below.

Influence of Current Use of the Land and Resources for Traditional Purposes and Access to Land and Resources on Food Security:

The CULRTP assessments (Impact Statement Sections 10 to 14; fVC Indigenous Peoples) identified how the Project may affect the access, availability, and quality of experience related to traditional foods harvesting, specifically wildlife, fish, and plant harvesting, across Indigenous communities.

Potential effects of the Project on CULRTP include changes to availability of plants and wildlife, habitat loss or alteration, reduced access within the PA and diminished quality of experience due to sensory disturbances such as noise, dust, vibration, and visual change. Similar effects are identified for fishing and aquatic resources, with changes projected due to altered aquatic habitat conditions from surface water quality changes, sedimentation, and vibration. These potential effects may be experienced differently by each of the Indigenous communities depending on their use of the PA and LSA, as presented in the CULRTP assessment (Impact Statement Sections 10 to 14; fVC Indigenous Peoples):

- The PA overlaps active traplines and areas reportedly used for hunting, trapping, fishing, and plant harvesting, which were outlined in confidential reports prepared for LSFN. Mining activities may result in sensory disturbance which could discourage trapping activity in the LSA, immediately adjacent to the PA.
- No current use of the PA was identified for harvesting activities in confidential IK studies prepared for WFN; however, land use occurs in the LSA and RSA for WFN. As such, sensory impacts may still influence quality of experience in the LSA for WFN immediately adjacent to the PA.
- For ANA, whose IPCA for moose, caribou and wolverine habitat ranges overlaps the PA and LSA, the assessment identified potential current use of the LSA for moose harvesting, but no confirmed use of the PA itself. As such, changes in availability and quality of experience may result in potential effects for ANA in the LSA immediately adjacent to the PA.

- Reported land use in overlapping the PA, however no hunting or trapping has been identified in the PA. Reported use of the LSA, and RSA for hunting, trapping, fishing, and plant gathering, was identified in confidential reports prepared for the NWOMC. Therefore, NWOMC may experience direct and indirect changes to access, availability, and quality of experience in these areas.
- Harvesting within the PA for RLEF was assumed based on use of the PA for harvesting identified by LSFN. Therefore, RLEF may experience direct and indirect changes to access, availability, and quality of experience in the PA.

The CULRTP assessment indicated that after the application of mitigation measures, no residual effects for traditional aquatic harvesting (fishing) were identified for any of the Indigenous communities. However, residual effects for traditional terrestrial wildlife harvesting (hunting and trapping) and traditional plant harvesting (food and medicinal purposes) were anticipated for LSFN, WFN, NWMOC and RLEF. Residual effects for traditional terrestrial wildlife harvesting (hunting and trapping) were anticipated for ANA.

The CWB assessment included evaluation of how several indicators of CWB may be affected by the Project, including Access to Land and Resources. The CWB assessment includes the findings from CULRTP with a community well-being lens, highlighting that perceived risks, such as concerns about environmental quality, may also influence participation in land-based practices.

As described in the CWB assessment Indigenous people who previously accessed the PA and who access the LSA immediately adjacent to the PA for harvesting may experience changes in access, availability of hunting and trapped species and impacts to quality of experience due to changes in wildlife behaviour as a result of sensory disturbance, and sensory disturbances related to changes in sensory conditions for those hunting and trapping in the LSA. Temporary or longer-term avoidance of certain areas may occur, particularly where harvesting quality or cultural experience is changed from Project activities and infrastructure. These changes may contribute to reduced opportunities for intergenerational knowledge transfer, cultural continuity, and land-based wellness practices that are important to community well-being. However, effects are expected to diminish over time following Project closure, with opportunities for recovery of access and experience quality through effective reclamation and ongoing collaboration with local Indigenous people. Overall, the Project is expected to temporarily disrupt access, availability, and / or experience within the PA and immediately surrounding areas for at least one type of land-based practice for each Indigenous community resulting in residual effects after the application of mitigation measures for the Indigenous communities.

Influence of Cost of Living and Traditional Economy on Food Security:

Various economic factors contribute to changes in cost of living, including the cost of food. As described in the CWB assessment (Impact Statement Sections 10 to 14; fVC Indigenous Peoples), RLEF and members of NWOMC living in Red Lake and Ear Falls already face elevated costs for food, fuel, and housing. Due to the anticipated population growth due to the influx of Project workers in this community, the Project may temporarily increase the demand for certain goods and services, potentially contributing to localized affordability pressures, particularly for those with fixed or lower incomes. Since there is no anticipated Project workforce presence expected on-reserve, no measurable changes to cost of goods and services are expected for LSFN, WFN and ANA. There may also be reduced confidence or access to traditional harvesting areas within the LSA and RSA due to environmental disturbances from the Project. Any disruption to access or change in the quality of experience on the land may also influence participation in traditional economy. Decreased participation in traditional economy could result in increased spending on market foods and decreased income from traditional economy, both of which can contribute to food insecurity.

Influence of Economic Opportunity and Inequality on Food Security:

The Project is expected to generate employment, training and skills development opportunities, improving short-term income stability for some residents participating in the workforce, as described in the CWB assessment. These opportunities may enhance household financial stability and contribute to local and regional economic activity through increased consumer spending. However, unequal access to jobs due to barriers such as childcare, transportation, or qualifications may reinforce existing inequities. Wage inequality between Project workers and other residents could also contribute to uneven distribution of

benefits and localized economic polarization. Therefore, economic opportunity and the distribution of wealth, has the potential to both positively and adversely affect food security.

Residual effects related to cost of living and traditional economy for LSFN, WFN, ANA, NWOMC and RLEF and residual effects related to economic opportunity and inequality for LSFN, WFN, NWOMC and RLEF were anticipated after implementation of mitigation and enhancement measures.

Overall, the Project is anticipated to benefit the economy overall through job creations, increased income and disposable income, and business opportunities. However, benefits are felt more so by those directly benefitting from the Project (i.e., hired employees), and unequal access to jobs due to barriers such as childcare, transportation, or qualifications may reinforce existing inequities. As discussed above in relation to the findings of upstream pVCs and fVCs, reduced use of traditional foods as a result of physical or perceived reduction in access to traditional foods or traditional food quality can increase reliance on market foods which can impact food security based on affordability and quality of the market foods attainable to an individual or household. Higher income is associated with better access to high quality foods and therefore improved food security, particularly due to high food costs in the region. As such, food security concerns related to reduced access (physical or perceived) to traditional foods from Project activities may be counterbalanced by improved food security via increased income for those individuals and families benefitting from the Project.

HHERA Results

The results of the HHERA were relied upon for the assessment of changes to multi-media environmental quality, and for the assessment of changes to access and availability of traditional foods, both of which are determinants of health that are linked food security. Full details of the receptors and exposure pathways considered, and the risk characterization results for the HHERA multi-media assessment are presented in Impact Statement Appendix N-1 (WSP 2026a) and summarized in Section 6.1.2.3.

The HHERA multi-media assessment determined that for non-carcinogenic POPCs (i.e., inorganic arsenic, inorganic mercury, methylmercury, selenium), baseline conditions (i.e., existing conditions) were the main driver for human health risks. The incremental Project risks for each phase are below the target HQ of 0.2, representing a negligible change from baseline risks due to Project activities. For carcinogenic effects of inorganic arsenic, the calculated risks were below the target ILCR value of 1E-05 (i.e. 1 in 100,000). As such, the Project is not expected to increase human health risks for the average consumer or heavy consumer Indigenous resident living, working, and recreating in the LSA and RSA from exposure to inorganic arsenic, inorganic mercury, methylmercury, inorganic selenium during any Project phase.

The results of the HHERA ecological multi-media assessment determined that the HQs calculated for terrestrial plants and soil invertebrates were below the target of 1.0 for all Project phases with no measurable change in the HQs for the Project phases compared to baseline. For aquatic life and mammals and birds, results marginally above the target HQ of 1 were estimated for some POPCs for all Project phases, changes in calculated HQs between baseline and the Project phases were less than 0.1 for all Project phases. Given the conservative assumptions used in the calculations of the HQs and the negligible contributions to the HQ by the Project, Project activities are not expected to result in unacceptable risks to terrestrial plants, soil invertebrates aquatic life communities, mammals and birds. Amphibians and reptiles were qualitatively evaluated using mammals and birds as surrogates, therefore no unacceptable risks due to the Project for amphibians and reptiles are expected based on the findings for mammals and birds. As such, Project activities are not anticipated to pose risks to the ecological receptors (including species identified as traditional foods by local Indigenous communities) via exposure to Project parameters in soil and surface water.

While the HHERA did not identify unacceptable risks for human and ecological health based on Project contributions to POPC concentrations, it is acknowledged that Indigenous people in the region view health as a holistic balance including complex connections to the environment and all living things. Potential effects to health associated with multi-media environmental quality (as an input to food security) should be interpreted in the context of the interconnectedness of physical, mental, emotional and spiritual health.

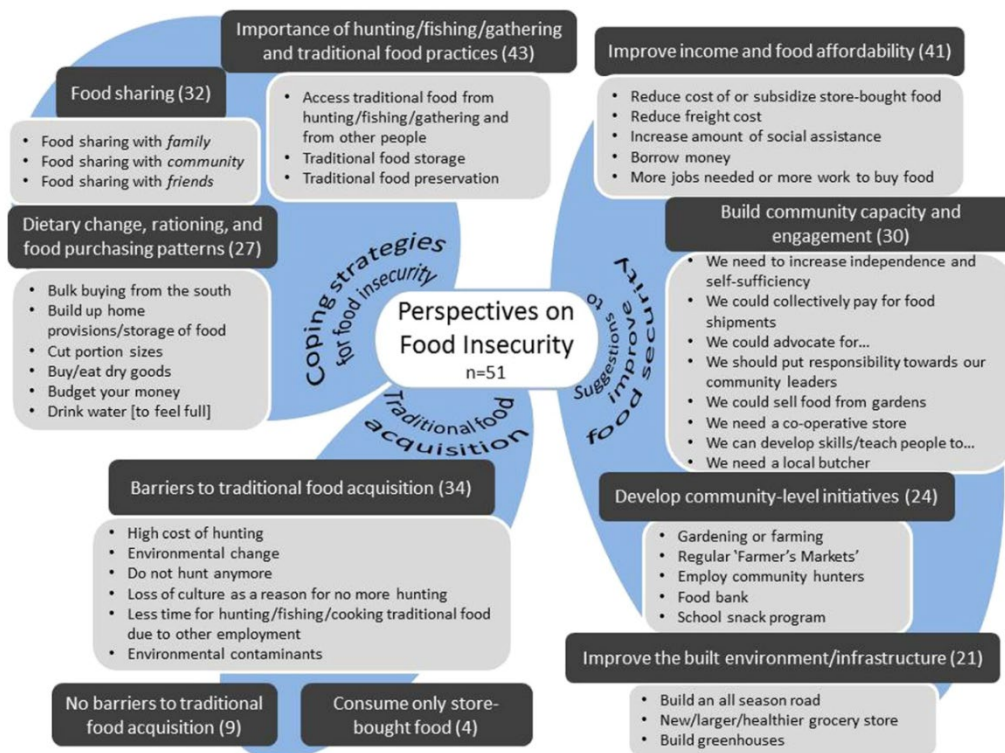
Overall, the results of the HHERA did not indicate risks to Indigenous health from Project activities, including consideration of consumption of traditional foods; however, perceptions have the potential to change participation in traditional food harvesting and consumption despite HHERA findings. Given the findings of the HHERA do not suggest that additional restrictions on the harvesting and consumption of traditional foods are required, that is, no restrictions beyond existing MECF fish consumption advisories for the area (details provided in Impact Statement Appendix T; WSP 2026b), any effect on food security is expected to be minimal and limited to perception issues and avoidance.

Primary and Grey Literature

Food security and food sovereignty are explored extensively in the primary and grey literature, including considerations of traditional foods consumption by Indigenous communities.

For example, a study by Skinner et al. (2013) reported the results of interviews of Indigenous adults living in Fort Albany First Nation. It is noted that Fort Albany First Nation is a very remote community located in the James Bay Lowlands of northern Ontario, accessible only by plane (year-round), boat (ice-free season) and ice road. This community is significantly more remote than the Project and therefore likely experiences food insecurity more acutely than Indigenous communities local to the Project, however, themes gathered from interview responses in the Skinner et al. (2013) study, as presented in Figure 6-26 closely aligned with other food security literature. Common responses included that participation in traditional food practices (i.e., hunting, fishing, gathering) and sharing food between family members and between members of the community were identified as important strategies to address food insecurity, however, high costs associated with equipment (i.e., required hunting equipment) and transportation (i.e., fuel costs associated with travel to hunting areas), and observed changes to the environment (i.e., change in snowfall patterns, change in migratory patterns of animals) were identified as barriers to increased reliance on traditional food practices. The absence of a hunter in the household was also cited as a common barrier. High costs of market food was also recognized as a source of food insecurity in the study (Skinner et al. 2013).

Figure 6-26: Conceptual Diagram Illustrating the Indigenous Perspectives on Food Insecurity for a Remote Indigenous Community



Source: Skinner et al. 2013.

The barriers to participation in traditional food practices identified by Skinner et al. (2013) were consistent with findings from other literature. Banerji et al. (2023) conducted a literature review which considered peer-reviewed articles and reports produced by First Nations, Inuit and Métis organizations / councils, with the aim of characterizing the extent of food insecurity among Indigenous children in Canada. The review found that, as similarly reported by Skinner et al. (2013) high costs associated with equipment and travel for hunting / fishing, having a hunter in the family, and climate change effecting migration patterns were barriers to traditional food access. Additionally, Banerji et al. (2023) cited contaminants present in the environment and land access policies as further barriers. Banerji et al. (2023) linked access to traditional foods to food security, citing the Métis National Council which identified reduced access to traditional land through the lasting legacy of colonialism as a prevalent and chronic factor of food insecurity.

The National First Nations Regional Health Survey was cited as reporting that “*over half of FN adults were moderately or severely [food insecure]*”. Households with children were found to be associated with increased rates of food insecurity based on some sources reviewed by Banerji et al. (2023). National First Nations Regional Health Survey, as cited by Banerji et al. (2023), reported that 43% of households with children were moderately or severely food insecure. The FNFNES (Chan et al. 2021, as cited in Banerji et al. 2023; Batal et al. 2021b) reported that based on responses of 92 on-reserve First Nations across Canada, 54% of households with children experienced food insecurity in comparison with 36% of households without children and 76% of households with children was reported to be food insecurity in one First Nations community in northern Ontario (Skinner et al. 2014, as cited in Banerji et al. 2023). Banerji et al. (2023) found that Métis and First Nations youth living off-reserve also struggled with food insecurity due to high food costs, unavailability of healthy market foods and lack of access to market foods (i.e., lack of or unaffordable transportation to market food locations). Batal et al. (2021b) reported findings from Tarasuk et al. (2019) which used CCHS information to determine that “*the probability and severity of food insecurity are more than 50% (or between 34% and 78%) higher in off-reserve Indigenous households than in the general population of Canada.*” Based on the First Nations Regional Health Survey, 54% of on-reserve First Nations individuals experience food insecurity (First Nations Information Governance Centre 2012, as cited in Batal et al. 2021[b]).

Banerji et al. (2023) also evaluated contributing factors for vulnerability to food insecurity. Citing the 2015 Truth and Reconciliation Commission report, it was reported that “*trauma from residential schools and other discriminatory policies that have led to inter-generational trauma, addictions, underemployment and poverty for some individuals and communities, all of which contribute to [food insecurity].*” The National First Nations Regional Health Survey reported that “*adults who attended or those with a parent or a grandparent who attended a residential school had a higher proportions of severe food insecurity than those who did not (16.4%, 16.2% respectively, versus 6.9%)*”. Poverty was identified as the driving factor of one’s food security status (Banerji et al. 2023). As such, households with dependents (i.e., children), large families, single parent families (particularly families headed by single women), level of education and income are recognized as factors for food security. Lack of knowledge of food nutrition, living in areas of high population density or living in remote communities was also associated with food insecurity (Banerji et al. 2023). Domingo et al. (2020) similarly, based on a review of the FNFNES, identified (i) remote communities (i.e., without year-round roads), (ii) female respondents, households with children, (iii) households receiving social assistance and (iv) less than 10 years of education, as factors of food insecurity.

As discussed above in Section 6.2.4.1 (Health Linkages), food security is an important determinant of health that is influenced by a complex interplay of factors. Banerji et al. (2023) reported that food insecurity in youth is a predictor of malnutrition and is associated with increased risk of chronic health conditions including obesity, cardiac disease and cancer. Food insecurity in youth is also associated with cognitive deficits, behavioural problems, and reduced academic success with potential repercussions of future unemployment which can exacerbate intergenerational poverty.

Domingo et al. (2020) and Banerji et al. (2023) identified associations between food insecurity and increased rates of obesity. Batal et al. (2021a) reported that levels of obesity and diabetes in First Nations peoples is double that of other Canadians. Food insecurity is associated with nutritional deficits,

increased risk of physical and mental health conditions, elevated mortality rates and increased reliance on health care (Tarasuk et al. 2019; Men et al. 2020). Further information is provided in Section 6.2.4.1.

In a 2021 study carried out by the SLFNHA for Kiiwetinoog, an area with overlapping geography with northwestern Ontario, examined food affordability in the region. The National Nutritious Food Basket (NFB) survey tool used by Ontario Public Health Units to estimate the cost of food for a typical family of four (assumes a 31 to 50 year-old woman, 31 to 50 year-old man, 8 year-old girl and 14 year-old boy) using the CCHS and Canada's Food Guide to monitor food affordability (SLFNHA 2024a). A revised NFB tool, which was developed through collaboration between Health Canada and Crown Indigenous Relations and Northern Affairs Canada was used to calculate monthly food costs for a family of four using publicly available food cost information available in March 2021 based on 14 stores in Sioux Lookout area First Nations (SLFNHA 2024a). The revised NFB tool was developed to address accuracy concerns of the NFB tools in relation to Indigenous communities but assumes the same family of four characteristics. Using the revised NFB tool, the average cost (\$1,756.12) was reported to be approximately 86% higher than for a similar food basket in Thunder Bay (i.e., urban centre), with two-thirds of the cost driven by fruits, vegetables, meats and meat alternatives. The cost represented 22-62% of total monthly income for a theoretical family of four (SLFNHA 2024a).

The study also calculated monthly food costs for a family of four using food cost information available in August and September 2022 by working directly with three stores in Sioux Lookout area First Nations using the NFB tool (SLFNHA 2024a). Through this method, the average cost (\$1,769.43) was reported to be approximately 37-69% higher than for a similar food basket in urban centre Northwestern Ontario towns / cities (\$1,088 to \$1,295.18). Importantly, it was noted that more than half of the food items on the NFB list were not available from the stores at the time of the survey (SLFNHA 2024a). This highlights the difficulty of attaining health food in northern Ontario First Nations communities. It is noted that the SLFNHA (2024a) does not consider what foods communities are actually eating, where food is actually purchased, family structure information which would influence type of foods purchased, or how income is distributed.

A similar NFB calculation was completed by the NWHU (2024). The average monthly food costs associated with a family of four in the region was reported calculated as \$1513 for a month (up 7% from 2023), representing 15.6% of income for a median Ontario income, 23% of income for one minimum wage earner, 50% for Ontario works family, 36 to 77% of income for single parent households, 35-58% of income for single males on social assistance programs, 15% of income for female on old age security. It is noted, however, that the NFB tool used to calculate these costs does not take into account specialty diet, cultural considerations for diet, or access to food stores, and the Revised NFB tool would more accurately represent Indigenous communities.

The NWHU reported that food insecurity increased risk of diabetes, heart disease, and other chronic conditions, depression, anxiety and mood disorders, and was associated with increased health care costs (i.e., more frequent hospitalization, longer hospital stays), limitations to employment, social isolation and general wellness (NWHU 2024; 2025). The NWHU (2024) report referenced a report which indicated that food insecurity can result in a lifespan nearly 10 years less than a food secure individual (PROOF 2024). The NWHU 2024 report included strategies to address food security via income including:

- *“Minimum wage, social assistance, and disability rates that reflect the actual cost of living and are indexed to inflation.*
- *A basic income guarantee or guaranteed livable income.*
- *Housing infrastructure that is accessible, affordable, and meets the needs of communities.*
- *Accessible and affordable childcare services, and child benefits designed to adequately support low-income families.*
- *Employment stability, security, and benefits.”*

The SLFNHA report cited Tarasuk et al. (2019) and Batal et al. (2021b) which found that food insecurity disproportionately impacts Indigenous household (28% food insecure Indigenous households versus 11% non-Indigenous households in Thunder Bay, and this is even more prevalent in remote northern

Indigenous communities (greater than 50% food insecure Indigenous households). Precarious and costly food supply chain issues and communities without year-round road access were recognized as contributing factors to food security pressures in northern Ontario.

In 2019, SLFNHA provided Food Security surveys to 33 communities to characterize food security conditions. Based on results provided by 24 communities, high nutrition food items were often unavailable in participating communities. High costs associated with transportation and storage results in higher food costs in Northern Ontario. Indigenous households living on reserved in northern Ontario spend a significantly higher portion of their household income on food compared to the provincial average and average in more urban centres in northern Ontario (Ledrou and Gervais 2005, as cited in SLFNHA 2019b). The SLFNHA report (2019b) detailed the now defunct Mail in Food Subsidy Program which allowed individuals to submit receipts for applicable items to receive government reimbursement. However, this program was replaced in 2011 with the Nutrition North Food Subsidy which many remote communities do not qualify for, or receive a very limited subsidy which does not effectively lower food costs (CBC 2014, as cited in SLFNHA 2019b). The survey results indicated that traditional food practices (i.e., hunting, gathering) were recognized as strategies to address food security. However, lack of equipment, lack of time for participation, transportation, land access restrictions, changes in environmental quality and climate change were cited as barriers to participation in traditional food practices. Loss of traditional knowledge was also cited as a barrier, which is exacerbated by continued reduction in traditional food practices due to other barriers (SLFNHA 2019b).

Across the responses from communities, a lack of knowledge of available programs to support food security was a common theme, with communities expressing interest in food security programs but also concerns about program funding and required training (i.e., training for growing healthy foods). Community gardens / greenhouses, community farms, indoor growing programs, animal husbandry, food distribution programs which leverage existing distribution and supply chains for community benefit (rather than business benefit), nutrition education programs, food skills programs (fishing / hunting / gathering / cooking / meal planning classes), agroforestry and improved food policy (funding plans, price monitoring, bans on certain unhealthy foods) were identified as potential strategies to improve food security in the Sioux Lookout area (SLFNHA 2019b).

Indigenous Knowledge and Community-specific Information

This section presents IK that was received from some of the local Indigenous communities, supplemented by other relevant community-specific information that was publicly available, to identify where and how IK was incorporated into the assessment of Indigenous health.

While the TKLUS provided by or for some of the local Indigenous communities did not include data on food security at the community-level; LSFN and WFN did mention food security as a general concern in a confidential report. In addition, publicly available information and community-specific survey data were identified for inclusion.

As stated in the Impact Statement Sections 10 to 14 (fVC Indigenous Peoples), changes to food security and access to traditional food sources (linked to food security) were identified as key concerns based on engagement and consultation with Indigenous communities. LSFN, NWOMC and RLEF directly identified food security as a key concern, and WFN and ANA identified food availability and access to traditional food sources, respectively, as key concerns. Historical industrial activity in the region has influenced existing (baseline conditions) in the region. For further details, please refer to the HHERA (Impact Statement Appendix N-1; WSP 2026a) and Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies (Impact Statement Appendix T; WSP 2026b). Potential effects to Indigenous health resultant from changes in food security are assessed for all Project phases in the construction, operations and closure subheadings below.

While not provided through IK, a publicly available presentation from Mergler et al. (2019) reported the results of a community based-health assessment carried out in ANA between 2015-2018. 424 adult and 353 children participated in the survey. Survey results indicated that 54% of ANA respondents identified that they struggle to pay for food at least a few times a year, in comparison to 37% of respondents from First Nations in Ontario and 40% of First Nations in Canada, as per the First Nations Regional Health Surveys for Ontario and Canada (2008-2010). Similarly, 24% of ANA respondents identified as severely

food insecure compared to 15% of First Nations in Ontario and 13% of First Nations in Canada (Mergler et al. 2019). Mergler et al. (2019) suggested that the study results indicated that ANA members had more socio-economic disadvantages than other First Nations in Ontario and Canada.

Relevant Baseline Health Information

Baseline conditions related to food security are discussed in Existing Conditions, Section 6.2.4.2. Given the complex and varied interactions between food security and human health, there are a variety of health conditions and wellness indicators (e.g., chronic conditions, nutrition and diet) that may be influenced by food security. Existing health information can be found in the Baseline Health Profile (Attachment A). Existing conditions related to food security provide an indication of current conditions that may already be influencing baseline health status of communities in the region. These existing conditions provide an understanding of current conditions being experienced by communities in the region related to food security in order to identify potential Project related effects on Indigenous health.

In NWHU between 2018 and 2020, 79.9% of households reported being food secure compared to 83.3% of households in the province Ontario. More recent data show approximately 24% of households in the Kenora-Rainy River Districts are facing food insecurity, relative to 24.2% of households in Ontario as a whole, as of 2023 (NWHU 2024).

Considering age-specific and age-standardized rates of respondents to the CCHS from NWHU and Ontario, males in NWHU had higher rates of self-reported obesity rates than males in Ontario as a whole in 2021, whereas results for females in NWHU were not significantly different from Ontario. When disaggregated by age, those in age groups 45 to 64 and 65+ in the NWHU were significantly higher than their Ontario counterparts, whereas those aged 18 to 44 in the NWHU were similar to their Ontario counterparts (Attachment A).

Although food security rates between communities in the RSA (i.e., NWHU) appear similar (i.e., no significant difference between NWHU and Ontario) to provincial rates, these data were originally sourced from the Canadian Community Health Survey and the Canadian Income Survey, which does not consider First Nations on-reserve communities (NWHU 2024).

In 2011, the FNFNES assessed food security in First Nations communities using the Household Food Security Survey Module and results are summarized in a report titled FNFNES Ontario Regional Report (2011–2012) (Chan et al. 2014). It is noted that LSFN, WFN, NWOMC, and RLEF were not participants in this study; however, ANA participants were included. The highest household food insecurity rate (52%; 34% moderately and 18% severely) was reported among First Nations households located in the Boreal Shield / Subarctic Ecozone 1, compared to other Ontario ecozones in the study (Chan et al. 2014). In Ontario (all ecozones), when asked if their household would like to have more traditional food, the majority of adults (73%) said that they would (Chan et al. 2014).

Higher incidences of obesity have been linked to food insecurity (Te Vazquez et al. 2021). Males in NWHU had higher rates of self-reported obesity rates than males in Ontario as a whole in 2021, whereas results for females in NWHU were not significantly different from Ontario. When disaggregated by age, those in age groups 45 to 64 and 65+ in the NWHU were significantly higher than their Ontario counterparts, whereas those aged 18 to 44 in the NWHU were similar to their Ontario counterparts (Attachment A).

Overall, Indigenous communities in the region, may be experiencing higher rates of food security and obesity (for males) than the rest of the province, and some have expressed desire for improved access to traditional foods.

CONSTRUCTION

The construction phase of the Project is expected to occur over a three-year period and will include site preparation and the development of Project infrastructure. Food security during the construction phase could be indirectly influenced by changes in multi-media environmental quality, access and availability of traditional foods, and economics.

As discussed in Section 6.1.2.3, the available evidence from upstream pVCs and HHERA results indicated that for the multi-media POPCs, health risks from Project activities are not anticipated during construction since incremental risks from Project were below the target HQ of 0.2 for all Project phases and considered negligible in comparison to baseline risks. While physical health is not expected to be directly affected by Project interactions with multi-media environmental quality during construction, it is important to acknowledge that Indigenous people in the region view health as a holistic balance including complex connections to the environment and all living things. Potential effects to health associated with multi-media environmental quality (as an input to food security) should be interpreted in the context of the interconnectedness of physical, mental, emotional and spiritual health. Despite the HHERA findings predicting negligible risks from Project activities, perception issues related to environmental quality may indirectly change or limit the consumption of traditional foods by local Indigenous communities during construction. Self-imposed limitations on traditional food consumption based on perception may impact food security associated with both a decreased diet supplementation with traditional foods and costs associated with increased reliance on market foods.

As described in the CWB assessment and discussed in Section 6.1.4.3, for Indigenous communities, Project-related construction activities may result in changes to wildlife availability, plant harvesting areas, migratory bird habitat, and potential indirect changes to fish and aquatic systems which may disrupt availability of traditional foods. Indigenous people who previously accessed the PA and who access the LSA immediately adjacent to the PA for harvesting may experience changes in access and availability of hunted and trapped species and impacts to quality of experience due to sensory disturbance during construction. Changes to access to land-based food and medicines, including reduced participation in traditional economy, may deepen existing food insecurity, limit cultural continuity, and contribute to adverse health outcomes, particularly where store-bought food is expensive or nutritionally inadequate.

As described in the CWB assessment, the increased workforce-related population may increase demand for certain goods and services during construction, contributing to localized affordability pressures for residents, particularly those on fixed or lower incomes. These affordability and income changes can reduce economic resources and contribute to sustained or worsening food security. However, for those individuals employed by the Project, and their families, improved income stability is expected which may improve food security. Unequal access to jobs, however, due to barriers such as childcare, transportation, or qualifications, may reinforce existing inequities.

Collectively, food security is influenced by a multitude of interrelated factors that both directly and indirectly affect upstream environmental, social, cultural and economic conditions. Food security, which is often closely tied to an individual's socio-economic status, plays a crucial role in health because when people have sufficient financial resources, they can access a diverse range of nutritious foods, which can support better diet quality and reduce chronic disease risk (Ziso et al. 2022). Indigenous communities across Canada currently experience higher than average levels of food insecurity than the non-Indigenous population (Batal et al. 2021b; Tarasuk et al. 2019). Food security represents a public health concern in northwestern Ontario, with food insecurity in the Kenora-Rainy River Districts reported to be higher than provincial and regional averages (NWHU 2024). Given that the most prominent cause of food insecurity is poverty, the importance of distribution of additional economic supports in alleviating this disparity is critical. The available evidence from pVCs and fVCs suggests that food security could be positively affected by the Project via economic supports (income, employment, benefit agreements) that allow Indigenous families to have access to healthier and more diverse foods. This may include additional supports for purchasing hunting, fishing and harvesting equipment for participation in traditional practices. However, food security may also be adversely impacted through perception issues and / or changes in access and availability (i.e., alterations to ecosystems, sensory disturbances in gathering/hunting areas) of some wildlife, fish and / or plants that may change or limit the consumption of traditional foods by local Indigenous communities and potentially exacerbate existing food insecurity concerns in the region.

Simultaneously, increased population during construction which may impact affordability due to increased demand for certain goods and services may add further stress for food insecure individuals. Access to traditional foods is an important strategy for addressing food security (Skinner et al. 2013; Banerji et al. 2023; SLFNHA 2019b), as traditional foods can be an affordable and high nutritional value source of food, alternative to high cost, low nutritional value market foods. Reduced use of traditional foods can increase

reliance on market foods which can impact food security based on affordability and quality of the market foods attainable to an individual or household. Market foods in Northern Ontario are higher in cost than those in the rest of Ontario, and significantly more so in remote regions of Northern Ontario in comparison to urban centres (SLFNHA 2024a; NWHU 2024). These high costs can result in reduced access to market foods in general, and / or reduced access to high nutritional value market foods (i.e., fresh produce) which are often more costly than foods with poorer nutritional value (i.e., processed foods).

Overall, for those Indigenous people employed by the Project and their families, Project activities are anticipated to improve food security through increased income allowing for access to adequate amounts of, and higher nutritional quality, foods. For Indigenous households not employed by the Project, Project activities that interact with cost of living may add additional strain to food security for some individuals; however, no measurable deviations from baseline population-level health resulting from Project activities is anticipated. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. Mitigations will be required to minimize potentially adverse effects related to perception to avoid disruption to traditional food practices and traditional economy, minimize effects to cost of living and maximum economic benefits. These mitigations include but are not limited to local hiring policies to support economic opportunities, funding for Indigenous-led education and training for land-based activities to minimize concerns related to cost of living and traditional economy, data sharing agreements with local Indigenous communities, and support of Indigenous environmental monitoring program to minimize concerns related to perception of multi-media environmental quality. While economic changes due to the Project may result in an overall benefit to Indigenous health, the implementation of carefully designed mitigations are key to mitigating adverse effects and enhancing the benefits of the Project. Great Bear Resources has indicated that commercial project agreements are in progress with LSFN, WFN and NWOMC to minimize adverse social effects and maximize economic opportunities for Indigenous communities. While the specifics of this agreement are confidential, the agreements are assumed to provide economic benefit to on-reserve communities and off reserve band members. A list of mitigation and enhancement measures are presented in Section 6.1.2.4 for multi-media environmental quality, in Section 6.2.1.4 for economics, in Section 6.2.4.4 for food security and in Section 7 for the HIA overall.

OPERATIONS

The operations phase is anticipated to extend over a 26-year period. Similar interactions as the construction phase will continue in operations. Given that Indigenous people in the region view health as a holistic balance including complex connections to the environment and all living things, potential effects to health associated with multi-media environmental quality and access and availability of traditional foods (as an input to food security) should be interpreted in the context of the interconnectedness of physical, mental, emotional and spiritual health. While HHERA results indicate that incremental risks from Project were below the target HQ of 0.2 for all Project phases and considered negligible in comparison to baseline risks and physical health is not expected to be directly affected by Project interactions during operations, perception issues related to environmental quality may indirectly change or limit the consumption of traditional foods by local Indigenous communities during operations. Further, Indigenous people who previously accessed the PA and access the LSA immediately adjacent to the PA for traditional harvesting practices may experience changes in access and availability of hunting and trapped species and effects to quality of experience due to ongoing sensory disturbances related to Project activities and temporary or longer-term avoidance of certain areas may occur. Self-imposed limitations on traditional food consumption based on perception may impact food security associated with both a decreased diet supplementation with traditional foods and costs associated with increased reliance on market foods.

As stated in the CWB assessment, affordability concerns related to increase demand for goods and services resultant from Project-related population growth noted in construction are anticipated to continue through operations. Changes to traditional economy (i.e., reduced income from traditional economy and increased reliance on higher cost market goods) related to perceived changes to the environment are also expected to continue through operations. These affordability changes can reduce economic resources and strain food security particularly those on fixed or lower incomes. However, Project-related income and economic opportunities for Indigenous individuals and their families may improve food

security. Unequal access to jobs, however, due to barriers such as childcare, transportation, or qualifications, may reinforce existing inequities during operations, continued from construction.

Overall, based on continued interactions similar to construction, during operations it is expected that for those Indigenous people employed by the Project and their families, Project activities are anticipated to improve food security through increased income allowing for access to adequate amounts of, and higher nutritional quality, foods. For Indigenous households not employed by the Project, Project activities may add additional strain to food security based on potential reduced participation in traditional food practices and traditional economy, and increased affordability pressure from rising costs of goods and services; however, no measurable deviation from baseline population-level health resulting from Project activities is anticipated. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. Mitigations will be required to minimize potentially adverse effects related to perception to avoid disruption to traditional food practices and traditional economy, minimize effects to cost of living and maximum economic benefits. These mitigations include but are not limited to local hiring policies to support economic opportunities, funding for Indigenous-led education and training for land-based activities to minimize concerns related to cost of living and traditional economy, data sharing agreements with local Indigenous communities, and support of Indigenous environmental monitoring program to minimize concerns related to perception of multi-media environmental quality. A list of mitigation and enhancement measures are presented in Section 6.1.2.4 for multi-media environmental quality, in Section 6.2.1.4 for economics, in Section 6.2.4.4 for food security and in Section 7 for the HIA overall.

CLOSURE

The closure phase is anticipated to occur over a three-year period, immediately after operations stop. These activities will be similar to those during the construction phase although activities will be on a much smaller scale. The HHERA results indicate that health risks from Project activities are not anticipated during any Project phase given that incremental risks from Project were considered negligible in comparison to baseline risks, and physical health is not expected to be directly affected by Project interactions during closure. Perception issues expected during construction and operations related to environmental quality may continue during closure, but would be expected to diminish over time. Interactions similar to those identified during the construction and operation phases will continue in closure relation to access and availability of traditional foods. Changes to or avoidance of traditional food consumption based on perception during the closure phase may impact food security associated with both a decreased diet supplementation with traditional foods, and costs associated with increased reliance on market foods. With the re-establishment of vegetation communities during closure, wildlife are expected return to the PA and surrounding area. This leads to the possibility of a return of use of the PA for harvesting for food and medicinal purposes. As the availability and reliability of traditional food resources may improve, food security may improve for some individuals. Restoration of harvesting opportunities also contributes to cultural continuity and land-based practices that support mental, emotional, and spiritual wellness for Indigenous communities.

As stated in the CWB assessment, population reduction as the Project workforce leaves the region can improve affordability of goods and services potentially improving food security for some individuals. However, households that relied on Project-related income may face financial stress during this transition, and limited alternative employment or training options may widen existing inequalities, particularly for those with high care responsibilities or limited financial resiliency. This income instability can result in decreased food security. Through closure activities there is expected improved access to lands and resource areas which can support traditional food consumption, with opportunities for increased income supplementation through traditional economy, thus improving food security. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.

The overall intent of the Closure Plan is to restore the Project to a naturalized condition. As described in the CWB assessment, confidence in land and water quality will remain a key determinant of recovery, influencing whether members resume harvesting and other traditional practices in reclaimed areas. Over the long term, reclamation and revegetation activities may support restoration of traditional practices if trust in environmental outcomes is rebuilt. Mitigations related to restoration of the Project to a naturalized condition, building and maintaining trust in environmental outcomes via Indigenous environmental

monitoring, will maximize the potential for food security improvements associated with traditional food consumption. Mitigations such as a social closure plan will act to minimize adverse effects from income instability at Project closure, and project agreements to maximize economic opportunities for Indigenous communities beyond the life of the Project will ease the transition through and beyond post-closure, potentially resulting in improved food security status beyond the life of the Project.

6.2.4.4 MITIGATION AND ENHANCEMENT MEASURES

Table 6-39 outlines the key mitigation and enhancement measures recommended based on the assessment of changes to food security. These mitigation and enhancement measures are anticipated to apply across all Project phases unless otherwise specified. General mitigation measures for closure activities that relate to Indigenous health are also included.

Table 6-39: Mitigation, and Enhancement Measures for Food Security

Mitigation and Enhancement Measures for Multi-media Environmental Quality	Rationale
<u>Environmental Management Committee:</u> GBR will work with the environmental management committee(s) and interested Indigenous members throughout the duration of the Project (all phases), to facilitate ongoing communications, sharing and integration of Indigenous knowledge and environmental information, and share and evaluate Project approvals, adaptive management and monitoring plans, and address emerging issues and interests identified by Indigenous Nations. ⁽¹⁾	Key aspects of the environmental management committee(s) related to Indigenous health are that: (1) it includes Indigenous members and (2) the committee will continue to operate for the duration of the Project. The committee is expected to mitigate against perception issues associated with environmental degradation and mistrust and is supportive of self-determination in addressing Indigenous issues. Collectively, these are expected to help mitigate against adverse mental health and community cohesion concerns.
<u>Education and Training (Project):</u> Provide budgeting and financial literacy tools available to all employees through the EAP, including a combination of organized workshops during working hours and optional individual supports that employees and their families can access on their own time. ⁽¹⁾	Financial literacy and money management skills have been shown to help to mitigate against adverse personal behavioural choices, including spending on alcohol and drugs. By making training available for all employees, and their families, this is expected to reduce the likelihood of adverse downstream health effects resulting from behaviours such as substance abuse, gambling and domestic violence.
<u>Education and Training (Region): Inclusive and Local Hiring Strategy (hiring policies):</u> Partner with Indigenous training and employment organizations to support culturally appropriate recruitment and retention of Indigenous candidates, to support employment of Indigenous workers, provide training, priority hiring and work towards continuous improvement including training and employment opportunities for Indigenous women. ⁽¹⁾	Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. By prioritizing hiring of Indigenous workers where possible, the benefits of employment (income, skills training, health / dental benefits, retirement supports) can be realized by Indigenous communities. In addition, the hiring of Indigenous women specifically was one of the calls to action in the National Inquiry on MMIWG for the resource development industry.
<u>Social Closure Plan:</u> Support consistent communication and planning throughout closure with emphasis on legacy, continuity, and shared decision-making. Develop a community transition plan in consultation with local Indigenous communities and groups so that decisions are made with integrity, based on cultural, spiritual and Indigenous well-being in mind. The plan will include collaborative planning, implement job-matching, retraining programs, financial literacy workshops, and economic diversification supports in anticipation of closure. ⁽¹⁾	Evidence shows that closure of a large employer in northern rural areas can have adverse effects, particularly in terms of income and employment, which is a key determinant of health. These boom-bust cycles have been well documented, with pre-closure mitigations playing a large role in the successful transition of local economies. This measure is anticipated to help mitigate against adverse health and well-being effects related to closure.
<u>Environmental Monitoring:</u> Environmental monitoring programs for surface water and aquatics will include constituents and related health-based benchmarks as considered in the	The HHERA multi-media assessment results do not indicate an effect to human health from the Project, including human health-based constituents and benchmarks in water and aquatic / fish monitoring programs is important to validate

Mitigation and Enhancement Measures for Multi-media Environmental Quality	Rationale
health assessment (such as arsenic, mercury, methylmercury and selenium). Aquatics sampling programs will also include ongoing sampling and testing of fish quality in species identified for human consumption (i.e., walleye / pickerel, lake whitefish, northern pike, trout) as captured.	assessment assumptions, provide evidence regarding the effectiveness of mitigation measures, and assist in mitigating community perception issues related to safety, environmental quality and health.
<u>Environmental Data Sharing Agreements:</u> GBR will share environmental monitoring data (air, water, fish) with Indigenous communities that request it on an annual basis and provide opportunities (including funds) to conduct their own reviews.	Providing environmental monitoring data, in a timely manner, to interested Indigenous communities is anticipated to promote transparency and relationship-building, while provision of funding for communities to conduct their own reviews, analyses and / or assessments using the data will empower and resource Indigenous communities. This measure is anticipated to mitigate against mental wellness and community cohesion effects, related to perception issues, lack of trust, and environmental quality concerns, over time.
<u>Indigenous Environmental Monitoring Programs:</u> GBR is committed to involving Indigenous communities in environmental monitoring activities throughout all phases of the Project, including opportunities for participation in the collection and sharing of environmental monitoring information and results.	This Indigenous initiative is expected to have a positive effect on participating Indigenous communities, enhancing knowledge transfer and community cohesion. It is also expected to mitigate against adverse perceptions of environmental quality and safety, and promote overall physical and mental health and wellness through time spent on the land.
<u>Support for Indigenous-led Education and Training for Land-Based Activities:</u> Support for Indigenous-led education and training for land-based activities (hunting, gathering, plant harvesting) in the region and promote skills and knowledge transmission among Indigenous communities, including Indigenous youth.	Primary literature indicates that land-based learning among Indigenous people has beneficial downstream effects on health, mental wellness and cultural / community cohesion. This mitigation is intended to act as a mitigation to minimize adverse effects and also an enhancement intended to support Indigenous practices, cultural continuity, traditional economy and growth of the eco-tourism industry in the area.
<u>Indigenous Procurement (Local Procurement Policy):</u> Help strengthen Indigenous participation in business opportunities by developing Project procurement policies that support Indigenous economic development and reconciliation.	Supporting the local Indigenous economy helps to protect against disparities that currently exist between Indigenous and non-Indigenous communities. Supporting Indigenous businesses, where appropriate, focuses more of the economic benefits of the Project on Indigenous communities broadly rather than concentrated on the working population (i.e., those employed by the Project). This is anticipated to mitigate against physical and mental health outcomes associated with lower socio-economic status.
<u>Employee Benefits Program:</u> Benefits program will include coverage for health care, prescription drugs, dental and access to in-person and online mental health services for employees and their families.	Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. The inclusion of benefits for employees and their immediate families mitigates against broader affordability issues including access to health care, dental and mental health (including addiction) services.
<u>Retirement Planning and Support:</u> Offer a retirement pension plan, Registered Retirement Savings Plan matching or equivalent, to employees to help support longer term financial stability.	Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. Financial literacy and financial planning, including retirement planning and support, help to mitigate against a wide range of economic-related downstream health issues in elderly (retired) populations.

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC). EAP = Employee Assistance Program; fVC = federal valued component; GBR = Great Bear Resources; HHERA = Human Health and Environmental Risk Assessment; HIA = Health Impact Assessment; MMIWG = Missing and Murdered Indigenous Women and Girls; OCAP = ownership, control access and possession; pVC = pathway valued component.

The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2) are in place as planned.

6.2.4.5 GBA PLUS CONSIDERATIONS

In accordance with Health Canada guidance (Health Canada 2024a), the HIA takes an equity approach to assessing potential effects by examining the potential distribution of effects across different sub-populations within the Indigenous communities. This section highlights how Indigenous identity intersects with the other GBA Plus identity factors described below. Table 6-40 applies a GBA Plus lens that treats Indigenous identity as a central identity factor, and the other identity factors described below are discussed within this context. At the bottom of this table there is a section highlighting key intersectionality considerations, Indigenous identity is at the center of this qualitative analysis.

It is important to note that while this section identified subgroups that have the potential to experience effects uniquely from changes to food security, the analysis should be considered in the context of the potential effects assessment findings. The analysis below identifies populations that could be disproportionately affected and also discusses the potential health effects, or lack thereof, as identified in the assessment.

Table 6-40: GBA Plus and Equity Considerations – Food Security

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Gender	Disproportionate (Women+)	Studies have recognized females and families headed by single women as factors of food insecurity (Banerji et al. 2023; Domingo et al. 2020).
Age	Disproportionate (Youth)	Studies have identified disproportionate distribution of food insecurity in households with children, wherein households with children and large families have been recognized as factors of food insecurity (Banerji et al. 2023; Skinner et al. 2014; Chan et al. 2021; Batal et al. 2021b; Domingo et al. 2020).
Physical Ability	Disproportionate (Individuals with disabilities)	Based on the findings of the 2021 Canadian Income Survey, individuals with disabilities were found to be more likely to be food insecure than those individuals without disabilities (Statistics Canada 2024c). In addition individuals with physical disabilities may face barriers to accessing traditional foods.
Socioeconomic Status	Disproportionate (Low-income individuals and households)	Poverty has been identified in literature as the driving factor for food insecurity (Banerji et al. 2023). Households received social assistance and households below the poverty line are more likely to be food insecure (Banerji et al. 2023, Domingo et al. 2020).
Mental Ability	Disproportionate (Individuals with mental health and substance abuse conditions)	Inter-generational trauma and additional have been reported in literature to contribute to food insecurity (Banerji et al. 2023). The National First Nations Regional Health Survey, reported that adults who attended or those with a parent or a grandparent who attended a residential school had a higher proportions of severe food insecurity than those who did not (16.4%, 16.2% respectively verses 6.9%) (Banerji et al. 2023).
Intersectional Analysis:	Intersectional effects may occur for individuals who are women+ or are children, and are individuals with disabilities, are lower-income, and individuals with mental health or substance abuse conditions. Intersectional effects may occur, as the combined influence of gender, age, physical ability, mental ability and reduced financial resources can compound vulnerabilities around food security.	

Notes:

% = percent; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); KDSB = Kenora District Services Board; OPP = Ontario Provincial Police

6.2.4.6 SUMMARY OF POTENTIAL EFFECTS: FOOD SECURITY

The following is a summary of the findings from the assessment of potential effects to health based on changes to food security (Table 6-41). The mitigation and enhancement measures recommended based on the assessment of changes to food security, including a description and rationale, are described in Section 6.2.4.4.

Table 6-41: HIA Potential Effects Summary: Food Security

Criteria	Description	Characterization
Health Determinant	Identify the determinant of health being assessed	<ul style="list-style-type: none"> Food Security (Social Determinant of Health)
Direction of Potential Effect	Describe whether the potential effect may be beneficial or adverse	<ul style="list-style-type: none"> Beneficial (Economic Opportunity): the potential effect on human health may be beneficial, thereby improving conditions that support Indigenous health.
		<ul style="list-style-type: none"> Adverse (Cost of Living, Traditional Economy, Perception of Traditional Foods): the potential effect on human health may be adverse, thereby diminishing conditions that support Indigenous health.
Scale of Potential Effect for this Determinant (post- mitigation)	Describes the expected scale of the Project-related effect to Indigenous health for this determinant	<ul style="list-style-type: none"> Minor (Beneficial – Economic Opportunity): the effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures. The assessment findings identified that overall, Project-related changes to income stability and economic opportunities may improve food security status for some individuals resulting in beneficial effects to Indigenous health; particularly those who receive benefits through employment or Project agreements. While some individuals may experience beneficial health effects, a population-level shift in Indigenous health is not expected.
		<ul style="list-style-type: none"> Minor (Adverse – Cost of Living, Traditional Economy, Perception of Traditional Foods): the effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures. The assessment findings identified that Project-related changes to population growth is expected to increase the cost of goods and services, leading to localized affordability pressures, and uneven income distribution may widen existing inequalities. Perception issues around environmental quality may change or limit participation in traditional food consumption for some individuals. These changes may intensify food insecurity for those individuals, resulting in adverse effects to Indigenous health. While some individuals may experience adverse health effects, a population-level shift in Indigenous health is not expected.
Affected Populations (Indigenous Communities)	Refers to the distribution of the effects across Indigenous communities and includes equity considerations	<ul style="list-style-type: none"> Assessment findings (i.e., Project-related changes) are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC, RLEF. However, beneficial outcomes for food security are largely tied to economic opportunities (agreements, employment), which may not be evenly distributed across the communities.
GBA Plus	Identify relevant GBA Plus considerations for this determinant	<ul style="list-style-type: none"> There are groups that may experience effects differently for this determinant. Details are discussed in individual GBA Plus sections (Section 6.2.4.5).

Criteria	Description	Characterization
Mitigations and Enhancements	Additional measures based on the assessment of potential effects for this determinant ⁽²⁾	<ul style="list-style-type: none"> Additional measures, beyond what is included in the other pVC and fVC sections of the Impact Statement are listed below for food security with further details provided in Section 6.2.4.4 and a list of health measures provided in Section 7: <ul style="list-style-type: none"> Environmental Management Committee ⁽¹⁾ Education and Training (Project) ⁽¹⁾ Education and Training (Region): Inclusive and Local Hiring Strategy (Hiring Policies) ⁽¹⁾ Social Closure Plan ⁽¹⁾ Environmental Monitoring Environmental Data Sharing Agreements Indigenous Environmental Programs Support for Indigenous-led Education and Training for Land-Based Activities Indigenous Procurement (Local Procurement Policy) Retirement Planning and Support Employee Benefits Program

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC).

2 Assumes measures included in upstream pVC and fVC sections of the Impact Statement are also implemented.

GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+) ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); HIA = Health Impact Assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; pVC = pathway valued component; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

While these findings are specific to this determinant of health (food security), an overall determination of the potential for residual effects for Changes to Health (fVC Indigenous Peoples) is provided in Section 8.

6.2.5 MENTAL WELLNESS AND PERSONAL BEHAVIOURS

This section includes an assessment of Indigenous health from changes in mental wellness and personal behaviours, including health linkages, relevant existing conditions, potential effects (construction, operations and closure), mitigation and enhancement measures and GBA Plus considerations.

6.2.5.1 HEALTH LINKAGES

The following section describes the generic scenarios by which human health can be influenced by mental wellness and personal behaviours. The linkages described here are not specific to one sector or community, instead, this section provides an overview of the relevance of mental wellness and personal behaviours as a determinant of Indigenous health.

Mental Wellness and Land Dispossession

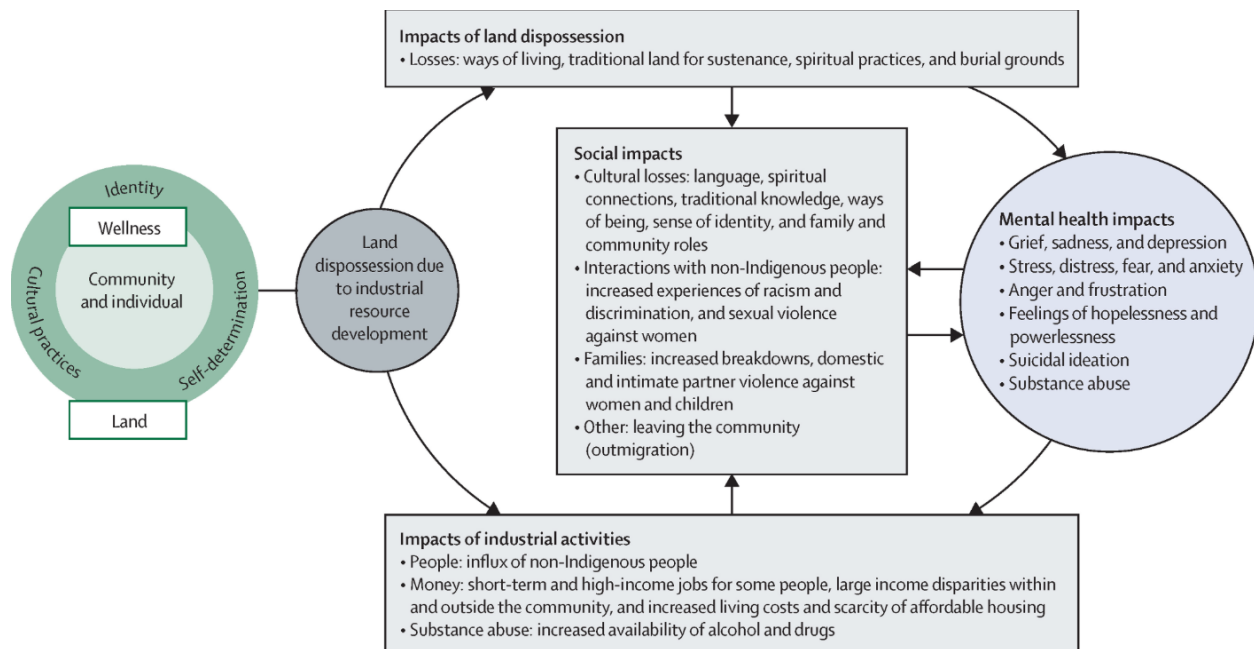
Mental wellness among Indigenous communities is understood holistically, and is deeply interconnected with spiritual, emotional, and physical health and well-being. The Indigenous worldview of All my relations upholds the notion that these dimensions of health are also connected to the health of all living things including the environment, culture, family and community (Lewis et al. 2021). Research emphasizes that mental health is not about measuring rates of indicators such as anxiety and depression, but rather about maintaining the balance between the different dimensions of Indigenous health, because “*well-being flows from balance and harmony among all these elements of personal and collective life*” (Lewis et al. 2021).

Mental health impacts from industrial development can occur through what is known as environmental dispossession for Indigenous people. “*Environmental dispossession is the process in which Indigenous people’s cultural connections between land and resources is compromised such that environmental dispossession and loss of cultural identity undermines health,*” (Richmond and Ross 2009; Tobias and Richmond 2014), as cited in (Lewis et al. 2021).

Land loss and environmental dispossession resulting from industrial resource projects can negatively affect mental wellness through multiple pathways of effect, including impacts to language cultural identity, relationships, and the ability to exercise self-determination. Examples of mental health endpoints resulting from land dispossession include “*grief, sadness, and depression; stress and distress, anxiety, and fear; anger and frustration; feelings of hopelessness and powerlessness; substance use; and suicidal ideation,*” (Ninomiya et al. 2023).

Land dispossession disrupts Indigenous people’s relationships to their land, identity, culture, and sources of wellbeing, producing direct mental health impacts such as grief, solastalgia, and loss of purpose. These environmental disruptions can also trigger a cascade of social impacts, such as community fragmentation, violence, racism, substance use, and economic inequities that also independently influence mental health. Although environmental and social pathways operate differently, with one rooted in place-based loss, the other in social disruption, they are deeply interconnected and often reinforce one another. It is difficult to disentangle the mechanisms in which these pathways of effect occur in qualitative research. Nonetheless, it is evident that together these pathways create a cycle in which land loss fuels social disruption, and social disruption further deepens mental health, emotional, and cultural impacts (Ninomiya et al. 2023). A conceptual diagram published by Ninomiya et al. (2023) that illustrates the pathways through which land dispossession can lead to mental health impacts is provided in Figure 6-27.

Figure 6-27: Conceptual Diagram Illustrating the Interconnected Social and Mental Health Impacts of Land Dispossession



Source: Ninomiya et al. 2023.

Research with Indigenous communities shows that culturally rooted sources of strength such as cultural identity, community belonging, and traditional healing practices play central roles in supporting resilience and improving mental health outcomes, particularly in the context of colonial impacts and intergenerational trauma (Ninomiya et al. 2023).

Participation in Traditional Activities, Transfer of Knowledge, and Cultural Continuity

There are various inter-related factors, stemming from the establishment of colonial programs and policies that have resulted in intergenerational health and wellness impacts and health inequities within Indigenous communities (NCCIH 2016). The historic and ongoing suppression of Indigenous culture and language have played a large role in sustaining health disparities and negatively effecting overall health status in Indigenous communities (NCCIH 2016; PHAC 2018). Cultural discontinuity has been shown to adversely affect mental health in many Indigenous communities, as it has been associated with increased prevalence of mental health conditions and adverse health behaviours (e.g., depression, suicidal ideation, substance abuse and aggression) (Kirmayer et al. 2000).

While the Indigenous population may experience a greater amount of stress than the general population, increased participation in Indigenous culture and language can act as a safeguard (NCCIH 2016). There is an emerging area of research analyzing how cultural identity and practice has contributed to the resilience of Indigenous people and how various aspects of culture, such as language, can have restorative effects and be protective of health (Carrier et al. 2022; Heid et al. 2022). For instance, integrating Indigenous traditional therapies into mental health programs has been proven to be particularly effective for the treatment of trauma resultant of the historic residential school system within Canada (NCCIH 2016; Sasakamoose et al. 2017). For Indigenous youth, supporting the development of self-identity with a foundation based in pride in one's culture and traditional languages has been shown to be beneficial for mental health (NCCIH 2016).

Community Cohesion

The following section describes the generic scenarios by which human health can be influenced by community cohesion. The linkages described herein are not specific to one sector or community, instead, this section provides an overview of the relevance of community cohesion as a determinant of human health.

Community and social cohesion is just one of the many factors that contribute to the health of a community. Social cohesion can be defined as “*a concept characterized as a person's trust and solidarity among a group of people,*” (Miller et al. 2020). In the literature, four major aspects of social cohesion were identified as stated in Miller et al. (2020):

- Trust: firm belief in the reliability, truth, ability, or strength of someone
- Connectedness: a feeling of belonging to or having affinity with a particular group
- Solidarity: unity or agreement of feeling or action, especially among individuals with a common interest
- Sense of belonging: feeling of security and support when there is a sense of acceptance, inclusion, and identity for a member of a certain group.

Social cohesion has been found to be associated with several health outcomes. One study, which focused on seniors, identified a direct relationship between the level and quality of social cohesion and improved ability to perform typical daily activities (i.e., mobility, hygiene practices and eating), improved self-rated quality of life, and improved self-rated happiness (Chen et al. 2015). Another study found that neighborhoods with higher residential stability and higher levels of social cohesion, exhibited lower rates of frailty (in terms of strength, energy and activity levels, physical presence, mobility) in older adults (Caldwell et al. 2019). Research suggests that such findings could be attributed to increased successful dissemination of information regarding opportunities for social gatherings, community events and physical activity, all of which are beneficial to improved health status, particularly in older adults (Caldwell et al. 2019). Adults living in more socially cohesive neighborhoods have also been found to exhibit improved health behaviors (e.g., lower levels of smoking and substance use, walked more for exercise) and improved mental health (Echeverría et al. 2008). In contrast, poor social cohesion has been documented to be associated with increased incidence of “*obesity, diabetes, depression, cardiovascular disease [and] cancer,*” (Miller et al. 2020).

Neighborhood social cohesion has the potential to be protective of mental health (Breedvelt et al. 2022; WHO 2008). A systematic overview of 42 peer-reviewed publications that primarily focused on adolescents and young adults determined that several social cohesion factors including perceptions of “*safety, trust, positive social connections, helping others, and a lack of crime and violence*” were associated with fewer symptoms of depression and anxiety (Breedvelt et al. 2022).

In addition, a report by the WHO highlights the significance of the correlation between healthy, supportive social and community relationships and systems and improved mental health status, particularly for children and adolescents (WHO 2008). Through the WHO collaborative cross-national Health Behaviour in School-aged Children study, it was determined that measures related to social cohesion, such as relationships with family and peers and neighbourhood dynamics, are closely tied to, and reciprocally exchange influence with, mental health and wellness among adolescents (WHO 2008).

Although the relationship between social cohesion and various psychological and physical health outcomes is a complex concept, it is undoubtedly, a well-documented social determinant of health.

Family Wellness and Relationships

Positive family relationships, such as those marked with emotional support, stability, and advice are linked to lower allostatic load (i.e., effects on the body due to chronic stress) (Thomas et al. 2017). Conversely, contentious family relationships such as those marked with frequent disputes or interpersonal conflict, may trigger biological responses that elevate vulnerability for compromised immune and cardiovascular function, and for mental health conditions, such as depression. (Thomas et al. 2017).

Working conditions, such as FIFO or drive-in and drive-out work requirements, rotational shiftwork, and long rosters, are common in industries like mining and oil and gas and may involve workers spending extended periods at remote sites followed by breaks at home. While these working arrangements can offer economic and financial benefits (Parker et al. 2018), they also can present unique challenges for both the individual and wellness of their family (Aalhus et al. 2018). The extended absences can lead to feelings of isolation and disconnection for both the worker and their family, impacting mental health and increasing stress levels (Parker et al. 2018).

Intergenerational Trauma

Indigenous people across Canada experienced trauma and abuse through colonialism in an effort to destroy First Nations cultural ways; these experiences have an effect at personal, social and cultural levels (Gibson et al. 2017). Trauma experienced by one generation can also be transmitted to subsequent generations, resulting in intergenerational impacts, including learned violence, loss of language, loss of emotional security and family connections, and a loss of respect for First Nations culture (Aguilar and Halseth 2015).

Many children of parents who attended residential school did not experience healthy role modelling and as a result, parenting capacity was often diminished over generations. As a consequence of these diverse personal, familial, social, economic and cultural challenges, First Nations encounter adverse childhood experiences that have lasting effects on health and wellness (Reading and Halseth 2013).

Personal Health Behaviours and Substance Use

Research has shown that the demanding work environments, higher incomes, and shift schedule linked to resource development may also be contributing to adverse health impacts in some northern communities (Aalhus et al. 2018). For instance, a study conducted in northern British Columbia found that the shift schedule associated with the mining sector have led to adverse effects, including problematic substance use and issues concerning family dynamics (Aalhus et al. 2018). “[R]esearch suggests that many camp workers spend large proportions of their income on alcohol and drugs” and that “[i]ndividuals who have worked in the oil and gas industry since they were teenagers reported that their entry into industry-related employment also provided them with an entry into a drug scene.” (Aalhus et al. 2018).

According to Gibson et al. (2017), since the 1990s the resource industry has shifted towards mobile, temporary workforces, often using the FIFO model or drive-in and drive-out work systems. While economically efficient, this model can bring unprecedented social and cultural changes that are often underrecognized when camps are located near communities. Due to the nature of industrial camps,

workers can experience isolation from family and friends. Increases in transient workforces, combined with increases in disposable income and sometimes stressful working conditions, can contribute to negative physical and mental health effects such as higher rates of substance use, gambling, and related harms such as violence against local women and girls. These effects can be exacerbated where access to health and social services is already limited (Gibson et al. 2017).

An effect pathway diagram showing potential Project activities during all phases, relevant changes / exposure pathways and health and wellness effects is provided in Figure 6-28 to graphically depict the potential linkages between the Project and human health outcomes. These diagrams show the potential pathways of exposure or change in upstream conditions that may result in changes to health; however, the assessment of potential effects (Section 6.2.5.3) identifies specific pathways where changes are predicted to occur.

6.2.5.2 EXISTING CONDITIONS

This section provides a summary of existing conditions relevant to Indigenous health from mental wellness and personal behaviours. The available baseline (existing conditions) data for Indigenous health, including physical health and wellness (e.g., chronic conditions and communicable diseases, demographics), health-related behaviours (e.g., food consumption, physical activity and substance use) and mental wellness (depression, stress / anxiety and perception of risk) are provided in the Baseline Health Profile (Attachment A) and should be viewed for detail. In addition, a description of existing conditions for mental wellness and personal behaviours is provided in the following Impact Statement Sections:

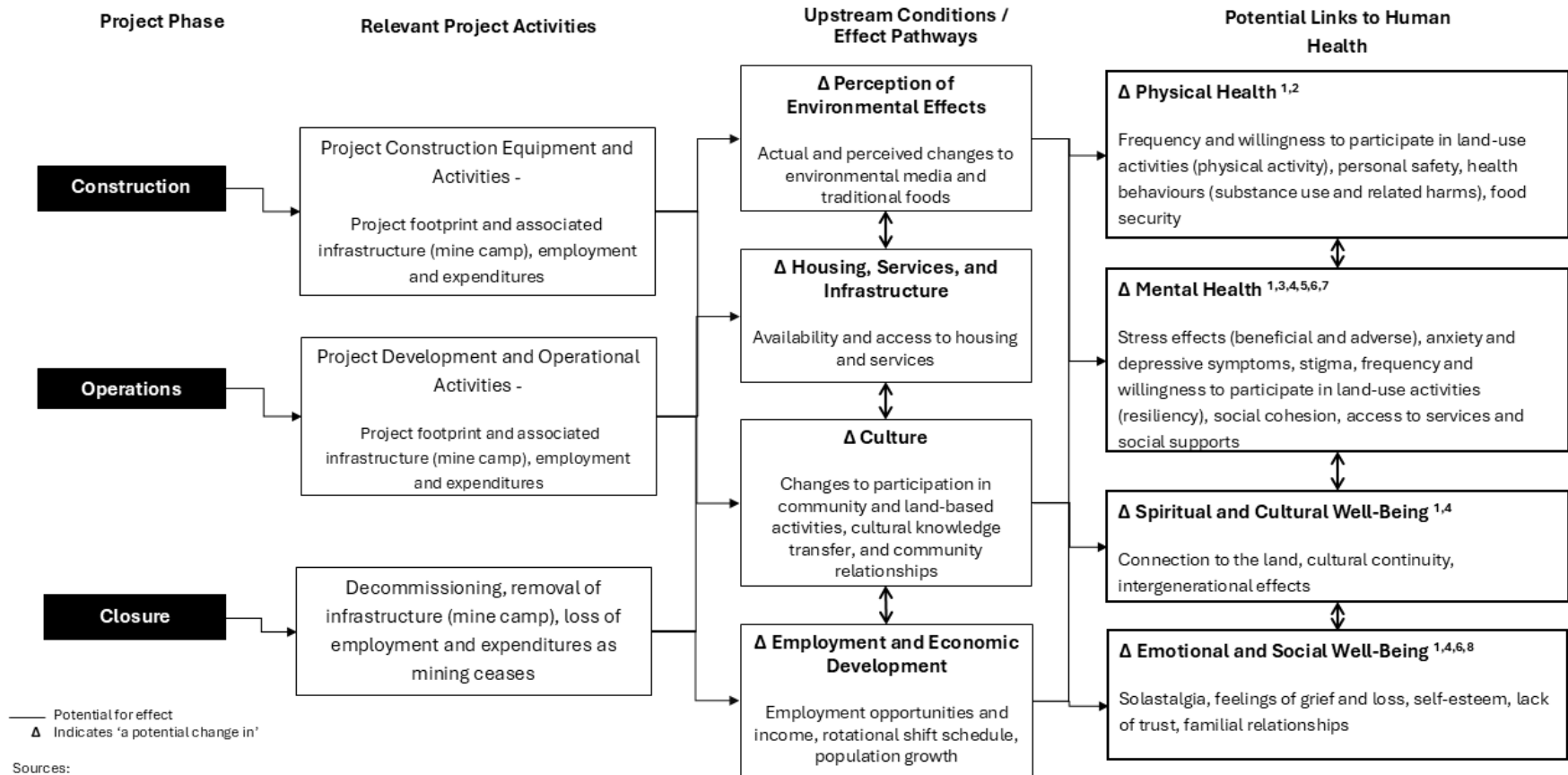
- **Mental Wellness and Personal Behaviours (Existing Conditions):** Impact Statement Sections 10.8 through 14.8 (fVC Indigenous Peoples – Community Well-Being).

A brief description of existing conditions related to CWB, is presented below to provide context for the assessment of social determinants of health. The following paragraphs summarize existing conditions from various Impact Statement sections. Collectively, the information from these upstream assessments provided the existing conditions related to mental wellness and personal behaviours.

- As discussed in the CWB assessment for Indigenous Peoples (Impact Statement Sections 10 to 14; fVC), community cohesion refers to the strength of relationships, sense of belonging, mutual trust, and shared values that connect individuals within a community. For Indigenous communities, land-based activities such as fishing, hunting, trapping, and plant harvesting are important to reinforcing social bonds, functioning not only as subsistence practices but also as vehicles for intergenerational knowledge exchange and cultural identity.
- As discussed in the CWB assessment for LSFN (Impact Statement Section 10; fVC Indigenous Peoples: LSFN), the historical flooding event that occurred in the 1930s due to a hydroelectric project affected traditional manoomin beds. While this reduced number of local harvesting areas, other sites remained accessible and harvesting continues to bring community members together, providing opportunities to share knowledge, strengthen relationships, and maintain cultural traditions. Low population mobility statistics suggest a stable and interconnected community structure (Chisel 2025).
- As discussed in the CWB assessment for WFN (Impact Statement Section 11; fVC Indigenous Peoples: WFN), quantitative data is limited however low population mobility statistics suggest a stable and interconnected community structure (Statistics Canada 2023e).
- As discussed in the CWB assessment for ANA (Impact Statement Section 12; fVC Indigenous Peoples: ANA), quantitative data is limited however low population mobility statistics suggest a stable and interconnected community structure. Community cohesion among ANA is demonstrated through their history of organized and united resistance to resource development, culturally grounded stewardship practices, and ongoing assertions of self-determination, all of which demonstrate intergenerational solidarity and shared responsibility for land and water (Boan 2023; Chamberlain 2024; Chiblow 2019; Grand Council Treaty #3 2021).

Figure 6-28: Effect Pathway Diagram for Mental Wellness and Personal Behaviours

Mental Wellness and Personal Behaviours



- As discussed in the CWB assessment for NWOMC (Impact Statement Section 13; fVC Indigenous Peoples: NWOMC), Métis Community Councils foster community cohesion and cultural continuity through programs, mutual aid, and culturally grounded support, even though they may not physically be located within municipalities. However, rising uncertainties and social pressures surrounding identity, particularly affecting youth, are contributing to concerns about cultural disconnection and reduced engagement (The Métis Nation of Ontario 2024).
- As discussed in the CWB assessment for RLEF (Impact Statement Section 14; fVC Indigenous Peoples), community cohesion in Red Lake and Ear Falls is reinforced by strong volunteerism, shared responsibility, and locally driven supports that help sustain community well-being. In Red Lake, cohesion is demonstrated through grassroots initiatives such as the New Starts for Women Shelter, which receives daily donations, Moozoons Childcare Centre's reliance on community volunteers, and the Red Lake Emergency Shelter's return-home supports. Although it is noted that some residents still experience challenges related to inclusion and belonging, particularly for newcomers. Ear Falls shows similar patterns of cohesion through initiatives such as the Community Garden, a volunteer fire department, and coordinated Emergency Medical Services staff that involve partnerships with the MNR and housing supports through KDSB. These initiatives support the community's ability to maintain essential services despite limited resources (Desjardins 2025; Hamilton 2025; Tougas 2025).

In addition, baseline characterization of mental wellness and personal behaviours for the HIA draws on desktop research. While limited quantitative data are available for the individual local Indigenous communities, a summary of mental wellness and personal behaviours indicators in the region is provided for context below.

Northwestern Health Unit Mental Health Survey 2022/2023 Report

This section summarizes the results of the MWHU Mental Health Survey 2022/2023 Report (NWHU 2023) to characterize existing conditions on mental wellness and personal behaviours.

The NWHU and Prairie Research Associates Inc. commissioned a mental health survey via telephone and online surveys between October 28, 2022, and February 24, 2023, to help identify and monitor mental health challenges within its service area. Overall, there were 925 survey respondents who were northwestern Ontario residents (aged 12+), with 126 online responses and 799 telephone participants. Demographics of survey respondents were recorded (e.g., sex, age, ethnicity, and local health hub). The results of the survey were weighted by client demographics according to 2021 Statistics Canada census data. Some results of the survey were separated by subgroup, where data was available. This survey included Indigenous respondents however, it is noted only 16% of the sampled population self-identified as Indigenous. The respondents Local Health Hub was also recorded. Given their geographical proximity to the Project, where data was available for the Sioux Lookout health hub and the Red Lake health hub, the results from these health hubs are described below. It is noted that 6.2% of the total respondents (n ~57) were from the Red Lake health hub and 10.7% were from the Sioux Lookout health hub (n ~99).

- **Resiliency:** In the NWHU overall, approximately 73.1% of respondents said their ability to cope with unexpected or difficult problems was good or excellent, whereas 26.9% of respondents responded fair or poor. Similar results were observed in the Red Lake and Sioux Lookout health hubs. When disaggregated by health hub, survey results showed that 20.8% of respondents in the Red Lake health hub and 34.7% of respondents in the Sioux Lookout health hub said their ability to cope with unexpected or difficult problems was fair or poor. Males and females had similar response rates for this mental health indicator.
- **Community Cohesion and Social Factors:** In the NWHU overall, 73.8% of survey respondents reported their sense of belonging to their local community was somewhat strong or very strong. When disaggregated by health hub, survey results showed that 13.7% of respondents in the Red Lake Health Hub, and 18.2% of respondents in the Sioux Lookout Health Hub reported a very weak to somewhat weak sense of community belonging, compared to 24.6% of NWHU respondents overall. In addition, survey results showed that 10.0% of respondents in the Red Lake Health Hub, and 25.6% of respondents in the Sioux Lookout Health Hub reported the availability of dependable people as being rarely or never, compared to 14.8% of NWHU

respondents overall. Results among both indicators (i.e., availability of dependable people and sense of belonging to local community) were not significantly different between health hubs and NWHU overall. In addition, males and females had similar response rates for both indicators.

- **Family Wellness and Relationships:** In the NWHU overall, 33.0% of survey respondents reported they have lived with a problem drinker or street drug user. In comparison, 40.7% of respondents in the Red Lake health hub and 48.4% of respondents in the Sioux Lookout health hub reported they have lived with a problem drinker or street drug user (results could not be statistically validated for comparison).
- **Substance Use:** Rates of substance use (i.e., cannabis, heavy drinking, psychoactive substances) were similar in the Red Lake and Sioux Lookout health hubs in comparison to NWHU overall. Male respondents in the NWHU were more likely than females to report higher rates of cannabis use, use of psychoactive substances, and heavy drinking, however these results could not be statistically validated for comparison.

Report on Child and Youth Mental Health Outcomes within the Northwestern Health Unit

A report published by the NWHU titled the Child and Youth Mental Health Report (NWHU and Yusuf 2023) examines mental health trends among individuals aged 10 to 24 within the NWHU from 2012 to 2021. According to NWHU and Yusuf (2023), data from this report was accessed through IntelliHealth Ontario, which was in turn sourced from databases such as the National Ambulatory Care Reporting System, the Discharge Abstract Database and the Ontario Mental Health Reporting System.

Across the mental health indicators analyzed in this report (e.g., rates of emergency department visits, hospitalizations, self-harm, suicide), the NWHU experienced notably higher rates of mental health challenges compared to Ontario overall. The burdens were not evenly distributed, with females consistently showing higher rates of mental-health-related emergency room visits and hospitalizations than males, including those related to substance-use (NWHU and Yusuf 2023).

These results diverge from typical patterns published in the literature, as previous research has shown males to have higher rates of substance use disorders (CAMH n.d.) and substance-use related emergency department visits (NIH 2020), yet in the NWHU data, females either match or out number male rates across substance-related indicators (NWHU and Yusuf 2023). As indicated by NWHU and Yusuf (2023) this trend might be influenced by rates of mental health challenges among males in the region increasing with age, as this report focuses specifically on youth. When results were disaggregated by health hub, Sioux Lookout emerged as the local health hub with the highest incidence rates across the majority of mental health indicators (NWHU and Yusuf 2023).

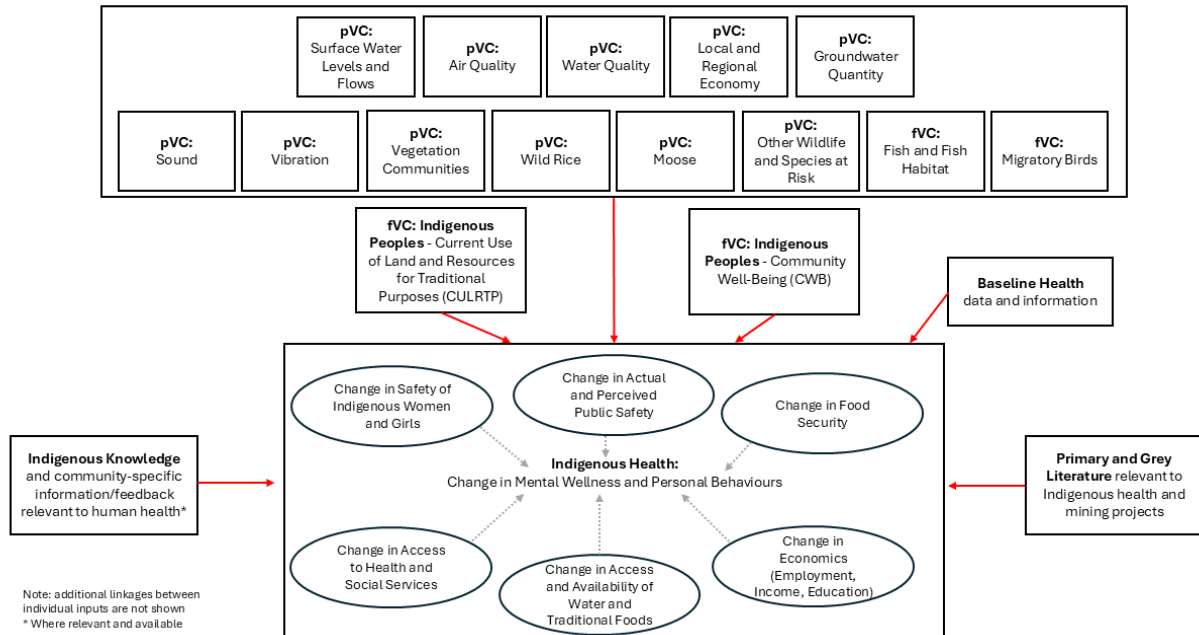
6.2.5.3 POTENTIAL EFFECTS

The following sections provide the inputs, assumptions, results from upstream analyses, Project information, primary and grey literature, and other evidence that supports the assessment of changes in mental wellness and personal behaviours in the context of Indigenous health. The assessment of potential effects first presents the available evidence, acknowledging any limitations and assumptions, followed by an assessment by Project phase (i.e., construction, operations and closure). Finally, a summary of the assessment findings is presented with a discussion regarding mitigation and / or enhancement measures, and GBA Plus considerations.

EVIDENCE FOR ASSESSMENT

The evidence used in the assessment of potential effects to Indigenous health from changes in mental wellness and personal behaviours, included (i) findings from relevant upstream valued components (pVCs and fVCs); (ii) primary and grey literature sources; (iii) IK and community-specific information, and (iv) baseline health information (Figure 6-29).

Figure 6-29: Inputs for Mental Wellness and Personal Behaviours



Each of these sources of information and evidence are further described in the sections below. Collectively, this body of evidence informed the assessment of potential effects described for each Project phase (i.e., construction, operations and closure).

Upstream Valued Components (pVCs, fVCs)

The assessment of potential effects for the linked pVCs and fVCs are important in that they identify predicted changes in those upstream conditions that have the potential to affect Indigenous health via changes in mental wellness and personal behaviours. A summary of the predicted changes identified in the pVCs and fVCs linked to Indigenous health, including pVCs: Air Quality, Sound, Vibration, Surface Water Levels and Flows, Groundwater Quantity, Water Quality, Vegetation Communities, Wild Rice, Moose, Other Wildlife, SAR and Local and Regional Economy; and fVCs: Fish and Fish Habitat and Migratory Birds, are provided in Section 6 (Table 6-2).

The linked pVCs are relevant to mental wellness and personal behaviours as changes in environmental conditions (including changes to wildlife, vegetation, and fish), resource availability, and land-based activities can influence cultural continuity, community relationships, and overall sense of wellness for Indigenous people. Collectively, these upstream pVCs were used as inputs to the assessment of mental wellness and personal behaviours because they informed the assessments of CULRTP and CWB in the fVC Indigenous Peoples assessment. The CULRTP and CWB assessments are the most directly relevant to understanding potential Project-related effects on mental wellness and personal behaviours; however, it is acknowledged that findings from the linked pVCs (Table 6-2) collectively supported and informed these assessments.

Upstream Conditions (fVC Indigenous Peoples)

In addition to the multitude of pVCs that influence various aspects of mental wellness and personal behaviours, there are also components of the fVC Indigenous Peoples assessment that are both directly and indirectly linked to this determinant of health. Specifically, changes in availability, access to and experience related to traditional terrestrial wildlife harvesting (hunting and trapping), traditional aquatic harvesting (fishing), and traditional plant harvesting (for food and medicinal purposes), were considered as part of the assessment of CULRTP. Additionally, cost of living and traditional economy, economic opportunity and inequality, access to services (health, social, and education services), community

cohesion, and access to traditional land and natural resources were considered as part of the assessment of CWB. While these other sections did not consider health effects, they did evaluate changes to those upstream conditions that have the potential to influence downstream outcomes related to Indigenous health Table 6-42.

Table 6-42: Summary of Results from CWB Effects Assessment used in the HIA

Potential Effect / Indicator	LSFN	WFN	ANA	NWOMC	RLEF
Cost of Living and Traditional Economy	Y	Y	Y	Y	Y
Economic Opportunity and Inequality	Y	Y	N ⁽¹⁾	Y	Y
Access to Services (Health, Social, and Education)	Y (Regional)	Y (Regional)	Y (Regional)	Y	Y
Community Cohesion	N	N	Y	N	N
Access to Land and Resources	Y	Y	Y	Y	Y

Notes:

1 Economic opportunity and inequality was not assessed for ANA as it was examined at a regional scale, referring to the evaluation for Red Lake and Ear Falls in Impact Statement Section 14 (fVC Indigenous Peoples: Red Lake and Ear Falls).

Y=Yes Residual Effects identified under Community Well-Being.

N=No Residual Effects identified under Community Well-Being.

ANA = Asubpeeschoseewagong Netum Anishinabek; CWB = Community Well-Being; HIA = Health Impact Assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

Source: Table recreated with information from Impact Statement Sections 10 to 14 (fVC Indigenous Peoples: LSFN, WFN, ANA, NWOMC, RLEF).

Influence of Community Well-Being on Mental Wellness on Personal Behaviours:

In the assessment of potential impacts to Indigenous people, changes in CWB were assessed for each of the Indigenous communities in Impact Statement Sections 10 to 14 (fVC Indigenous Peoples). The assessment included evaluation of how several indicators of CWB may be affected by the Project, including cost of living and traditional economy, economic opportunity and inequality, access to services (health, social, and education services), community cohesion, and access to land and resources. The CWB Impact Statement Sections synthesized information from technical reports, IK, community feedback, and linked valued components (pVCs and fVCs).

- **Cost of Living and Traditional Economy:** As described in the CWB assessment, individuals in Red Lake and Ear Falls and members of NWOMC living in Red Lake and Ear Falls already face elevated costs for food, fuel, and housing. Due to the anticipated population growth due to the influx of Project workers in this community, the Project may temporarily increase the demand for certain goods and services, potentially contributing to localized affordability pressures, particularly for those with fixed or lower incomes. Since there is no anticipated Project workforce presence expected on-reserve, no measurable changes to cost of goods and services are expected for LSFN, WFN and ANA. There may also be reduced confidence or access to traditional harvesting areas within the LSA and RSA due to environmental disturbances from the Project. Any disruption to access or change in the quality of experience on the land may also influence participation in traditional economy. Decreased participation in traditional economy could result in increased spending on market foods and decreased income from traditional economy, both of which can influence mental wellness and personal behaviours.

- **Economic Opportunity and Inequality:** The Project is expected to generate employment, training and skills development opportunities, improving short-term income stability for some residents participating in the workforce, as described in the CWB assessment. These opportunities may enhance household financial stability and contribute to local and regional economic activity through increased consumer spending. However, unequal access to jobs due to barriers such as childcare, transportation, or qualifications may reinforce existing inequities. Wage inequality between Project workers and other residents could also contribute to uneven distribution of benefits and localized economic polarization. Therefore, economic opportunity and the distribution of wealth, has the potential to both positively and adversely affect mental wellness and personal behaviours.
- **Access to Health and Social Services:** As described in the CWB assessment, the Project is not expected to directly interact with on-reserve services located in LSFN, WFN, and ANA, although there is a potential for indirect strain on regional service systems. The assessment found that during the construction phase, an increase in temporary and permanent population from the Project in the region may contribute to higher demand for these already limited services. At the same time, employment opportunities with the Project could lessen reliance on local health and social programs among participating members by improving household income stability and access to workplace supports.
- **Community Cohesion:** As described in the CWB assessment, the Project may influence community identity and cohesion by disrupting land-based practices that are important to Indigenous cultural continuity and collective wellness. For the Indigenous communities, social cohesion is closely tied to the ability to access, steward, and transmit knowledge about traditional territory. Reduced access to these areas, whether due to physical limitations, concerns about environmental quality, or a sense of cultural displacement, may interfere with intergenerational knowledge transfer, land-based healing, and ceremonial activities. These changes can in turn adversely affect mental wellness and personal behaviours.
- **Access to Land and Resources:** As described in the CWB assessment, Indigenous people who previously accessed the PA and access surrounding areas (in the CULRTP LSA) for harvesting, including for culturally significant furbearers and plant species, may experience changes in access, availability of culturally important harvesting sites and areas due to Project infrastructure, and quality of harvesting activities due to sensory disturbances (noise, dust, visual changes) across all Project phases. Temporary or longer-term avoidance of certain areas may occur, particularly where harvesting quality or cultural experience is changed from Project activities and infrastructure. These changes may contribute to reduced opportunities for intergenerational knowledge transfer, cultural continuity, and land-based wellness practices that are important to Indigenous health and wellness.

Overall, residual effects in the CWB assessment related to cost of living and traditional economy for LSFN, WFN, ANA and RLEF and residual effects related to economic opportunity and inequality for LSFN, WFN, and RLEF were anticipated after implementation of mitigation and enhancement measures. In addition, residual effects were identified for each of the Indigenous communities for access to health and social services and access to lands and resources. As described in the CWB assessment in Impact Statement Section 12 (fVC Indigenous Peoples: ANA), residual effects for community cohesion were identified for ANA with specific concern around the Project's influence on land-based cultural continuity and intergenerational knowledge transfer. Although no direct Project activities are anticipated within ANA's reserve boundaries, the boundaries of the traditional territory, especially around the Chukuni River, overlap the Project and changes to the land and resources have the potential to indirectly effect community cohesion; given the community's long-standing experience of environmental harm and mistrust of government and industrial sectors, community members may be more sensitive to indirect effects and changes.

Further consideration of these unique conditions and sensitivities identified for ANA are acknowledged and are addressed in the assessment of changes to actual and perceived public safety (see Section 6.2.6).

Influence of Current Use of the Lands and Resources for Traditional Purposes on Mental Wellness and Personal Behaviours:

The CULRTP assessments identified how the Project may affect the access, availability, and quality of experience related to traditional foods harvesting, specifically wildlife, fish, and plant harvesting, across Indigenous communities.

Potential effects of the Project on CULRTP include changes to availability of plants and wildlife, habitat loss or alteration, reduced access within the PA and diminished quality of experience due to sensory disturbances such as noise, dust, vibration, and visual change. Similar effects are identified for fishing and aquatic resources, with changes projected due to altered aquatic habitat conditions from surface water quality changes, sedimentation, and vibration. These potential effects may be experienced differently by each of Indigenous communities depending on their previous use of the PA and current use of LSA:

- As presented in the CULRTP assessment in Impact Statement Section 10 (fVC Indigenous Peoples: LSFN), the Project footprint overlaps active traplines and areas reportedly used for hunting, trapping, fishing, and plant harvesting, which were outlined in confidential reports prepared for LSFN. Mining activities may result in sensory disturbance which could discourage trapping activity in the LSA, immediately adjacent to the PA.
- As presented in the CULRTP assessment in Impact Statement Section 11 (fVC Indigenous Peoples: WFN), no current use of the PA was identified for harvesting activities in confidential IK studies prepared for WFN; however, land use occurs in the LSA and RSA for WFN. As such, sensory impacts may still influence quality of experience in the LSA for WFN.
- As presented in the CULRTP assessment in Impact Statement Section 12 (fVC Indigenous Peoples: ANA), the ANA whose IPCA for moose, caribou, and wolverine habitat ranges overlaps the PA and LSA, the assessment identified potential current use of the LSA for moose harvesting, but no confirmed use of the PA itself. As such, changes in availability and quality of experience may result in potential effects for ANA in the LSA.
- As presented in the CULRTP assessment in Impact Statement Section 13 (fVC Indigenous Peoples: NWOMC) current land use in the, LSA, and RSA for hunting, trapping, fishing, and / or plant gathering, was identified in confidential reports prepared for the NWOMC. Therefore, NWOMC may experience direct and indirect changes to access, availability, and quality of experience of harvesting activities in these areas.
- As presented in the CULRTP assessment in Impact Statement Section 14 (fVC Indigenous Peoples: RLEF), harvesting within the PA was assumed for RLEF as it was reported by LSFN. Therefore, RLEF may experience direct and indirect changes to access, availability, and quality of experience in the PA.

Primary and Grey Literature

Given the complexities around the upstream effects that influence Indigenous health, the primary and grey literature used as evidence for the assessment of changes in mental wellness and personal behaviours have been grouped into several key categories below. This organization of information supports a structured assessment, while capturing the interconnected social, cultural, and historical factors that shape mental health. The categories were intended to focus on local health and wellness priorities, identified through a review of the literature, confidential reports prepared for LSFN, WFN, and NWOMC, and public health reports published by the SLFNHA and NWHU.

Shift Work, Economics, Family Wellness, and Relationships:

Income is a key social determinant of health with a major influence on overall wellness (WHO 2017). Studies indicate that financial instability is linked to higher rates of chronic illness, mental health challenges and generally poorer health outcomes (CPHA n.d.; Forget 2011; WHO 2017). In 2022, 18% of Canadian families reporting facing food insecurity, which has negative effects on both physical and mental health (Uppal and Statistics Canada 2023).

As described in the CWB assessment, the Project is expected to create a number of temporary construction jobs, providing increase in labour income and valuable work experience for local and regional workers. These opportunities may enhance individual and household financial wellness and stimulate local economic activity through increased consumer spending. When paired with inclusive measures, the Project has the potential to broaden participation and foster skills development that lasts beyond construction. Project-related employment opportunities may provide Indigenous community members with improved income stability, allowing some households to reduce debt, meet basic needs, and pursue new opportunities; these benefits are indirectly related to improved stress, anxiety and mental health outcomes, which may be experienced by those employed by the Project (CPHA n.d.; Forget 2011; WHO 2017).

As discussed in the assessment of changes to economics (Section 6.2.1), research has shown that being employed supports self-esteem and self-worth, which can subsequently improve mental health and reduce the prevalence of addictions (NCCIH 2020). Socioeconomic status is widely accepted as a key social determinant of health, as individuals with lower income tend to experience greater exposure to stressors such as financial instability and more limited access to care (Wheatley 2024).

Project-related opportunities can contribute to beneficial mental health effects, via improvements in food security, access to services and infrastructure (via employee benefits for those employed by the Project), employment, education and training. Further discussion on these pathways of effect is provided in Section 6.2.1 (Economics), Section 6.2.2.6 (Access to Health and Social Services), and Section 6.2.4 (Food Security).

Simultaneously, Project-related changes, employment, and income also have the potential to introduce opportunities for adverse health behaviours such as increased substance use for some individuals, or disruptions to community cohesion through the inequitable distribution of wealth (Salerno et al. 2021). Throughout the Project, the majority of site personnel will be required to work a rotational cycle schedule. The length of a rotation is still being analyzed to promote a human-centered approach to shift design is taken, but it is anticipated to be similar to nearby mines (seven working days followed by seven days off, with the potential for remote workers flying in being on more extended two weeks on and two weeks off).

Rotational work schedules can also lead to family pressures when members continue to work away from the community for extended periods of time. This may contribute to added stress, mental health challenges and exacerbate existing health issues. Oke and Wilson (2024) reported that "*family is so important for one's health*" and is key to the health of the overall community. The boom cycle can lead to higher levels of divorce, violence, and stress, which are impacts that disproportionately affect women, who often serve as primary caregivers and face limited employment opportunities, challenges securing childcare, and increased rates of pregnancies (Oke and Wilson 2024).

Another facet of this complex issue is that increased earnings from the Project (full-time employment, contractors, supply-chain, local businesses) during construction can improve household stability and financial security. This increase in income may contribute to better health outcomes because households will be able to afford transportation to receive specialized care, better insurance coverage for physical and mental health supports, and increased access to childcare options.

The rapid transition toward wage-based employment, demographic shifts from the influx of newcomers and remote workers and rising economic development can create changes (both positive and negative) for family relationships and communities (Myette and Riva 2021). If not addressed or managed, these changes may intensify existing social and health problems and place additional pressure on healthcare systems and social services (Myette and Riva 2021).

Demanding work environments, higher incomes, and shift schedule linked to resource development can contribute to adverse health effects for those employed by the Project, including problematic substance use and issues concerning family dynamics (Aalhus et al. 2018). Due to the nature of the Project and mine camp, workers may experience isolation from family and friends. As with other large-scale resource projects in remote regions, increases in a transient workforce, combined with higher disposable income and the pressures associated with long shifts and demanding working conditions, can contribute to an elevated risk of substance use, gambling, and associated social harms, including increased vulnerability of local women and girls to violence (Gibson et al. 2017). Such risks can be exacerbated where access to

health care, mental health supports, and social services is already limited, placing added pressure on existing community resources (see Section 6.2.2.6, Access to Health and Social Services).

There is potential for any rotational work schedule to have an impact on individuals, families, and the community. The mechanism in which effects are felt between these three distinct groups are different. The impact on individuals can include increased stress, alcohol and drug use, decreased ability to participate in cultural activities, and isolation from land and community. The impact may also be felt acutely by family units, leading to decreased participation in familial duties, and increased stress and tension between spouses, possibly also leading to increased domestic violence (Aalhus et al. 2018; Gibson et al. 2017). This, coupled with lack of childcare opportunities available in communities, places the burden of childcare and household responsibilities on the partner living in community, typically negatively affecting women disproportionately (Gibson et al. 2017). Not only does this place additional stress on women living in community but also impacts their ability to gain employment and participate in community and cultural activities (Gibson et al. 2017). Collectively these changes can adversely impact individual, family (women and children) and community health (Gibson et al. 2017; Myette and Riva 2021). Combined with the existing disparities seen in Indigenous mental health across Canada, further strain on mental health and wellness may exacerbate an already challenging situation.

Under the assumption that the Project workforce will be primarily composed of local workers, including some Indigenous workers, it is possible that the shift schedule requires Indigenous community members to live outside the region when they are not on shift. This may further affect the ability to participate in cultural activities (Myette and Riva 2021), and isolation from land and community for these individuals as well as affects the remaining community who may rely on these individuals to participate in community activities.

Participation in Traditional Activities, Relationship to the Land, and Transfer of Knowledge:

As described in the sections above, the PA will be restricted from harvesting during the Project phases, and the quality of experience of harvesting traditional foods in the areas of the LSA immediately surrounding the PA will change. Although changes to fish and fish habitat will be compensated for, potential effects on migratory birds may result from Project-related activities. Collectively, these changes may lead to disruption of traditional food systems for some Indigenous people. As described in the assessment of traditional foods in Section 6.1.4, the results of the ERA demonstrate that Project activities are not expected to result in unacceptable risks to plants, mammals and birds, or aquatic communities.

Beyond the biophysical changes in access and availability of traditional foods, the potential for disruption of land-based practices, such as harvesting, fishing and hunting, can affect community cohesion and cultural continuity, which is an Indigenous determinant of health and can have indirect effects on mental health and wellness (Loppie and Wein 2022). Adverse mental health impacts can occur within Indigenous communities that feel they are experiencing land dispossession, as land dispossession can result in feelings of loss, grief, sadness, and powerlessness due to restrictions on traditional practices (Ninomiya et al. 2023; Salerno et al. 2021). This relationship is often explained as solastalgia which is defined as *“the sense of loss and emotional distress that results from the experience of adverse environmental change,”* (Salerno et al. 2021). The connection that Indigenous people have with the land is linked to their sense of cultural identity, community cohesion and mental health. In one research study (conducted outside of the RSA), an Anishinaabe Elder highlighted the impacts of environmental dispossession in northern Ontario, stating: *“We are the land. If the land becomes sick, it won’t be long before we do too,”* (Tobias and Richmond 2014).

Further discussion of potential health effects via changes in access and availability of traditional foods from a biophysical lens (e.g., physical activity, nutrition, food as medicine) is provided in Section 6.1.4 (Access and Availability of Traditional Foods).

Participation in traditional activities has been identified as a source of strength and resiliency in Indigenous communities in Canada (Carrier et al. 2022; Radu et al. 2014; McGuire-Adams 2023). McGuire-Adams (2023) indicates that engaging in land-based learning help individuals cope with pain and distress. This is widely accepted in the literature as many research studies suggest that culture and land-based traditions that facilitate the transfer of intergenerational knowledge and increase connection to

the land and family have positive effects on Indigenous health (Radu et al. 2014; McGuire- Adams 2023; NCCIH 2016; Myette and Riva 2021; Task Group on Mental Wellness 2021).

As described in the assessment of changes to access and availability of traditional foods (Section 6.1.4), commonly reported barriers to traditional food access in First Nations households in Ontario were lack of time, lack of a hunter and / or equipment and transportation (Chan et al. 2014). Some studies have found benefits associated with more disposable income for workers' families, including the ability to finance time on the land (Myette and Riva 2021). Therefore, it is possible that Project-related employment, combined with relevant training on financial literacy, can help alleviate these barriers by providing individuals with the financial means to purchase material resources needed to participate in traditional harvesting activities, which may in turn have beneficial influences on Indigenous health and wellness.

Community Belonging, Collective Identity, and Cultural Continuity:

Community cohesion can be disrupted when there is disagreement amongst community members about support for major projects such as mines (Salerno et al. 2021). If not mitigated properly, this erosion can be particularly pronounced where there is disparity between those who benefit from the project, for example through employment, and those who do not (Salerno et al. 2021).

Based on the information and consultation activities available at the time of reporting, LSFN, WFN, ANA, NWOMC, and RLEF have not raised specific concerns surrounding disruption to community cohesion as a result of disagreement amongst community members. Potential effects to emotional or social stress factors that may arise as a result of the construction of the Project or accidents and malfunctions are discussed in the assessment of changes to actual and perceived public safety (Section 6.2.5.6).

Notably, positive mental health outcomes from such projects are strongly linked to active community participation and effective collaboration (Salerno et al. 2021). For example, there can be positive mental health effects resulting from the creation of jobs themselves or secondary economic effects when the project also involves investment into local community development, education and training, as well as culturally appropriate and community-specific mitigation measures (Salerno et al. 2021).

Intergenerational Trauma, Personal Health Behaviours, and Substance Use:

Potential impacts to mental wellness and personal behaviours can further be influenced by the on-going and long-term effects of intergenerational trauma within Indigenous communities. In the context of Indigenous people in Canada, intergenerational trauma is defined as the continuation of trauma resulting from colonialism, the residential school system, structural racism, and poor institutional responses, over multiple generations (Gibson et al. 2017). The impacts of unresolved intergenerational trauma can result in negative mental health outcomes, including substance abuse, suicide, and other related harms (SLFNHA 2024b). Healing intergenerational trauma is a complex process that involves changes at the individual, community, and systemic level. Indigenous perspectives on healing place a high importance on the role of family and community (SLFNHA 2016; Métis National Council 2025).

Suicide rates for Indigenous people in Canada tend to be higher in comparison to non-Indigenous Canadians, even for those living within the same geographic regions (SLFNHA 2024b). This results from a complicated myriad of factors. Although rates of self-harm and suicide are very community-specific, research over the past decade (Inuit Tapiriit Kanatami n.d.) has identified some common factors that relate to self-harm and suicides within Indigenous communities:

- Barriers or lack of access to mental health treatment
- Socio-economic factors including poverty, poor housing and sanitary conditions, low levels of education and literacy and high unemployment
- Loss and / or changes to values, beliefs and lifestyle
- Individual history (e.g., experiencing traumatic events such as the early loss of a parent; sexual abuse; experiencing or witnessing violence, etc.)
- Intergenerational trauma resulting from historical events such as forced relocations to permanent settlements, enforced residential school attendance (Inuit Tapiriit Kanatami n.d.).

Substance use, abuse, and addiction is an ongoing challenge for First Nations communities in Canada. For First Nations, alcohol and drug use has become a symptom of systemic oppression, racism based on Indigenous identity, and disconnection from land and culture caused by Canada's colonial policies (SLFNHA 2024b). According to the SLFNHA, there are evident disparities in mental health and substance use issues among Sioux Lookout area First Nations relative to the rest of Ontario and Canada (SLFNHA 2024b). Social risk factors contributing to this disparity may include inadequate access to mental health or substance use services, intergenerational trauma from the impacts of colonialism, stigma and discrimination, or lack of funding (SLFNHA 2024b). It is noted that Sioux Lookout area First Nations include LSFN and WFN and that substance use trends including representation of ANA and NWOMC were not readily available.

A report titled *Learning from Our Ancestors: Mortality Experience of First Nations in Northern Ontario (1992–2014)*, published by the SLFNHA (Mamow Ahyamowen 2020) examined mortality trends among 59 First Nations communities in northern Ontario, including LSFN and ANA. The report found that deaths attributed to suicides and overdoses among Mamow Ahyamowen communities (which includes LSFN and ANA), occurred at a rate that was 4.3 times (suicides) and 5.9 times (overdoses) the Ontario rate, between 1992 and 2014 (Mamow Ahyamowen 2020).

The impacts of intergenerational trauma, isolation from traditional land, economic stress and material deprivation, rotational shift work, and other interrelated factors at both the individual and community level, can result in mental health effects for Indigenous people (PHAC 2024). These impacts can also result in biophysical stress responses that negatively affect immune, metabolic, and endocrine systems (PHAC 2024). Individuals may turn to alcohol and drugs to cope, though this often results in severe health and wellness consequences for the individual and their family (SLFNHA 2024b). Research has shown that health behaviours such as problematic substance use can be related to resource development, through increased stress, access to disposable income, time away from traditional, community, and social practices, and a culture of hyper-masculinity in the industrial workplace (Aalhus et al. 2018). Additionally, extractive industries can be associated with increased violence and harassment against women. Potential interactions with Project activities and safety, including gender-based violence, are discussed in the assessment of the safety of Indigenous women and girls (Section 6.2.7).

Indigenous Knowledge and Community-specific Information

This section presents IK that was received from some of the local Indigenous communities, supplemented by other relevant community-specific information that was publicly available, to identify where and how IK was incorporated into the assessment of Indigenous health.

The confidential TKLUS reports prepared for local Indigenous communities, and provided to Great Bear Resources, did not include data on mental health at the community-level. General concerns pertaining to the Project were provided by communities and this information is summarized below, where relevant and available. Information on mental health for Sioux Lookout area First Nations, which includes LSFN and WFN, was available and is also provided below.

ANA has been found to have *“poorer physical and mental health, and more socio-economic difficulties compared to other First Nation communities in Ontario and in Canada”* (Mergler et al. 2019). A community-based health assessment was conducted with ANA between 2015 and 2018 using a community-driven survey with a questionnaire adapted from the First Nations Regional Health Survey, including new questions. Results of the survey provide insight into the health status of ANA community members, as results were compared to other First Nations in Ontario and Canada. The participation rate of the survey was 78% with 424 adults and 353 children (Mergler et al. 2019). Results of the survey found that 52% of children less than 12 years of age with ANA reported having a mental health status as very good or excellent, compared to 65% of First Nations in Canada (Mergler et al. 2019). In addition, based on the results of the survey participants, ANA members were more likely than First Nations in Ontario and First Nations in Canada, to report: not working because of a disability or health or mental problem among the unemployed; struggle to pay for food at least a few times a year; severe food insecurity; having a family member or close friend committed suicide; suicide ideation; and attempted suicide (Mergler et al. 2019) (see Attachment A). Historical industrial activity in the region has influenced existing (baseline conditions) in the region, particularly for ANA. For further details, please refer to the HHERA (Impact

Statement Appendix N-1; WSP 2026a) and Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies (Impact Statement Appendix T; WSP 2026b).

As described in Impact Statement Section 12 (fVC Indigenous Peoples: ANA), during consultation and engagement activities with ANA, it was indicated that ANA understands their relationship with the landscape as holistic, rather than restricted to a finite set of sites and areas. Culturally and spiritually important areas were identified as a concern, noting that if these spiritual landscapes are not intact, spiritual sites may become desecrated and lose their function for ANA community members. ANA points to this in direct relation to community well-being and cohesion, as inability to fulfill cultural and spiritual purposes on the landscape translates to disruptions of health (including mental health challenges, conflicts, and reduced ability to hunt and harvest traditional foods). Overall, access and availability of traditional foods and the ability to participate in land-based activities is a determinant of health for ANA through its relationship to community well-being and cohesion.

A confidential report prepared for NWOMC indicated that some Métis people were worried about an influx of workers could drive up housing costs, strain existing infrastructure, and increase issues related to drugs and alcohol, while others felt that a growing population could improve healthcare services by attracting more professionals and facilities. Despite these concerns, some community members were optimistic about the Project's potential to boost local employment, support Métis businesses, and strengthen the regional economy. They highlighted opportunities for Great Bear Resources to invest in training, youth education, and community services, expressing hope that the mine would create meaningful jobs, economic growth, and long-term benefits for Métis people and local residents.

While data on existing mental health status, personal behaviours, or community cohesion for specific Indigenous populations in northern Ontario is not readily available due to various factors, including data suppression and confidentiality, concerns around declines in mental health, with particular emphasis on Indigenous youth, have been highlighted in various reports published by Sioux Lookout area First Nations, which includes LSFN and WFN (SLFNHA 2024b). In a confidential report, WFN and LSFN community members expressed they would like social and mental health supports to be in place for community members. In addition, WFN and LSFN community members suggested that a method of building trust was to support economic prosperity outside of the mine.

As presented in Attachment A, the Great Bear Project Community Health Survey asked respondents to rate their current feelings of health and wellness for the following categories: physical, mental, spiritual, social wellness on a scale from very good to very poor. Most self-identified Indigenous respondents (n = 22) selected positive answers (i.e., very good or good) for the mental wellness category (approximately 68% of respondents). No respondents selected very poor for mental wellness or any of the other three categories. As described in Attachment A, it is important to note that the small sample size means that these findings are not intended to be extrapolated to an entire Indigenous community, group or region and are provided for informational purposes only.

Relevant Baseline Health Information

Baseline conditions related to mental wellness and personal behaviours are discussed in Existing Conditions, Section 6.2.5.2. Given the complex and varied interactions between mental wellness, personal behaviours and community cohesion and human health, there are a variety of health conditions and wellness indicators (e.g., chronic conditions, mental health) that may be influenced by mental wellness and personal behaviours. Existing health information can be found in the Baseline Health Profile (Attachment A). Existing conditions related to mental wellness and personal behaviours provide an indication of current conditions that may already be influencing baseline health status of communities in the region. These existing conditions provide an understanding of current conditions being experienced by communities in the region related to mental wellness and personal behaviours in order to identify potential Project related effects on Indigenous health.

As presented in Attachment A, the leading type of mental health and substance use among Sioux Lookout area First Nations, was substance-use and addictive disorders (33.5% of all mental health and substance use assessments between 2015 and 2020). This demonstrates that substance use is a prevalent issue among Sioux Lookout area First Nations and in the region. As stated in SLFNHA (2024b): *"Between 2015 to 2020 across the community nursing stations, more women than men visited nursing*

stations to seek help for substance use / addictive disorders (55.3 females vs. 44.7 males per 1,000 visits) and self-harm / suicidal attempts (71.9 females vs. 28.1 males per 1,000 visits). However, both men and women had similar numbers of visits for anxiety disorders.” In addition, Sioux Lookout area First Nations were more likely to experience mental health and substance use problems than their Ontario counterparts (Attachment A; SLFNHA 2024b).

As presented in Attachment A, in 2021 emergency department visits for intentional self-harm and self-injury were 244.4 per 1,000 population among Sioux Lookout Band Members on- and off-reserve, which was 14 times higher than the provincial rate of 17.4 per 1,000 population. Similarly, in 2021, the mental health and substance use hospitalization rate of Sioux Lookout area First Nations Band members both on- and off-reserve was 31.5 per 1,000 population which was six times that of the province of Ontario (5.2 per 1,000 population). The highest rates of mental health and substance use emergency department visits were comprised of people aged 18 to 44 between 2011 and 2021 (Attachment A; SLFNHA 2024b).

Overall, Indigenous communities in the region, may be experiencing pre-existing higher rates of mental health and substance use challenges than the rest of the province, with the largest concern surrounding youth and young adults (NWHU and Yusuf, 2023; SLFNHA, 2018, 2024b).

CONSTRUCTION

The construction phase of the Project is expected to occur over a three-year period and will include preparation of the site and the construction of mine infrastructure development.

Mental wellness and personal behaviours during the construction phase is influenced by a multitude of interrelated factors that both directly and indirectly affect upstream environmental, social, cultural and economic conditions. Collectively, these conditions have the potential to affect Indigenous health at the individual and community level.

The available evidence suggests that Project activities may have a beneficial effect of mental wellness via economic support (e.g., income, employment and agreements) during construction. As discussed previously, economic opportunities can improve food security (Myrette and Riva 2021), and in some cases, reduce barriers (via economic benefit) to participation in traditional harvesting practices, by providing means of purchasing hunting, fishing and harvesting equipment (Chan et al. 2014). Economic development, coupled with environmental stewardship and self-determination, is a key determinant of Indigenous health (Loppie and Wein 2022). Therefore, providing opportunities for training, education, and employment for local Indigenous communities is an important way to enhance and support Indigenous health via mental wellness and personal behaviours.

Indigenous health via changes in mental wellness and personal behaviours, may also be indirectly influenced by Project activities during construction through potential changes to traditional food systems (Batal et al. 2021b), environmental dispossession and solastalgia (e.g., the feeling of loss and grief tied to sense of place.) (Ninomiya et al. 2023; Salerno et al. 2021; Tobias and Richmond 2014), family dynamics and relationships (Parker et al. 2018; Myrette and Riva 2021) and potential changes to access to health and social services (Parker et al. 2018; Wheatley 2024).

Some communities in the region (i.e., in the Sioux Lookout area) are experiencing pre-existing mental health and substance use challenges, with higher hospitalization rates for mental health and substance use compared to other local communities in northern Ontario (NWHU and Yusuf 2023; SLFNHA 2024b). In a confidential report prepared for NWOMC, while community members expressed that the Project may bring positive economic benefits (which can lead to beneficial influences on mental health outcomes), there was concern about an influx of workers and issues related to drugs and alcohol. While these issues are complex and may be attributed to a myriad of personal and social factors, research has shown that without effective mitigation strategies in place, resource development more broadly can affect mental wellness and personal behaviours through various pathways of effect, including those related to family dynamics (Parker et al. 2018) and substance use challenges (Aalhus et al. 2018; Gibson et al. 2017).

Notably, research has shown that positive mental health outcomes are strongly linked to active community participation and effective collaboration throughout project development and implementation (Salerno et al. 2021). Positive mental health outcomes can result from the creation of jobs themselves or

secondary economic effects when there is investment into local community development, education and training, as well as culturally appropriate and community-specific mitigation measures (Salerno et al. 2021). In confidential reports, LSFN, WFN, and NWOMC expressed the desire for local hiring initiatives. Additionally, WFN and LSFN community members suggested that a method of building trust was to support economic prosperity outside of the mine.

A common theme that has emerged within publicly available reports, confidential reports, and various community engagement activities was the desire for investment in education and training for youth and children. Existing mental health outcomes across Indigenous communities within the LSA are disproportionately affecting youth and young adults, including in the NWHU as a whole, in Sioux Lookout area First Nations, which includes LSFN and WFN, in ANA, and RLEF (NWHU and Yusuf 2023; SLFNHA 2024b; SLFNHA 2018; MNP LLP 2020; Mergler et al. 2019, 2023). Preserving culture through various mediums (e.g., language and knowledge transmission; supporting participation in land-based activities and learning) has been shown to have protective effects on mental health (Carrier et al. 2022; Lines et al. 2019; NCCIH 2016; Task Group on Mental Wellness 2021). Therefore, mitigation and enhancement measures that include mental health protective factors such as education and training initiatives that involve targeting youth, are important considerations for the Project.

As indicated in the sections above, Project activities during construction have the potential to cause changes to mental wellness and personal behaviours (via changes in employment and economics, family wellness, land-based practices, intergenerational trauma, substance use); although, these effects are highly subject to individual variability. As family, community, and relationships with each other are foundational to Indigenous health (Métis National Council 2025; SLFNHA 2016), Project-related changes to mental wellness and personal behaviours during construction may therefore result in a mix of both beneficial and adverse effects to Indigenous health.

Mitigation measures and monitoring plans are expected to be protective of Indigenous health during construction. The implementation of carefully designed mitigation and enhancement measures are key to mitigating potential adverse effects and maximizing the benefits of the Project, such as an inclusive and local hiring strategy, prioritizing Indigenous hiring, education and training, employee benefits programs, supporting Indigenous procurement and business opportunities, and operation of a dry camp.

The likelihood of beneficial effects on mental wellness and personal behaviours outcomes is largely based on the planning, design and implementation of mitigation measures that improve the upstream conditions (environmental, social, economic, cultural) that influence Indigenous health and wellness. In general, beneficial mental health effects from major projects are associated with meaningful engagement and effective partnerships (Salerno et al. 2021). Given Indigenous communities generally within the RSA (e.g., Sioux Lookout area First Nations) may be currently experiencing higher rates of mental health challenges and substance use challenges than their Ontario counterparts, supporting initiatives that aim to mitigate potential Project effects and support mental health resiliency and healing outside of the mine, should be considered to support alleviating this disparity. Therefore, funding for Indigenous-led education and training for land-based activities and support of Indigenous environmental monitoring programs were also identified. A list of mitigation and enhancement measures for mental wellness and personal behaviours are presented in Section 6.2.5.4 and for the HIA overall in Section 7.

Overall, both potential beneficial (e.g., via economic development and increased material resources due to employment) and adverse (e.g., via environmental dispossession, negative health behaviours) changes to mental wellness and personal behaviours may affect Indigenous health and wellness for some individuals during construction, with potential effects being highly subject to individual variability. However, no measurable deviation from baseline population-level health resulting from Project activities is anticipated. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. Mitigations and enhancements presented in Section 6.2.5.4 are required to minimize adverse effects.

OPERATIONS

The operations phase is anticipated to extend over a 26-year period. During operations, similar interactions as the construction phase are expected, and potential effects to Indigenous health via changes to mental wellness and personal behaviours may continue. Although no population growth or

direct workforce is anticipated on-reserve for LSFN, WFN, and ANA, Project operations and the continuation of Project activities means that several pathways (both beneficial and adverse) identified during construction may persist or evolve over time, as the workforce is expected to stabilize during operations. It is expected that the mine workers will be working seven working days of 12-hour shifts, followed by seven days off, with a goal that the majority of workers will be from local communities. As a result, potential beneficial effects to mental wellness associated with economic benefit from the Project may continue for some individuals. These relate primarily to economic opportunities such as increased income, education, training and skills, which can improve food security (Myrette and Riva 2021), access to services (e.g., via employment and employee benefits for those employed by the Project), and in some cases, potentially reduce barriers to participation in traditional harvesting practices (e.g., via increased material resources) (Chan et al. 2014). Income is a key determinant of mental health (PHAC 2018; CAMH n.d.; PHAC 2024), and higher earnings during operations can reduce financial stress, enhance self-esteem, and support improved mental health, including a reduced prevalence of addictions (NCCIH 2020).

As described in the CWB assessments, stable employment and contracting opportunities could support income security and skill development for Indigenous people, assuming local hiring remains prominent and Indigenous people are employed throughout operations; though barriers to participation may continue to limit equitable access. Great Bear Resources has indicated that commercial project agreements are in progress with LSFN, WFN and NWOMC to minimize adverse social impacts and maximize economic opportunities for Indigenous communities. While the specifics of these agreements are confidential, the agreements are assumed to provide economic benefit to on-reserve communities and off-reserve band members. Similar to construction, beneficial pathways of effect to health that relate primarily to economic development, temporary job creation and increased spending within the region, which may in turn, have secondary economic effects for the local communities, may continue during operations (Salerno et al. 2021).

Simultaneously, as described in the CWB assessments, long-term operations may reinforce community concerns about environmental change and cultural continuity, particularly where access to traditional or ceremonial areas is perceived as reduced. As a result, adverse effects due to changes in mental wellness and personal behaviours may also continue. These relate primarily to participation in traditional activities (including disruption of traditional food systems) environmental dispossession (Ninomiya et al. 2023) and solastalgia (i.e., the feeling of loss and grief tied to sense of place) (Salerno et al. 2021), confidence in land and resource use, housing availability, cost of living, and access to health and social services (for those not employed by the Project) (Myette and Riva 2021). In addition, higher income associated with steady employment during operations may deepen the current mental health and substance use issues within the community (SLFNHA 2024b), as problematic substance use can be related to resource development, through increased stress, access to disposable income, time away from traditional, community, and social practices (Aalhus et al. 2018; Myette and Riva 2021).

As described in the CWB assessment, family routines and caregiving roles may gradually adapt to rotational work patterns, but these adjustments could influence social cohesion, as daily habits, time on the land, and participation in community activities evolve. In the broader region, social cohesion may also shift as new families and workers relocate to nearby communities, potentially altering local demographics and social networks that Indigenous communities interact with.

Mitigation measures and monitoring plans are expected to be protective of Indigenous health during operations. The implementation of carefully designed mitigations and enhancements, such as education and training, prioritizing Indigenous hiring, community partnerships, and operation of a dry camp, are key to mitigating potentially adverse effects to mental wellness and personal behaviours and maximizing the benefits of the Project. In addition, funding for Indigenous-led education and training for land-based activities and support of Indigenous environmental monitoring programs will support mental health resiliency through land-based learning (Carrier et al. 2022; Lines et al. 2019; NCCIH 2016; Task Group on Mental Wellness 2021). A list of mitigation and enhancement measures for mental wellness and personal behaviours are presented in Section 6.2.5.4 and for the HIA overall in Section 7.

Overall, both potential beneficial changes (e.g., via economic development and increased material resources due to steady employment) and adverse changes (e.g., via environmental dispossession,

negative health behaviours) to mental wellness and personal behaviours may continue to affect Indigenous health and wellness for some individuals during operations, with potential effects being highly subject to individual variability. However, no measurable deviation from baseline population-level health resulting from Project activities is anticipated following implementation of mitigation measures. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. Mitigations and enhancements presented in Section 6.2.5.4 are required to minimize adverse effects.

CLOSURE

Closure phase is expected to occur over approximately three years following the end of operations. Activities will be smaller in scale than those during construction but will share similar characteristics. As described in the CWB assessment, the demobilization of the workforce and the end of Project-related employment could lead to temporary financial stress and loss of income stability for households during closure. This may contribute to emotional stress, particularly for caregivers or single-parent households, and could increase short-term inequalities within the community, and potentially worsen mental health outcomes. However, with transferrable skills development, and adequate education and training, including on financial literacy, income from Project-related economic benefits may continue to be realized during and after closure.

As described in the CWB assessment, at the same time, the conclusion of operations may reduce workforce-related safety concerns (e.g., harassment, substance use, or trafficking) and allow for gradual improvement in social stability and community cohesion. Confidence in land and water quality will remain a key determinant of recovery, influencing whether members resume harvesting and other traditional practices in reclaimed areas. Over the long term, reclamation and revegetation activities may gradually restore access to lands and support cultural revitalization if trust in environmental outcomes is rebuilt. This restoration and possible improvement of access and availability of traditional lands and resources can lead to improvements to community cohesion and mental health for Indigenous people particularly given their connection to the environment, and the importance of traditional practices. In addition, the closure phase may alleviate any emotional or social stress factor that arose as a result of the construction and operation of the Project.

As described in the CWB assessment, changes to community cohesion during closure will depend on the continuity of engagement and transparency from Great Bear Resources. Reduced communication or lack of clarity around long-term commitments could erode trust and reinforce perceptions of external dependency. Conversely, visible follow-through on training, diversification, legacy infrastructure programs, and continued community involvement, could strengthen relationships and enhance confidence in post-project transition.

Overall, both potential beneficial (e.g., via economic development and increased material resources due to steady employment) and adverse (e.g., via environmental dispossession, negative health behaviours) changes to mental wellness and personal behaviours may continue to affect Indigenous health and wellness for some individuals during closure. However, mental wellness and personal behaviours effects are highly subject to individual variability. Mitigation and enhancement measures associated with the closure phase are designed to ease the transition to other employment opportunities in advance of mine closure.

As discussed in Impact Statement Section 18 (Summary of Benefits), Great Bear Resources proposes to address local priorities so that communities can benefit from the Project, including after the mine closes. With respect to economics, Great Bear Resources plans to support local initiatives that includes working with local suppliers to develop capacity and provide training opportunities, which may extend the benefits of the Project beyond the life of the mine. These initiatives are expected to have ongoing beneficial effects on the health and mental wellness of Indigenous people during and after closure.

6.2.5.4 MITIGATION AND ENHANCEMENT MEASURES

Table 6-43 outlines the key mitigation and enhancement measures recommended based on the assessment of changes to mental wellness and personal behaviours. These mitigation and enhancement measures are anticipated to apply across all Project phases unless otherwise specified. General

mitigation measures for closure activities that relate to Indigenous health are also included. Mitigation and enhancement measures below include those relevant to both direct and indirect pathways of effect related to mental wellness.

Table 6-43: Mitigation and Enhancement Measures for Mental Wellness and Personal Behaviours

Mitigation and Enhancement Measures for Mental Wellness and Personal Behaviours	Rationale
<u>Environmental Management Committee:</u> Great Bear Resources will work with the environmental management committee(s) and interested Indigenous members throughout the duration of the Project (all phases), to facilitate ongoing communications, sharing and integration of Indigenous knowledge and environmental information, and share and evaluate Project approvals, adaptive management and monitoring plans, and address emerging issues and interests identified by Indigenous Nations. ⁽¹⁾	Key aspects of the environmental management committee(s) related to Indigenous health are that: (1) it includes Indigenous members and (2) the committee will continue to operate for the duration of the Project. The committee is expected to mitigate against perception issues associated with environmental degradation and mistrust and is supportive of self-determination in addressing Indigenous issues. Collectively, these are expected to help mitigate against adverse mental health and community cohesion concerns.
<u>Education and Training (Project):</u> Provide budgeting and financial literacy tools available to all employees through the EAP, including a combination of organized workshops during working hours and optional individual supports that employees and their families can access on their own time. ⁽¹⁾	Financial literacy and money management skills have been shown to help to mitigate against adverse personal behavioural choices, including spending on alcohol and drugs. By making training available for all employees, and their families, this is expected to reduce the likelihood of adverse downstream health effects resulting from behaviours such as substance abuse, gambling and domestic violence.
<u>Education and Training (Project):</u> Deliver mandatory Cultural Awareness training for employees and contractors (including supervisors and managers) on safety, harassment awareness and prevention, and MMIWG2S+ and human trafficking awareness training. ⁽¹⁾	The findings in the National Inquiry on Missing and Murdered Indigenous Women and Girls (MMIWG) recommend mandatory cultural awareness training, including for supervisors and managers. This promotes cultural sensitivity and awareness of the code of conduct, including sexual harassment policies and repercussions at all levels. This measure is anticipated to minimize risks of incidents at camp and in community.
<u>Education and Training (Region):</u> <u>Inclusive and Local Hiring Strategy (hiring policies):</u> Partner with Indigenous training and employment organizations to support culturally appropriate recruitment and retention of Indigenous candidates, to support employment of Indigenous workers, provide training, priority hiring and work towards continuous improvement including training and employment opportunities for Indigenous women. ⁽¹⁾	Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. By prioritizing hiring of Indigenous workers where possible, the benefits of employment (income, skills training, health / dental benefits, retirement supports) can be realized by Indigenous communities. In addition, the hiring of Indigenous women specifically was one of the calls to action in the National Inquiry on MMIWG for the resource development industry.
<u>Community Financial Support (Access to Services):</u> Great Bear Resources will work collaboratively to fund programming through the Friendship Centre and community partners, including programming and supports to promote physical and mental health outcomes for Indigenous adults and youth. ⁽¹⁾	Providing funding and resources for programming for Indigenous adults and youth has the potential to provide downstream benefits to health. Specifically including physical and mental health programs as an outcome of the funding is important to mitigating the additional pressure that will be placed on local / regional health (including mental health) services.
<u>Community Financial Support (Access to Services):</u> Support local communities regarding access to social services and health care services in the region, including mental health and addiction services, and implement an adaptive management approach (as part of the Social Performance Plan) to address additional pressures resulting from the influx of workers and their families. ⁽¹⁾	Evidence shows that timely access to quality health (and mental health) care is protective of health and wellness. This measure (capacity building for health care services) was one of the calls to action in the National Inquiry on MMIWG for the resource development industry and is anticipated to mitigate against the increased pressures placed on local health care services (including mental health and addiction services). This measure is also anticipated to support ongoing adaptive management surrounding access to health and social services over time.

Mitigation and Enhancement Measures for Mental Wellness and Personal Behaviours	Rationale
<p>Camp Operations and Services (health care): Provide emergency response and basic health services to the on-site workforce. On-site medical facilities and staff will be in place to address health services for emergencies, injuries, and other routine needs. Medical personnel will be trained on supports that are available through Employee Assistance Program (EAP), Telus telehealth (or similar service / provider), and local / regional providers to foster connected health care on and off-site. Information about these services and supports (available to employees and their immediate families), will be posted in a visible location at the medical facilities and accommodations. ⁽¹⁾</p>	<p>Studies have shown that some of the primary negative pressures on local health services include increased use of emergency departments and primary care services within the local community, highlighting the importance of the provision of on-camp health services. This mitigation around camp and worker health care mitigates against adverse health effects through on-site medical care, plans to educate / support employees and their families with additional resources, and dissemination of important health and wellness information throughout the camp and site facilities. This measure is also anticipated to mitigate against underutilization of health supports and services provided through EAP and Telus telehealth (or similar), due to lack of awareness and uptake. It also helps to promote connected healthcare on and off site.</p>
<p>Camp Operations and Services (telehealth): Create access to Telus telehealth or similar provider for employees (and immediate family members) throughout the life of the Project, helping to alleviate pressures on local services. ⁽¹⁾</p>	<p>Evidence shows that timely access to quality health care is protective of health and wellness. Benefits of access to a 'telehealth' service are far reaching, promoting convenient access to health (including mental health) and social services (including addiction services), also reducing barriers related to service capacity and transportation.</p>
<p>Camp Operations and Services (site security): Site security will be maintained and consistent with other Ontario mining operations. Access will be limited to Great Bear Resources' workers and contractors, and approved visitors. Security guardhouses will be positioned where appropriate. Cameras, routine patrols and other methods will be utilized to monitor and ensure site security. Workers will be housed in separate accommodations by gender with locked access (e.g., keys) for each room and a separate mining dry / change room. Ongoing monitoring will occur throughout the mine life and policies will be updated as required. ⁽¹⁾</p>	<p>The safety of Indigenous women at camp is a complex issue with cascading issues around violence and harassment (verbal and sexual). Evidence related to the safety of women (and Indigenous women) in worker camps strongly supports measures that include separate accommodations, locked rooms and restricted access. These measures not only improve actual safety on-site but also improve perceptions of safety by female workers.</p>
<p>Social Closure Plan: Support consistent communication and planning throughout closure with emphasis on legacy, continuity, and shared decision-making. Develop a community transition plan in consultation with local Indigenous communities and groups so that decisions are made with integrity, based on cultural, spiritual and Indigenous well-being in mind. The plan will include collaborative planning, implement job-matching, retraining programs, financial literacy workshops, and economic diversification supports in anticipation of closure. ⁽¹⁾</p>	<p>Evidence shows that closure of a large employer in northern rural areas can have adverse effects, particularly in terms of income and employment, which is a key determinant of health. These boom-bust cycles have been well documented, with pre-closure mitigations playing a large role in the successful transition of local economies. This measure is anticipated to help mitigate against adverse health and well-being effects related to closure.</p>
<p>Environmental Monitoring: Environmental monitoring programs for surface water and aquatics will include constituents and related health-based benchmarks as considered in the health assessment (such as arsenic, mercury, methylmercury and selenium). Aquatics sampling programs will also include ongoing sampling and testing of fish quality in species identified for human consumption (i.e., walleye / pickerel, lake whitefish, northern pike, trout) as captured.</p>	<p>While the HHERA multi-media assessment results do not indicate an effect to human health from the Project, including human health-based constituents and benchmarks in water and aquatic / fish monitoring programs is important to validate assessment assumptions, provide evidence regarding the effectiveness of mitigation measures, and assist in mitigating community perception issues related to safety, environmental quality and health.</p>
<p>Environmental Data Sharing Agreements: GBR will share environmental monitoring data (air, water, fish) with Indigenous communities that request it on an</p>	<p>Providing environmental monitoring data, in a timely manner, to interested Indigenous communities is anticipated to promote transparency and relationship-</p>

Mitigation and Enhancement Measures for Mental Wellness and Personal Behaviours	Rationale
annual basis and provide opportunities (including funds) to conduct their own reviews.	building, while provision of funding for communities to conduct their own reviews, analyses and / or assessments using the data will empower and resource Indigenous communities. This measure is anticipated to mitigate against mental wellness and community cohesion effects, related to perception issues, lack of trust, and environmental quality concerns, over time.
<u>Indigenous- Environmental Monitoring Programs:</u> GBR is committed to involving Indigenous communities in environmental monitoring activities throughout all phases of the Project, including opportunities for participation in the collection and sharing of environmental monitoring information and results.	This Indigenous initiative is expected to have a positive effect on participating Indigenous communities, enhancing knowledge transfer and community cohesion. It is also expected to mitigate against adverse perceptions of environmental quality and safety, and promote overall physical and mental health and wellness through time spent on the land.
<u>Exploration of a Community Health and Well-being Survey:</u> Consider options for Indigenous-led survey and data collection on projected related metrics and health indicators, funded by GBR. This program could be further developed as part of the Social Performance Plan.	Data and information about health and wellness can be important tools for Indigenous self-determination. There is currently a lack of local Indigenous health and well-being data available, especially at the community-level. A community health and well-being survey, led by local Indigenous communities, would help to fill this data gap and monitor key project-related health determinants and indicators prior construction and then at regular intervals throughout the life of the Project. This information can help validate assessment assumptions, provide evidence regarding effectiveness of mitigation and enhancement measures, and empower Indigenous communities through data OCAP principles.
<u>Support for Indigenous-led Education and Training for Land-Based Activities:</u> Support for Indigenous-led education and training for land-based activities (hunting, gathering, plant harvesting) in the region and promote skills and knowledge transmission among Indigenous communities, including Indigenous youth.	Primary literature indicates that land-based learning among Indigenous people has beneficial downstream effects on health, mental wellness and cultural / community cohesion. This mitigation is intended to act as a mitigation to minimize adverse effects and also an enhancement intended to support Indigenous practices, cultural continuity, traditional economy and growth of the eco-tourism industry in the area.
<u>Employee Benefits Program:</u> Benefits program will include coverage for health care, prescription drugs, dental and access to in-person and online mental health services for employees and their families.	Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. The inclusion of benefits for employees and their immediate families mitigates against broader affordability issues including access to health care, dental and mental health (including addiction) services.
<u>Retirement Planning and Support:</u> Offer a retirement pension plan, Registered Retirement Savings Plan matching or equivalent, to employees to help support longer term financial stability.	Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. Financial literacy and financial planning, including retirement planning and support, help to mitigate against a wide range of economic-related downstream health issues in elderly (retired) populations.
<u>Indigenous Procurement (Local Procurement Policy):</u> Help strengthen Indigenous participation in business opportunities by developing Project procurement policies that support Indigenous economic development and reconciliation.	Supporting the local Indigenous economy helps to protect against disparities that currently exist between Indigenous and non-Indigenous communities. Supporting Indigenous businesses, where appropriate, focuses more of the economic benefits of the Project on Indigenous communities broadly rather than concentrated on the working population (i.e., those employed by the Project). This is anticipated to mitigate against physical and mental health outcomes associated with lower socio-economic status.

Mitigation and Enhancement Measures for Mental Wellness and Personal Behaviours	Rationale
<p><u>Medical Management and Response:</u> Track on-site medical responses needed for employees (anonymously) and referrals for off-site health services. GBR will continue to work with local health care service providers if capacity issues should arise in relation to an influx of employee referrals.</p>	<p>Medical resources are constrained across much of northern rural Ontario, and access to services by Indigenous populations can be precarious. This measure is anticipated to mitigate against additional pressures placed on local health care services by implementing a plan to track on site medical response and off site referrals, thereby monitoring the impact of the Project on local medical and emergency services. This mitigation is expected to minimize broader community effects related to access to services and associated downstream health outcomes.</p>
<p><u>Public Safety Communications:</u> Involve and consult with Indigenous communities in the development of communications approaches that will identify how important information will get disseminated, including as part of emergency response plans.</p>	<p>Evidence suggests that communities having a lack of information can lead to negative perceptions (of risk / safety) and fears of the unknown. Additionally, in the event of an emergency, clear and efficient dissemination of information is critical. This measure is intended to mitigate against perception issues around the Project in general and specifically around accidents and malfunctions, and other emergencies before construction and during operations.</p>
<p><u>Community Safety Enhancement:</u> Work in collaboration with Indigenous communities and local law enforcement to discuss safety considerations regarding the influx of additional workforce into the area, including the possibility of increases in violent crime and / or sexual harassment in local communities.</p>	<p>This collaborative measure is anticipated to provide some mitigation against issues related to community safety, safety of Indigenous women and girls, and perceptions of safety over time, thereby minimizing downstream adverse health outcomes. In addition, this measure (collaborating with police services) was one of the calls to action in the National Inquiry on MMIWG for the resource development industry.</p>
<p><u>Project / Benefit Agreements:</u> Economic benefits to Indigenous communities, based on collaborative engagement with local Indigenous communities.</p>	<p>Project agreements have the potential to provide ongoing economic benefits to Indigenous communities over the lifetime of the Project, both on reserve and for off reserve Band members. This measure aims to both enhance the Project-related economic opportunities for Indigenous communities, while mitigating against economic inequities brought on by disproportionate inclusion in the Project workforce.</p>
<p><u>Training and Tracking Incidents of Harassment and Violence in the Workplace:</u> Provide mandatory training on the code of conduct and ethics, with a specific focus on unlawful discrimination, harassment, and workplace violence for all employees and contractors, including supervisors and managers. This training will include clear and specific examples of sexual and gender-based harassment and assault (verbal, physical) and outline steps for action if the perpetrator is a mine worker, supervisor or manager. These policies will also include incident tracking and review, a monitoring plan for policy effectiveness, and an adaptive management process.</p>	<p>Evidence shows that verbal and sexual harassment is an issue in mine camps. This measure was one of the calls to action in the National Inquiry on MMIWG for the resource development industry. By providing mandatory training on this specific aspect of GBR's code of conduct, the measure is expected to minimize these incidents to the extent possible. The monitoring and adaptive management supports are in place to monitor the effectiveness of the policy and associated interventions over the life of the Project. Protecting women in the workplace has far-reaching effects on both physical and mental health.</p>
<p><u>Workplace Incident Reporting (at Camp):</u> Implement the Code of Conduct policy which provides clarity that employees reporting incidents will be protected against wrongful termination or other negative actions.</p>	<p>Evidence suggests that female employees have under-reported instances of verbal and sexual assault in the workplace due to the camp culture or lack of support from managers, supervisors. This measure is intended to mitigate against both under-reporting of workplace misconduct and to promote a consistent and transparent approach for reporting, review and follow-up, without fear of repercussions.</p>

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC). EAP = Employee Assistance Program; fVC = federal valued component; GBR = Great Bear Resources; HHERA = Human Health and Environmental Risk Assessment; HIA = Health Impact Assessment; MMIWG = Murdered Indigenous Women and Girls; MMIWG2S+ = Missing and Murdered Indigenous Women, Girls, Two-Spirit, Transgender, and Gender-Diverse+ peoples; OCAP = ownership, control access and possession; pVC = pathway valued component.

The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2) are in place as planned.

6.2.5.5 GBA PLUS CONSIDERATIONS

In accordance with Health Canada guidance (Health Canada 2024a) the HIA takes an equity approach to assessing potential effects by examining the potential distribution of effects across different sub-populations within the Indigenous communities. This section highlights how Indigenous identity intersects with the other GBA Plus identity factors described below. Table 6-44 applies a GBA Plus lens that treats Indigenous identity as a central identity factor, and the other identity factors described below are discussed within this context. At the bottom of this table there is a section highlighting key intersectionality considerations, Indigenous identity is at the center of this qualitative analysis.

It is important to note that while this section identified subgroups that have the potential to experience effects uniquely from changes to mental wellness and personal behaviours, the analysis should be considered in the context of the potential effects assessment findings. The analysis below identifies populations that could be disproportionately affected and also discusses the potential health effects, or lack thereof, as identified in the assessment.

Table 6-44: GBA Plus and Equity Considerations: Mental Wellness and Personal Behaviours

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Gender	Disproportionate (Men+; Women+)	Research has typically shown males to have higher rates of substance use disorders (CAMH n.d.) and substance-use related emergency department visits (NIH 2020), whereas females tend to have higher rates of mood and anxiety disorders (CAMH n.d.). However, in the NWHU data, females (particularly youth and young adults) either match or outnumber male rates across mental illness and substance-related indicators (NWHU and Yusuf 2023). Research also typically shows higher rates of mood and anxiety disorders in women (CAMH n.d.). These trends are consistent with trends observed in the NWHU, with females more likely to have self-reported mood and anxiety disorders (Attachment A).
Age	Disproportionate (Youth and Young Adults)	Youth and young adults in the region are experiencing higher rates of mental health challenges (e.g., hospitalizations and emergency departments related to self-injury and / or substance use) than their Ontario counterparts (Mergler et al. 2023; MNP LLP 2020; NWHU and Yusuf 2023; SLFNHA 2024b, 2018).
Physical Ability	Disproportionate (Individuals with disabilities and / or chronic health conditions)	People with chronic physical health conditions (e.g., chronic pain) are much more likely to also experience mood disorders; although this relationship is bidirectional (i.e., people with a mood disorder are often at higher risk of developing a long-term medical condition) (CAMH n.d.).
Socioeconomic Status	Disproportionate (Low-income individuals and households and / or low educational attainment or limited labour market participation)	Canadians in the lowest income group are more likely than those in the highest income group to report poor to fair mental health (CAMH n.d.; PHAC 2018). Similarly, unemployment is associated with higher risk of mental health challenges; although, this relationship is bidirectional (i.e., mental health can also reduce a person's ability to maintain a job) (PHAC 2024).

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Mental Ability	Disproportionate (Individuals with pre-existing mental health conditions and / or Individuals with concurrent substance use and mental health challenges)	Individuals living with a mental illness are about twice as likely to also struggle with a substance use disorder compared with the broader population. In the same way, people with substance use disorders are up to three times more likely to have a mental illness. More than 15% of individuals with a substance use disorder also have a co-occurring mental health condition (CAMH n.d.).
Intersectional Analysis:	Intersectional effects may occur for individuals that identify with or are experiencing a combination of any (or all) of the identified subgroups described above. For example, those who identify as women+, are low-income, and have a pre-existing mental health condition may have heightened vulnerability to mental health changes, as these interacting identity factors can compound exposure or sensitivity to mental wellness stressors and deepen existing health disparities if not adequately addressed. It is acknowledged that Indigenous identity intersects with the identity factors listed above.	

Notes:

GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); NWHU = Northwestern Health Unit.

6.2.5.6 SUMMARY OF POTENTIAL EFFECTS: MENTAL WELLNESS AND PERSONAL BEHAVIOURS

The following is a summary of the findings from the assessment of potential effects to health based on changes to mental wellness and personal behaviours (Table 6-45). The mitigation and enhancement measures recommended based on the assessment of changes to mental wellness and personal behaviours, including a description and rationale, are described in Section 6.2.5.4.

Table 6-45: HIA Potential Effects Summary: Mental Wellness and Personal Behaviours

Criteria	Description	Characterization
Health Determinant	Identify the determinant of health being assessed	<ul style="list-style-type: none"> Mental Wellness and Personal Behaviours (Social Determinant of Health)
Direction of Potential Effect	Describe whether the potential effect maybe beneficial or adverse	<ul style="list-style-type: none"> Beneficial (Economic Opportunity and Development): the potential effect on human health may be beneficial, thereby improving conditions that support Indigenous health.
		<ul style="list-style-type: none"> Adverse (Environmental Dispossession; Negative Health Behaviours): the potential effect on human health may be adverse, thereby diminishing conditions that support Indigenous health.
Scale of Potential Effect (post- health mitigations)	What is the expected scale of the project-related effect to population health and wellness? How does this influence the need for mitigation?	<ul style="list-style-type: none"> Minor (Beneficial – Economic Opportunity and Development): the beneficial effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures. The assessment findings identified that Project-related changes to economic opportunities are expected to support beneficial outcomes for Indigenous health for some individuals; particularly those who receive benefits through employment or Project agreements. While some individuals may experience beneficial health effects, a population-level shift in Indigenous health is not expected.
		<ul style="list-style-type: none"> Minor (Adverse – Environmental Dispossession; Negative Health Behaviours): the adverse effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this

Criteria	Description	Characterization
		<p>determinant following implementation of mitigation measures. The assessment findings identified that Project-related changes may lead to environmental dispossession and disruption of traditional food systems, and changes to income may lead to negative personal behaviours (e.g., substance use), potentially resulting in adverse effects to Indigenous health. While some individuals may experience adverse health effects, a population-level shift in Indigenous health is not expected.</p>
Affected Populations (Indigenous Communities)	Refers to the distribution of the effects across Indigenous communities and includes equity considerations	<ul style="list-style-type: none"> • Assessment findings (i.e., Project-related changes) are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.
GBA Plus	Identify relevant GBA Plus considerations for this determinant	There are groups that may experience effects differently for this determinant. Details are discussed in the mental wellness and personal behaviours GBA Plus section (Section 6.2.5.5).
Mitigations and Enhancements	Additional measures based on the assessment of potential effects for this determinant ⁽²⁾	<p>Additional measures, beyond what is included in the other pVC and fVC sections of the Impact Statement are listed below for mental wellness and personal behaviours with further details provided in Section 6.2.5.4 and a list of health measures is provided in Section 7:</p> <ul style="list-style-type: none"> • Environmental Management Committee (1) • Camp Operations and Services (healthcare) (1) • Camp Operations and Services (site security) (1) • Education and Training (Project) (1) • Inclusive and Local Hiring Strategy (1) • Education and Training (Region): Inclusive and Local Hiring Strategy (hiring policies) (1) • Community Financial Support (1) • Social Closure Plan (1) • Environmental Monitoring • Environmental Data Sharing Agreements • Indigenous Environmental Monitoring Programs • Exploration of a Community Health and Well-being Survey • Support for Indigenous-led Education and Training for Land-Based Activities • Employee Benefits Program • Retirement Planning and Support • Indigenous Procurement (Local Procurement Policy) • Public Safety Communications • Community Safety Enhancement • Project / Benefit Agreements • Training and Tracking Incidents of Harassment and Violence in the Workplace • Workplace Incident Reporting (at Camp)

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC)

2 Assumes measures included in upstream pVC and fVC sections of the Impact Statement are also implemented.

ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); HIA = Health Impact Assessment; LSA = Local Study Area; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; pVC = pathway valued component; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

While these findings are specific to this determinant of health (mental wellness and personal behaviours), an overall determination of the potential for residual effects for Changes to Health (fVC Indigenous Peoples) is provided in Section 8.

6.2.6 ACTUAL AND PERCEIVED PUBLIC SAFETY (ACCIDENTS AND MALFUNCTIONS)

This section includes an assessment of Indigenous health from changes in actual and perceived public safety (accidents and malfunctions), including health linkages, relevant existing conditions, potential effects (construction, operations and closure), mitigation and enhancement measures and GBA Plus considerations.

6.2.6.1 HEALTH LINKAGES

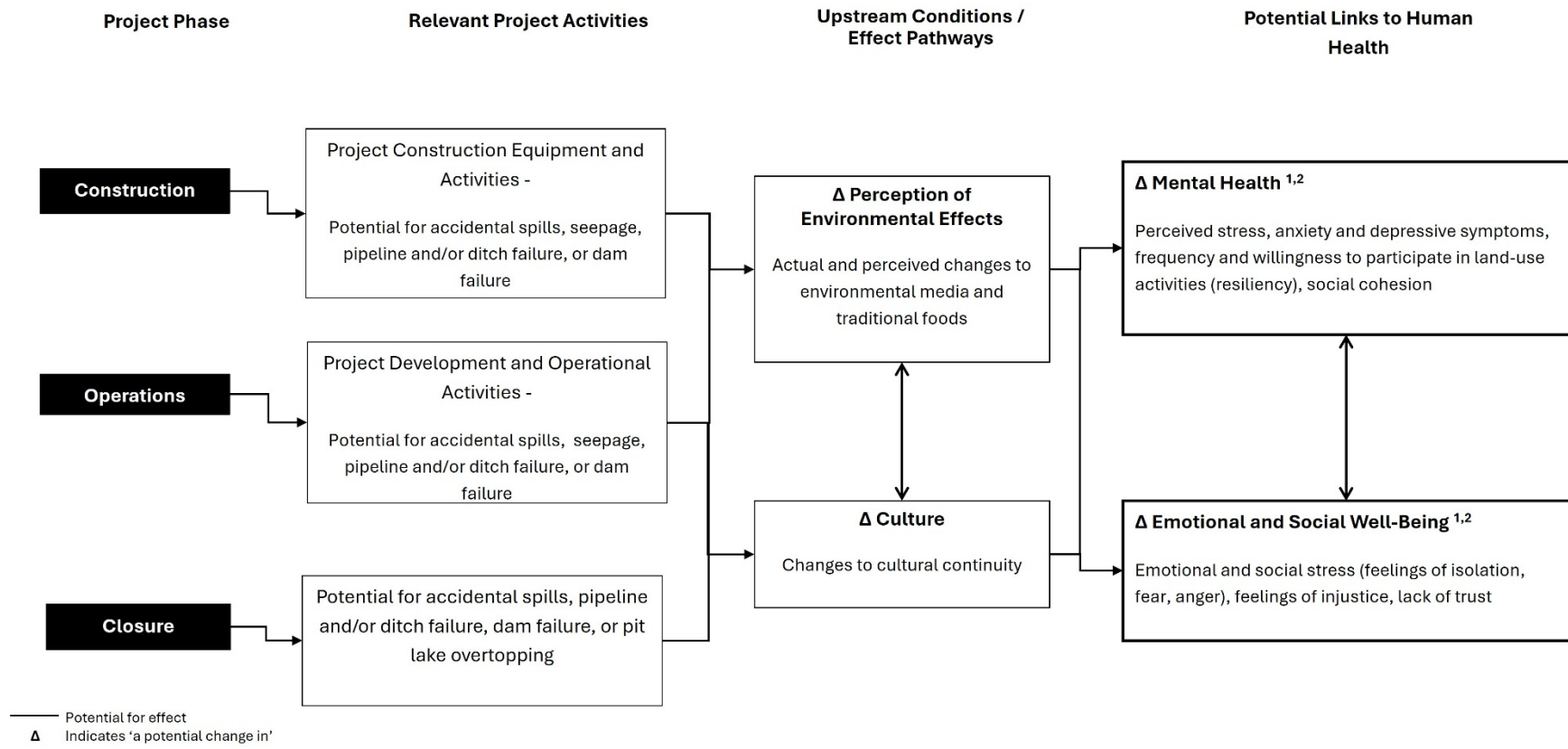
The following section describes the generic scenarios by which human health can be influenced by actual and perceived public safety due to accidents and malfunctions. The linkages described here are not specific to one sector or community, instead, this section provides an overview of the relevance of actual and perceived public safety as a determinant of Indigenous health.

Accidents and malfunctions can include structural and operations failures and / or accidents caused by human error. Accidents and malfunctions, should they occur, tend to have a direct effect on human health, depending on the nature of the event. In general, incidents that may occur during transport, in the workplace, or at home, can lead to physical harm (injuries, death), emotional distress, and financial burdens for individuals and communities (CDC 2024; ILO 2024). Specifically in the context of major projects, accidents such as equipment failures, explosions, or chemical spills can directly impact health by causing injuries (i.e., lacerations and fractures) and / or illnesses (e.g., respiratory issues) from discrete physical events (e.g., falling, object strikes) and / or exposure to toxic substances, depending on the type and severity of the incident (ILO 2024). Additional to the physical consequences of injury and / or illness, there may also be associated economic (i.e., livelihood impacted from inability to work) and social (e.g., ability to participate in cultural activities) consequences (CDC 2024). The consequences of larger-scale accidents, that may impact broader environmental conditions, can also indirectly impact health and wellness.

An effect pathway diagram showing potential Project activities during all phases, relevant changes / exposure pathways and health and wellness effects is provided in Figure 6-30 to graphically depict the potential linkages between the Project and human health outcomes. These diagrams show the potential pathways of exposure or change in upstream conditions that may result in changes to health; however, the assessment of potential effects (Section 6.2.6.3) identifies specific pathways where changes are predicted to occur.

Figure 6-30: Effect Pathway Diagram for Actual and Perceived Public Safety (Accidents and Malfunctions)

Actual and Perceived Public Safety



Sources:
1 – Salerno et al. 2021; Ninomiya et al. 2023

6.2.6.2 EXISTING CONDITIONS

This section provides a summary of existing conditions relevant to Indigenous health from changes in actual and perceived public safety from accidents and malfunctions. The available baseline (existing conditions) data for Indigenous health, including physical health and wellness (e.g., chronic conditions, communicable diseases, demographics), health-related behaviours (e.g., food consumption, physical activity, substance use) and mental wellness (depression, stress / anxiety, perception of risk) are provided in the Baseline Health Profile (Attachment A) and should be viewed for detail.

The existing environmental setting of the PA is typical of northern Ontario, and the area consists primarily of forested areas designated for forestry harvesting, previously harvested areas, a number of named and unnamed watercourses and waterbodies, and commercial aggregate resource extraction operations that are not part of the Project. The Project is located in a region with a long history of mining and exploration. As described in Impact Statement Section 15 (Cumulative Effects), some existing types of projects in the RSA consist of the Great Bear AEX Program, aggregate operations, forestry timber cutting operations, and Highway 105. Regionally, there are currently also other active projects in the RSA including the Red Lake Gold Mines and the Madsen Mine, which are located in Red Lake.

Land use within the LSA includes commercial aggregate resource extraction operations, forestry harvesting, cottaging and resource-based tourism operators. Tourism within the LSA is serviced by fishing and hunting lodges accessed via road, or more remote FIFO camps. Within the RSA, the primary uses include mining, forestry, cottaging, tourism, Crown land recreation, fishing, hunting, and fur harvesting. The major communities within the region include the Municipality of Red Lake, the Town of Balmertown, the Town of Cochenour, and the Township of Ear Falls, and the prevalent industries are mining, forestry, service and institutional organizations, and resource-based tourism. The tourism industry is serviced by lodges accessed via road, as well as remote outpost camps.

Therefore, existing conditions for actual and perceived public safety are likely typical of other rural areas in northern Ontario, wherein the probability of accidents and malfunctions occurring due to anthropogenic activities is likely currently limited to events such as vehicle collisions. Unless otherwise indicated, the existing conditions information provided below is applicable to the local Indigenous communities: LSFN, WFN, ANA, NWOMC, and RLEF.

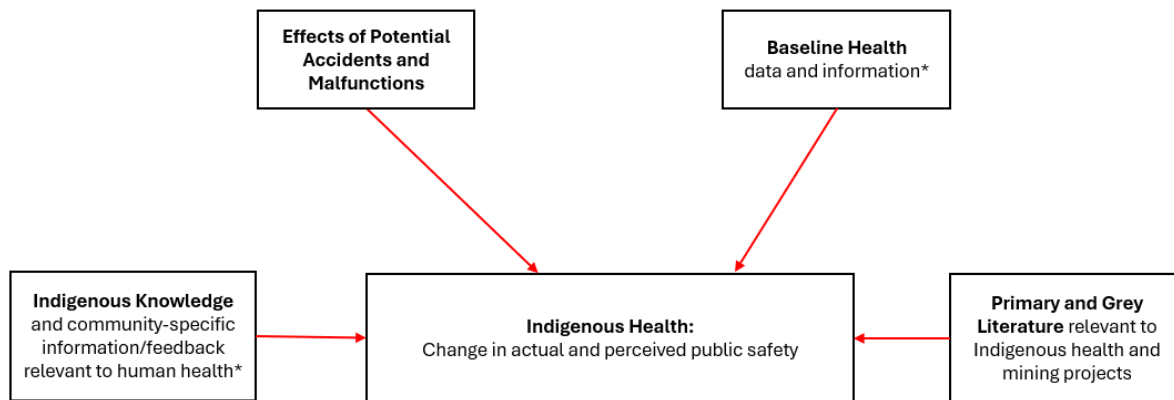
6.2.6.3 POTENTIAL EFFECTS

The following sections provide the inputs, assumptions, results from upstream analyses, Project information, primary and grey literature, and other evidence that supports the assessment of changes in actual and perceived public safety (accidents and malfunctions) in the context of Indigenous health. The assessment of potential effects first presents the available evidence, acknowledging any limitations and assumptions, followed by an assessment by Project phase (i.e., construction, operations and closure). Finally, a summary of the assessment findings is presented with a discussion regarding mitigation and / or enhancement measures, and GBA Plus considerations.

EVIDENCE FOR ASSESSMENT

The evidence used in the assessment of potential effects to Indigenous health from changes in actual and perceived public safety (accidents and malfunctions), included (i) findings from relevant upstream valued components and technical appendices; (ii) primary and grey literature sources; (iii) IK and community-specific information, and (iv) baseline health information (Figure 6-31).

Figure 6-31: Inputs for Actual and Perceived Public Safety (Accidents and Malfunctions)



Note: additional linkages between individual inputs are not shown
 * Where relevant and available

Each of these sources of information and evidence are further described in the sections below. Collectively, this body of evidence informed the assessment of potential effects described for each Project phase (i.e., construction, operations and closure).

Upstream Technical Inputs

One upstream technical input was used in the assessment of actual and perceived public safety (accidents and malfunctions), which was Impact Statement Section 16 (Effects of Potential Malfunctions and Accidents). Specifically, determining whether the Project will result in changes to actual and perceived public safety, including emotional and social stress factors, due to the risk of accidents and malfunctions, were the relevant inputs into the assessment of potential effects on Indigenous health via changes in actual and perceived safety due to accidents and malfunctions.

The potential types of accidents and malfunctions that are most applicable to human health are those that would result in a spill. These types of potential accidents are considered in Impact Statement Section 16, specifically in the following sub-sections:

- Dam failures (Impact Statement Section 16.8 and 16.9): potential release of tailings and / or contact water
- Pipeline failure and / or ditch failure (Impact Statement Section 16.11 and 16.12): potential failure of tailings and / or contact water
- Pit lake overtopping (Impact Statement Section 16.15): potential release of contact water prior to proven suitable water quality objectives at closure
- Chemical release (Impact Statement Section 16.19): potential release of chemical such as release due to breach of storage facility.

As described in Impact Statement Section 16 (Effects of Potential Malfunctions and Accidents), for each credible accident and malfunction scenario identified, the potential effects to the environment (biophysical and human environment) were assessed at each applicable phase of the Project, based on a reasonable worst-case scenario. Subsequently, residual risk rankings were determined for each scenario based on the likelihood of occurrence and level of consequence (e.g., increased risk is associated with scenarios with a greater likelihood of occurrence and increased level of consequence).

The residual risk rankings for the potential accident types that were assessed, ranged from very low to low. Out of the 15 accident types assessed in Impact Statement Section 16 (Effects of Potential Malfunctions and Accidents), 11 accident types were ranked as very low, and four accident types were ranked as low. A risk ranking of very low is defined as: *“Risks are considered negligible (i.e., effect would be within the natural variation of the environment and economics) and can be effectively managed through application of engineering standards and standard mitigation (e.g., best practices and*

management activities),” whereas a risk ranking of low is defined as: *“Risks are low and considered acceptable (e.g., below thresholds and guidelines). Risk can be effectively managed through application of engineering standard and standard mitigation (e.g., best practices and management activities).”* Given that the likelihood of the scenarios had a rare (1/1,000 to 1/10,000 events per year) or unlikely (1/100 to 1/1,000 events per year) likelihood of occurrence, interactions between the Project and Indigenous health via changes to actual public safety are not anticipated at this time.

Emergency planning was described for each credible accident and malfunction considered in Impact Statement Section 16 (Effects of Potential Malfunctions and Accidents). Prior to construction of the Project, Great Bear Resources will develop an emergency response plan for accidents and malfunctions. The emergency response plan will include the communication of plans and contact numbers for Project staff, corporate staff regulatory contacts, Indigenous people and local communities, as may be required for each type of accident and malfunction.

Primary and Grey Literature

The primary mechanism through which accidents and malfunctions can result in direct environmental and human health effects is through the spill or accidental release onto the land or water. Spills can result from a variety of different accidents and malfunction failure modes and if severe could cause effects to water quality, vegetation health, animals, and aquatic life, and potentially to the health and wellness of people if traditional foods are consumed from areas where these effects are observed.

The risk of accidents and malfunctions from industrial resource development, can influence the health of Indigenous people by contributing to emotional and social stress (Ninomiya et al. 2023; Salerno et al. 2021). Historically, incidents associated with industrial resource development have resulted in environmental contamination, forced relocations, and disruptions to traditional land-based activities for Indigenous people globally (Ninomiya et al. 2023). Although unrelated to the Project and not specific to the mining industry, these historical events disrupted connections to land, created uncertainty, and affected traditional activities for those Indigenous communities that were impacted (Ninomiya et al. 2023). The resulting uncertainty, fear, and loss of trust in industries and authorities can lead to mental health effects over time such as chronic stress, depression, anxiety, grief, and feelings of powerlessness (Ninomiya et al. 2023; Salerno et al. 2021).

While these research findings are not specific to the communities LSFN, WFN, ANA, NWOMC, and RLEF, they aim to illustrate the broader relationship between health and public safety concerns among Indigenous people in Ontario and in Canada. Specific concerns raised by Indigenous communities are discussed below.

Indigenous Knowledge and Community-specific Information

This section presents IK that was received from some of the local Indigenous communities, supplemented by other relevant community-specific information that was publicly available, to identify where and how IK was considered in the assessment of Indigenous health.

While the TKLUS reports provided by some of the local Indigenous communities did not include data on actual or perceived public safety; general feedback on concerns pertaining to the Project were provided to Great Bear Resources through consultation activities and this information is summarized below. In addition, publicly available information and community-specific survey data were identified for inclusion.

Consultation and engagement activities with Indigenous communities (Impact Statement Section 3, Participation and Engagement) highlighted that some key themes of concerns related to public safety were regarding the types of parameters associated with the Project, whether there will be dangerous parameters used, the risk of leaching contaminants and dam failure, and the stability of the overburden.

Several Indigenous communities have raised concerns about mercury contamination with additional focus on valued species of fish that are present in the LSA and RSA (walleye and lake whitefish). Historical industrial activity in the region has influenced existing (baseline conditions) in the region. These concerns are considered as part of the HHERA (Impact Statement Appendix N-1; WSP 2026a) and Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies (Impact Statement Appendix T; WSP 2026b).

In addition, as part of the engagement process, Indigenous communities have expressed the following concerns related to potential accidents and malfunctions for the Project:

- Both LSFN and WFN expressed interest in understanding how the Project would affect the surrounding lands and ecosystems. Potential accidents and malfunctions, particularly related to a potential TMF dam failure and spills were raised as topics of concern in confidential IK reports prepared on behalf of LSFN and WFN.
- WFN has expressed concerns about the potential for runoff quality, sedimentation, tailings leakage, and accidental spills that could affect lakes, rivers and groundwater systems that in turn could affect traditional foods, such as otters, muskrat and beaver, and drinking water sources. They expressed uncertainty about how changing water chemistry associated with the Project treated effluent could affect plant growth, particularly in sensitive wetland ecosystems, and whether traditional harvesting areas will be safe to use in the future.
- NWOMC expressed concerns in a confidential IK report, related to the potential impact of the Project on traffic levels on Highway 105 and debris on the highway. NWOMC have also expressed concern about the potential for spills related to the Project that could affect the environment.
- ANA has expressed concerns regarding the potential for changes to groundwater and surface water, and in particular water quality in the receiving environment at a result of the Project including from potential spills. For ANA, where environmental trauma and mistrust of external systems are part of the lived experience, construction activities, even with low to very low residual risk of an accident or malfunction, may generate emotional or psychological stress. ANA has indicated: *“It is our people who will be impacted if the tailings dam fails. It is our people who will be poisoned if toxics leach into the water. It is our people whose fear and anxiety, already far too high and fatal due to the mercury crisis, will be heightened by the threat this mining project poses to our wellbeing,”* (ANA 2024). Therefore, perceived risks of changes in safety, even in the absence of direct interactions or incidents, may affect community health and wellness.

If safety risks and perceptions are not managed adequately, potential effects to Indigenous wellness could include emotional and social stress due to these concerns (Salerno et al. 2021). The potential for effects on mental health, stress and anxiety from actual or perceived effects from the Project, are further discussed in the assessment of mental wellness and personal behaviours in Section 6.2.4.6.

Great Bear Resources is participating in on-going and engagement activities with participating Indigenous communities and seeks to establish a positive relationship, identify interests, resolve concerns and optimize mutual benefits. Following the submission of the Impact Statement, Great Bear Resources will continue to engage with Indigenous communities (First Nations and Métis), government agencies and ministries, and stakeholder groups to keep the interested parties informed on the Project. Great Bear Resources has also developed a Community Grievance Procedure specific to the Great Bear Gold Project site. The Procedure aims for Indigenous communities and stakeholder concerns to be addressed, recorded, and resolved, and applies to all aspects of the Project and any activities related to the Project. In addition, it is noted that Kinross states: *“During our 32-year history, there has never been a tailings breach at a Company-owned facility and we continue to be vigilant, comprehensive and responsible in how tailings are managed at our facilities to maintain this record,”* (Kinross n.d.).

Relevant Baseline Health Information

Baseline conditions related to actual and perceived public safety are discussed in Existing Conditions, Section 6.2.6.2. Given the complex and varied interactions between actual and perceived public safety and human health, there are a variety of health conditions and wellness indicators (e.g., chronic conditions, stress) that may be influenced by actual and perceived public safety. Existing health information can be found in the Baseline Health Profile (Attachment A). Existing conditions related to actual and perceived public safety provide an indication of current conditions that may already be influencing baseline health status of communities in the region. These existing conditions provide an understanding of current conditions being experienced by communities in the region related to actual and perceived public safety in order to identify potential Project related effects on Indigenous health.

As presented in Attachment A, results of the CCHS showed that the rates of males in NWHU who reported a good or excellent perception of their overall health was lower than rates for males in the province from 2017 to 2020. The rates for females in NWHU who reported a good or excellent perception of their overall health were similar to Ontario rates. Similar results were observed for those in the NWHU who reported a good or excellent perception of their mental health, with males demonstrating significantly lower rates than Ontario males between 2015 and 2018 (no significant difference during the 2019 to 2020 period), and females demonstrating similar rates to Ontario during all years (2015-2020) for perceived mental health as good or excellent (Attachment A).

When looking at the age-standardized rates of respondents to the CCHS from NWHU and the province who reported feeling quite a bit or extremely stressed most days, in all years, rates of perceived life stress in the NWHU were not statistically different from Ontario rates for both males and females (Attachment A).

As presented in Attachment A, the Great Bear Project Community Health Survey asked survey participants to rate their current feelings of health and wellness for the following categories: physical, mental, spiritual, and social wellness on a scale from very good to very poor. Most self-identified Indigenous respondents (n = 22) selected positive answers (i.e., very good or good) across all categories (approximately 70% of respondents), followed by neutral (i.e., acceptable), and fewer respondents selecting negative (poor). No respondents selected very poor in any of the four categories. In addition, the Great Bear Project Community Health Survey asked survey participants to rate their perception of the type of impact the Project will have on their community. Most self-identified Indigenous respondents (n = 23) from Red Lake or Ear Falls selected positive, with others selecting neutral, very positive, or very negative (one respondent). No respondents selected negative. However, as described in Attachment A, it is important to note that the small sample size means that these findings are not intended to be extrapolated to an entire Indigenous community, group or region and are provided for informational purposes only.

Taken together, these data show that of perceived life stress in the NWHU do not differ statistically from Ontario and that they do not differ statistically between males and females (Attachment A). Further, most self-identified Indigenous respondents in Red Lake and Ear Falls from the Great Bear Project Community Health Survey reported positive levels of physical, mental, spiritual, and social wellness and largely positive expectations regarding Project effects. While these indicators do not directly measure actual or perceived public safety due to accidents and malfunctions, they are provided to contextualize broader circumstances that may influence emotional and social stress factors and overall wellness.

Other aspects of public safety (crime, violence, etc.) are discussed as part of the assessment of Safety of Indigenous women and girls (Section 6.2.7).

CONSTRUCTION

The construction phase of the Project is expected to occur over a three-year period and will include preparation of the site and the construction of mine infrastructure development. The risk for accidents and malfunctions to occur is introduced due to the development of the Project; however, the nature of events that may occur will differ between construction and operations, being lower during construction. The potential types of accidents and malfunctions that are most applicable to human health are those that would result in a spill, such as those related to dam, ditch, or pipeline failure. The residual risk rankings for the potential accident types that were assessed in Impact Statement Section 16 (Effects of Potential Malfunctions and Accidents), including those related to a spill, ranged from very low to low. Given that the likelihood of the scenarios had a rare (1/1,000 to 1/10,000 events per year) or unlikely (1/100 to 1/1,000 events per year) likelihood of occurrence, interactions between the Project and Indigenous health via changes to actual public safety are not anticipated at this time. This is assuming that the development and effective implementation of contingency planning and mitigation measures listed in Impact Statement Section 16 (Effects of Potential Malfunctions and Accidents) are carried out.

In terms of perception, perceived public safety due to accidents and malfunctions, including emotional and social stress, is influenced by a multitude of interrelated factors. The available evidence, including community feedback and primary and grey literature sources (Ninomiya et al. 2023; Salerno et al. 2021; Shandro et al. 2017), suggests that perceived changes in safety, even in the absence of direct incidents,

may affect community health and wellness. This is largely due to the introduction of a potential risk of spill-related accidents or malfunctions as a result of Project development, even if the actual risk of such events is negligible.

Should an accident or malfunction occur, Indigenous health and wellness could be impacted both directly and indirectly at varying magnitudes for varying durations, depending on the nature of the event. Indirect interactions with Indigenous health and wellness may occur because the development and construction of the Project introduces the possibility (via new infrastructure) of anthropogenic accidents and malfunctions occurring in the vicinity of the Project, relative to existing conditions. As such, indirect or perceived changes to public safety due to accidents and malfunctions could occur and may influence community health and wellness. These indirect or perceived influences relate primarily to concerns over environmental contamination and potential perceived disruptions in traditional land and resource use, which may in turn influence Indigenous health via changes in actual and perceived safety (accidents and malfunctions) including emotional and social stress factors.

It is acknowledged that there is inherent uncertainty associated with the potential effects of accident and malfunctions scenarios, making it difficult to fully characterize the potential health effects associated with the Project. Broader social and cultural factors, such as historical mistrust and pre-existing emotional and social stress factors associated with industrial development, may continue to influence and in some cases exacerbate, overall health effects for Indigenous communities.

Mitigation measures and monitoring plans are expected to be protective of Indigenous health during construction. As discussed in Impact Statement Section 16 (Effects of Potential Malfunctions and Accidents), an emergency response plan for the Project will be implemented and will include the communication of plans and contact numbers for Project staff, corporate staff regulatory contacts, Indigenous people and local communities, as may be required for each type of accident and malfunction. Great Bear Resources has also developed a Community Grievance Procedure specific to the Great Bear Gold Project site. The Procedure aims for Indigenous communities and stakeholder concerns to be addressed, recorded, and resolved, and applies to all aspects of the Project and any activities related to the Project. With the design and operational safeguards detailed in Impact Statement Section 16 (Effects of Potential Malfunctions and Accidents) in place and with the application of contingency planning and mitigation measures, resulting effects on Indigenous health via changes in actual and perceived safety, including emotional and social stress factors, are expected to be negligible for LSFN, WFN, NWOMC, and RLEF. Potential effects on Indigenous health (i.e., emotional and social stress) due to changes in the perception of safety during construction may occur for some individuals within the ANA community; largely due to historical mistrust and pre-existing emotional and social stress associated with industrial development. However, no measurable deviation from baseline population-level health resulting from Project activities is anticipated. While upstream technical inputs did not identify adverse effects to Indigenous people's health from Project activities per se, the measures proposed for upstream technical disciplines are expected to continue mitigating potential effects from changes to actual and perceived public safety during construction. In addition, environmental data sharing agreements with local Indigenous communities, support of Indigenous environmental monitoring programs, and public safety communications were also identified as health measures to minimize adverse effects due to changes in perceived safety. A list of mitigation and enhancement measures for perceived safety due to accidents and malfunctions are presented in Section 6.2.6.4 and for the HIA overall in Section 7.

Overall, the potential for effects on Indigenous health during construction due to changes in actual and perceived public safety, including emotional and social stress, is largely dependent on Great Bear Resources' continued engagement and transparency with the local Indigenous communities and the efficacy of Project design, mitigation measures and emergency response planning.

OPERATIONS

The operations phase is anticipated to occur over a 26-year period. While the risk of accidents and malfunctions during the operations phase is limited and was assessed as very low to low (Impact Statement Section 16), several indirect or perceived influences on public safety, including emotional and social stress, that were identified during construction may continue to affect health and wellness for some

individuals within Indigenous communities over the operational life of the mine. Long-term operational activity occurring without accidents and malfunctions may alleviate some perception issues over time.

The risk of certain accident types will be introduced as mining and operational activities commence, such as the risk of TMF slope failure and pipeline failure. Project design and performance monitoring are key to safeguarding the Project against the risk of an accident or malfunction. The potential for credible accidents and malfunctions, their potential consequences, and detailed descriptions of contingency planning and mitigation strategies applicable are described in Impact Statement Section 16 (Effects of Potential Accidents and Malfunctions) and are expected to be protective of Indigenous health during operations. As discussed in Impact Statement Section 16 (Effects of Potential Malfunctions and Accidents), an emergency response plan will include the communication of plans to local Indigenous communities.

Overall, with the design and operational safeguards detailed in Impact Statement Section 16 (Effects of Potential Malfunctions and Accidents) in place and with the application of contingency planning and mitigation measures, resulting effects on Indigenous health via changes in actual and perceived safety due to accidents and malfunctions are expected to be negligible for LSFN, WFN, NWOMC, and RLEF. Potential effects on Indigenous health, namely emotional and social stress, due to changes in the perception of safety during operations may occur for some individuals within the ANA community; largely due to historical mistrust and pre-existing emotional and social stress associated with industrial development. However, no measurable deviation from baseline population-level health resulting from Project activities is anticipated. Mitigation measures and monitoring plans are expected to be protective of Indigenous health during operations, through measures such as the Community Grievance Procedure, emergency response plans and compliance with federal and provincial regulatory requirements. In addition, environmental data sharing agreements with local Indigenous communities, support of Indigenous environmental monitoring programs, and public safety communications were also identified as health measures to minimize adverse effects due to changes in perceived safety. A list of mitigation and enhancement measures for perceived safety due to accidents and malfunctions are presented in Section 6.2.6.4 and for the HIA overall in Section 7.

CLOSURE

The closure phase is expected to occur over approximately three years following the end of operations. Activities will be smaller in scale than those during construction but will share similar characteristics. The risks of certain credible scenarios identified for the construction and operations phases will continue into the closure phase, such as the risk of TMF slope failure and ditch failure. While the risk of certain accident types will be unique to the closure phase, such as the potential for pit lake overtopping, the risk of the assessed potential credible scenarios is expected to remain limited (very low or low).

The conclusion of operations may reduce safety concerns related to accidents and malfunctions, allow for gradual improvement in social stability, and as a result may improve safety perceptions and alleviate emotional and social stress; thereby diminishing potential effects on Indigenous health. As described in the CWB assessment, confidence in land and water quality will remain a key determinant of recovery, influencing whether Indigenous community members continue or reduce experiences of emotional or social stress. Over the long term, reclamation and revegetation activities may gradually restore access to traditional lands and support cultural revitalization if trust in environmental outcomes is rebuilt. Mitigations such as environmental data sharing agreements and public safety communications will also act to minimize potential adverse effects from changes in perceptions of safety by supporting consistent communication and planning throughout closure.

6.2.6.4 MITIGATION AND ENHANCEMENT MEASURES

Table 6-46 outlines the key mitigation and enhancement measures recommended based on the assessment of changes to actual and perceived public safety (accidents and malfunctions). These mitigation and enhancement measures are anticipated to apply across all Project phases unless otherwise specified. General mitigation measures for closure activities that relate to Indigenous health are also included.

Table 6-46: Mitigation and Enhancement Measures for Actual and Perceived Public Safety (Accidents and Malfunctions)

Mitigation and Enhancement Measures for Actual and Perceived Public Safety (Accidents and Malfunctions)	Rationale
<p><u>Environmental Management Committee:</u> Great Bear Resources will work with the environmental management committee(s) and interested Indigenous members throughout the duration of the Project (all phases), to facilitate ongoing communications, sharing and integration of Indigenous knowledge and environmental information, and share and evaluate Project approvals, adaptive management and monitoring plans, and address emerging issues and interests identified by Indigenous Nations.⁽¹⁾</p>	<p>Key aspects of the environmental management committee(s) related to Indigenous health are that: (1) it includes Indigenous members and (2) the committee will continue to operate for the duration of the Project. The committee is expected to mitigate against perception issues associated with environmental degradation and mistrust and is supportive of self-determination in addressing Indigenous issues. Collectively, these are expected to help mitigate against adverse mental health and community cohesion concerns.</p>
<p><u>Environmental Monitoring:</u> Environmental monitoring programs for surface water and aquatics will include constituents and related health-based benchmarks as considered in the health assessment (such as arsenic, mercury, methylmercury and selenium). Aquatics sampling programs will also include ongoing sampling and testing of fish quality in species identified for human consumption (i.e., walleye / pickerel, lake whitefish, northern pike, trout) as captured.</p>	<p>While the HHERA multi-media assessment results do not indicate an effect to human health from the Project, including human health-based constituents and benchmarks in water and aquatic / fish monitoring programs is important to validate assessment assumptions, provide evidence regarding the effectiveness of mitigation measures, and assist in mitigating community perception issues related to safety, environmental quality and health.</p>
<p><u>Environmental Data Sharing Agreements:</u> GBR will share environmental monitoring data (air, water, fish) with Indigenous communities that request it on an annual basis and provide opportunities (including funds) to conduct their own reviews.</p>	<p>Providing environmental monitoring data, in a timely manner, to interested Indigenous communities is anticipated to promote transparency and relationship-building, while provision of funding for communities to conduct their own reviews, analyses and / or assessments using the data will empower and resource Indigenous communities. This measure is anticipated to mitigate against mental wellness and community cohesion effects, related to perception issues, lack of trust, and environmental quality concerns, over time.</p>
<p><u>Indigenous Environmental Monitoring Programs:</u> GBR is committed to involving Indigenous communities in environmental monitoring activities throughout all phases of the Project, including opportunities for participation in the collection and sharing of environmental monitoring information and results.</p>	<p>This Indigenous initiative is expected to have a positive effect on participating Indigenous communities, enhancing knowledge transfer and community cohesion. It is also expected to mitigate against adverse perceptions of environmental quality and safety, and promote overall physical and mental health and wellness through time spent on the land.</p>
<p><u>Exploration of a Community Health and Well-being Survey:</u> Consider options for Indigenous-led survey and data collection on project related metrics and health indicators, funded by GBR. This program could be further developed as part of the Social Performance Plan.</p>	<p>Data and information about health and wellness can be important tools for Indigenous self-determination. There is currently a lack of local Indigenous health and well-being data available, especially at the community-level. A community health and well-being survey, led by local Indigenous communities, would help to fill this data gap and monitor key project-related health determinants and indicators prior construction and then at regular intervals throughout the life of the Project. This information can help validate assessment assumptions, provide evidence regarding effectiveness of mitigation and enhancement measures, and empower Indigenous communities through data OCAP principles.</p>

Mitigation and Enhancement Measures for Actual and Perceived Public Safety (Accidents and Malfunctions)	Rationale
<u>Support for Indigenous-led Education and Training for Land-Based Activities:</u> Support for Indigenous-led education and training for land-based activities (hunting, gathering, plant harvesting) in the region and promote skills and knowledge transmission among Indigenous communities, including Indigenous youth.	Primary literature indicates that land-based learning among Indigenous people has beneficial downstream effects on health, mental wellness and cultural / community cohesion. This mitigation is intended to act as a mitigation to minimize adverse effects and also an enhancement intended to support Indigenous practices, cultural continuity, traditional economy and growth of the eco-tourism industry in the area.
<u>Public Safety Communications:</u> Involve and consult with Indigenous communities in the development of communications approaches that will identify how important information will get disseminated, including as part of emergency response plans.	Evidence suggests that communities having a lack of information can lead to negative perceptions (of risk / safety) and fears of the unknown. Additionally, in the event of an emergency, clear and efficient dissemination of information is critical. This measure is intended to mitigate against perception issues around the Project in general and specifically around accidents and malfunctions, and other emergencies before construction and during operations.

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC). fVC = federal valued component; GBR = Great Bear Resources; HHERA = Human Health and Environmental Risk Assessment; HIA = Health Impact Assessment; OCAP = ownership, control access and possession; pVC = pathway valued component. The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2) are in place as planned.

6.2.6.5 GBA PLUS CONSIDERATIONS

In accordance with Health Canada guidance (Health Canada 2024a) the HIA takes an equity approach to assessing potential effects by examining the potential distribution of effects across different sub-populations within the Indigenous communities. This section highlights how Indigenous identity intersects with the other GBA Plus identity factors described below. Table 6-47 applies a GBA Plus lens that treats Indigenous identity as a central identity factor, and the other identity factors described below are discussed within this context. At the bottom of this table there is a section highlighting key intersectionality considerations, Indigenous identity is at the center of this qualitative analysis.

It is important to note that while this section identified subgroups that have the potential to experience effects uniquely from changes to actual and perceived public safety (accidents and malfunctions) the analysis should be considered in the context of the potential effects assessment findings. The analysis below identifies populations that could be disproportionately affected and also discusses the potential health effects, or lack thereof, as identified in the assessment.

Table 6-47: GBA Plus and Equity Considerations: Actual and Perceived Public Safety (Accidents and Malfunctions)

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Gender	Even	Gender-specific differences in exposure or sensitivity to changes in actual and perceived public safety is not expected based on available evidence. For example, although not a direct measurement indicator of perceived safety, including emotional and social stress, perceived stress levels in the NWHU were similar among males and females (Attachment A).
Age	Even	Available evidence does not suggest unique exposure pathways or health risks for certain age groups beyond what is typical in the general population.

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Physical Ability	Even	Available evidence does not suggest unique vulnerability to effects related to actual or perceived public safety (accidents and malfunctions), based on physical ability.
Socioeconomic Status	Even	Available evidence does not suggest unique vulnerability to effects related to actual or perceived public safety, based on socio-economic status (income, education or employment).
Mental Ability	Disproportionate (Individuals with pre-existing mental health conditions)	Individuals with pre-existing mental health conditions may already be experiencing elevated baseline levels of stress and as such, may be more sensitive to changes (e.g., emotional and social stress) from changes to actual and perceived public safety due to accidents and malfunctions (Wong et al. 2024).
Intersectional Analysis:	Intersectional effects are not expected, as only one identity factor (i.e., mental ability) was identified as potentially experiencing disproportionate effects. Although intersectional effects are not expected, it is acknowledged that Indigenous identity intersects with the identity factors listed above, including mental ability. Indigenous people have higher rates of mental health concerns generally (PHAC 2024) and thus, those Indigenous individuals with pre-existing mental health conditions may be more susceptible to compounded stressors due to broader social and systemic contexts.	

Notes:

GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); NWHU = Northwestern Health Unit.

6.2.6.6 SUMMARY OF POTENTIAL EFFECTS: ACTUAL AND PERCEIVED PUBLIC SAFETY (ACCIDENTS AND MALFUNCTIONS)

The following is a summary of the findings from the assessment of potential effects to health based on changes to actual and perceived public safety from accidents and malfunctions (Table 6-48). The mitigation and enhancement measures recommended based on the assessment of changes to actual and perceived public safety, including a description and rationale, are described in Section 6.2.6.4.

Table 6-48: HIA Potential Effects Summary: Actual and Perceived Public Safety (Accidents and Malfunctions)

Criteria	Description	Characterization
Health Determinant	Identify the determinant of health being assessed	<ul style="list-style-type: none"> Actual and Perceived Public Safety (Accidents and Malfunctions) (Social Determinant of Health)
Direction of Potential Effect	Describe whether the potential effect may be beneficial or adverse	<ul style="list-style-type: none"> Adverse: the potential effect on human health may be adverse, thereby diminishing conditions that support Indigenous health. However, the determination of actual effects is based on the assessment findings.
Scale of Potential Effect (post- health mitigations)	What is the expected scale of the project-related effect to population health and wellness? How does this influence the need for mitigation?	<ul style="list-style-type: none"> Negligible (LSFN, WFN, NWOMC, RLEF): there is limited to no effect on Indigenous health expected as a result of Project activities for this determinant following implementation of mitigation measures. The assessment findings did not identify potential adverse effects on Indigenous health from Project-related changes to actual and perceived public safety. Minor (ANA): the effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures. The assessment findings identified that Project-related changes to actual public safety resultant from accidents and malfunctions is low to very low. Perceptions of public safety

Criteria	Description	Characterization
		due to the risk of accidents and malfunctions may result in emotional and social stress for some individuals; however, a population-level shift in Indigenous health is not expected.
Affected Populations (Indigenous Communities)	Refers to the distribution of the effects across Indigenous communities and includes equity considerations	<ul style="list-style-type: none"> Assessment findings (i.e., Project-related changes) indicated that potential effects may differ across Indigenous communities: <ul style="list-style-type: none"> Distribution of potential effects is expected to be even between LSFN, WFN, NWOMC and RLEF. Distribution of potential effects is expected to be disproportionate for ANA. ANA has a history of mistrust with industry which may result in differential effects (i.e., emotional and social stress) related to changes in actual or perceived public safety due to risk of accidents and malfunctions largely due to historical mistrust and pre-existing emotional and social stress associated with industrial development. ANA has indicated in their letter to the Crown they are concerned about the potential for dam failure, mercury contamination, or other on-Site and downstream impacts (ANA 2024).
GBA Plus	Identify relevant GBA Plus considerations for this determinant	There are groups that may experience effects differently for this determinant. Details are discussed in the actual and perceived public safety (accidents and malfunctions) GBA Plus section (Section 6.2.6.5).
Mitigations and Enhancements	Additional measures based on the assessment of potential effects for this determinant ⁽²⁾	<ul style="list-style-type: none"> Additional measures, beyond what is included in the other pVC and fVC sections of the Impact Statement are listed below for actual and perceived public safety (accidents and malfunctions) with further details provided in Section 6.2.6.4 and a list of health measures is provided in Section 7: <ul style="list-style-type: none"> Environmental Management Committee ⁽¹⁾ Environmental Monitoring Environmental Data Sharing Agreements Indigenous Environmental Monitoring Programs Exploration of a Community Health and Well-Being Survey Support for Indigenous-led Education and Training for Land-Based Activities Public Safety Communications

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC)

2 Assumes measures included in upstream pVC and fVC sections of the Impact Statement are also implemented.

ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); HIA = Health Impact Assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; pVC = pathway valued component; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

While these findings are specific to this determinant of health (actual and perceived public safety), an overall determination of the potential for residual effects for Changes to Health (fVC Indigenous Peoples) is provided in Section 8.

6.2.7 SAFETY OF INDIGENOUS WOMEN AND GIRLS

This section includes an assessment of Indigenous health from changes in safety of Indigenous women and girls, including health linkages, relevant existing conditions, potential effects (construction, operations and closure), mitigation and enhancement measures and GBA Plus considerations.

Throughout this section, safety concerns are described for Indigenous women and girls which includes women+, girls+, and Two-Spirit, lesbian, gay, bisexual, transgender, queer, questioning, intersex and asexual (2SLGBTQQIA) plus individuals, where women+ and girls+ refer to women, girls, and some non-binary individuals as defined by Statistics Canada (Statistics Canada 2022a).

6.2.7.1 HEALTH LINKAGES

The following section describes the generic scenarios by which human health can be influenced by the safety of women and girls. The linkages described here are not specific to one sector or community, instead, this section provides an overview of the relevance of the safety of women and girls as a determinant of Indigenous health.

The concept of safety, both in the community and the workplace, is linked to both directly and indirectly to health and wellness. The potential effects of safety (or lack thereof) are not evenly distributed across the population, with Indigenous women and girls experiencing higher rates of physical and sexual assault and abuse than the general population. Therefore, for Indigenous communities, and in particular for Indigenous women and girls, community safety and perceptions of safety are a critical issue. For example, it is estimated that:

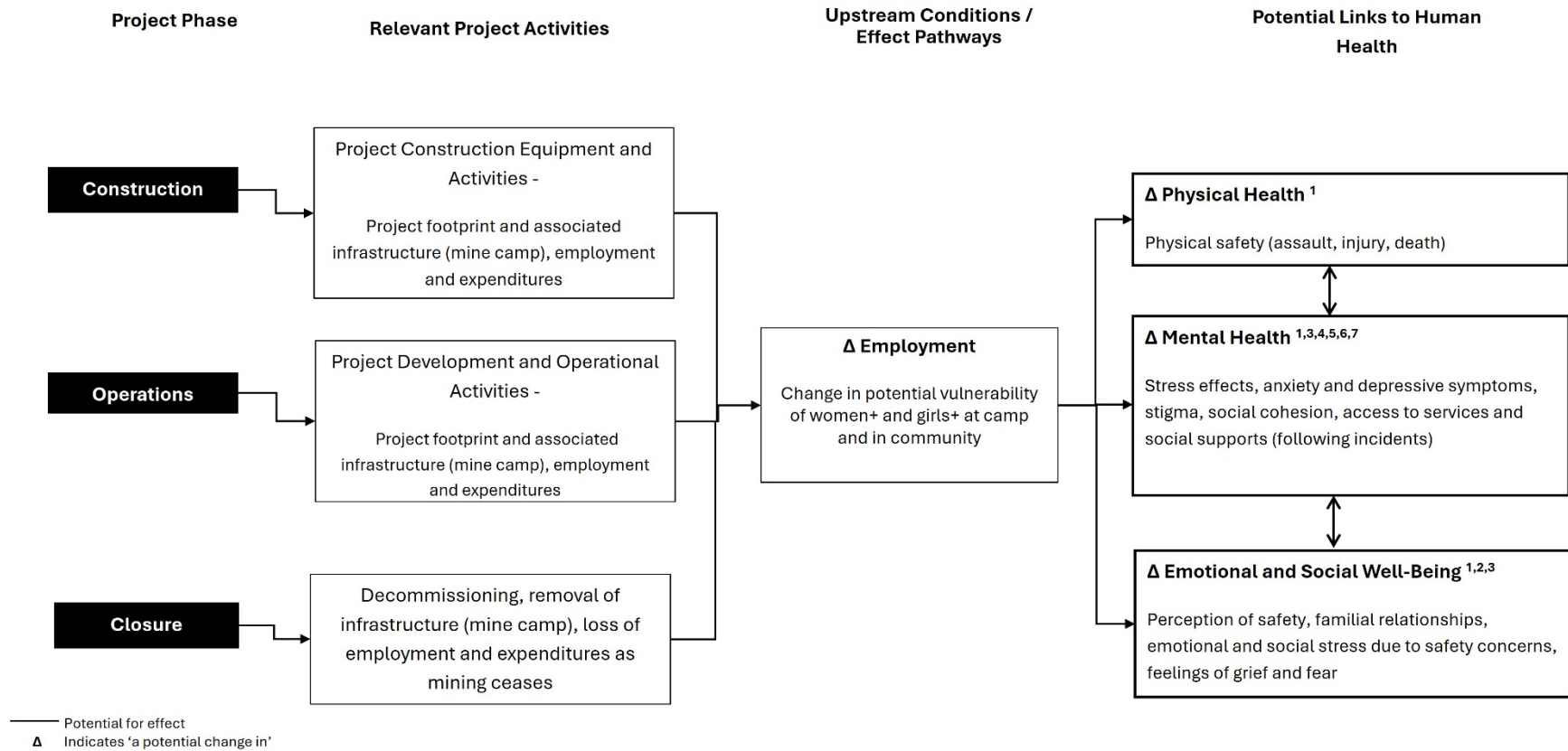
- About 56% of Indigenous women have experienced physical assault compared to 34% of non-Indigenous women
- About 46% of Indigenous women have experienced sexual assault, compared to 33% of non-Indigenous women
- *“Indigenous women (42%) were more likely than non-Indigenous women (27%) to be abused by an adult during childhood”*
- *“About two-thirds of First Nations (64%) and Métis (65%) women have experienced violent victimization in their lifetime[.]”* (Heidinger and Statistics Canada 2022).
- *“Youth aged 15-29 have the highest rates of victimization, and experiences in foster care can be a risk factor for violence. This has particular significance for Ontario, where 39 percent of Indigenous women are under the age of 25, and one-third of female foster children aged 0-14 are Indigenous”* (Government of Ontario 2021).

Specifically in the context of natural resource extraction projects (i.e. mines), the Final Report of the National Inquiry into Missing and Murdered Indigenous Women and Girls highlights evidence linking these types of projects to increased victimization of Indigenous women, girls, and 2SLGBTQQIA people (National Inquiry into Missing and Murdered Indigenous Women and Girls 2019). Project camps or similar boom-town establishments associated with natural resource extraction operations, frequently within or close to Indigenous lands and communities, are often located in rural locales with limited or constrained social infrastructure. As a result, these project-related settlements tend to have higher occurrence of crimes related to substance abuse, sexual harassment and assault, violence, and the sex industry. Additionally, while on the job of natural resource extraction projects, Indigenous women and 2SLGBTQQIA people report increased racism, sexual harassment, and violence (National Inquiry into Missing and Murdered Indigenous Women and Girls 2019). Beyond the physical health consequences of violence, perceived safety is a source of stress and anxiety. Stress may trigger biological responses that elevate vulnerability for compromised immune and cardiovascular function, and for mental health conditions, such as depression (Thomas et al. 2017).

An effect pathway diagram showing Project activities during all phases, relevant changes / exposure pathways and potential health and wellness effects is provided in Figure 6-32 to graphically depict the linkages between the Project and human health outcomes. The diagram shows the potential pathways of exposure or change in upstream conditions that may result in changes to health; however, the assessment of potential effects (Section 6.2.7.3) identifies specific pathways where changes are predicted to occur.

Figure 6-32: Effect Pathway Diagram for Safety of Indigenous Women and Girls

Safety of Indigenous Women and Girls



Sources:

1 – National Inquiry into Missing and Murdered Indigenous Women and Girls 2019; 2 – Salerno et al. 2021; 3 – Heidinger and Statistics Canada 2022

6.2.7.2 EXISTING CONDITIONS

This section provides a summary of existing conditions relevant to Indigenous health from changes in safety of Indigenous women and girls. The available baseline (existing conditions) data for Indigenous health, including physical health and wellness (e.g., chronic conditions, communicable diseases, demographics), health-related behaviours (e.g., food consumption, physical activity, substance use) and mental wellness (depression, stress / anxiety, perception of risk) are provided in the Baseline Health Profile (Attachment A) and should be viewed for detail. In addition, a description of existing conditions related to community safety, violence and assault is provided in the following Impact Statement Sections:

- Public safety and gender-based violence (Existing Conditions): Impact Statement Sections 10.8 to 14.8 (fVC Indigenous Peoples – Community Well-Being).

A brief description of existing conditions related to public safety and gender-based violence is summarized below to provide context for the assessment of social determinants of health. The following paragraphs summarize existing conditions from various Impact Statement sections. Collectively, the information from these upstream assessments provided the existing conditions related to safety of Indigenous women and girls. Unless otherwise indicated, the existing conditions information provided below is applicable to the local Indigenous communities: LSFN, WFN, ANA, NWOMC and RLEF.

Public Safety and Gender-Based Violence

As discussed in the CWB assessment for Indigenous Peoples (Impact Statement Sections 10 to 14; fVC), Indigenous people in Canada experience higher rates of victimization due to the enduring impacts of systemic racism, colonialism, and past and present government policies. Research indicates that one in three Canadian women will experience sexual assault in their lifetime, with Indigenous women experiencing a higher rate of sexual assault compared to non-Indigenous women (Sexual Assault Support Center n.d.). While on-reserve sexual assault data are not available, sexual assault statistics for the broader area include:

- Sexual assaults (430) reported in Northwestern Ontario in 2021, represented an increase of 31% from 2020 (Levesque 2022)
- In Kenora district, there were 211.5 reported sexual assaults per 100,000 of the population in 2020 (Canada Crime Index 2021).

Crime severity index is a measure that analyses severity and number of crimes and is intended to complement other crime statistics such as crime rate and self-reported victimization data. The Crime severity index has a base index value of 100 for 2006 (Statistics Canada 2024b):

- In 2023, the Crime severity index for Canada was 80.5, an increase of 2%, but still lower than in 2006 (Statistics Canada 2024b)
- In Ontario, the Crime severity index in 2023 was 60.9, an increase of 4%, again still much lower than in 2006 (Statistics Canada 2024b).

A CSI specific to one Indigenous community is not available. However, the Nishnawbe Aski Police Service provides policing to Indigenous Nations communities throughout much of Northern Ontario (Nishnawbe Aski Police Service n.d.). In 2023, they reported a Crime severity index of 302.3 for their service area, which is 241.4 higher than the provincial number (Nishnawbe Aski Police 2024). The Nishnawbe Aski Police Service police the area and communities in much of northern Ontario and so this statistic is meant to show general crime trends in remote communities in this part of the province and is not specific to any one community.

In Canada, there is a relationship between industrial camp populations and a rise in crime, sexual violence, and the trafficking of Indigenous women (MacMaster and Seck 2020). The remote locations of project sites and Indigenous communities result in low reporting rates. In addition, local community health centres lack the resources to address incidents of sexual assault (Prospectors and Developers Association of Canada 2019). However, this is not specific to Indigenous women within communities, but rural and urban Indigenous women that live near resource-intensive areas. Given the presence of mining projects in the area, Indigenous women are at a higher risk of increased violence (MacMaster and Seck 2020).

The National Inquiry into Missing and Murdered Indigenous Women and Girls sought to understand the systemic causes of violence against Indigenous women, girls and 2SLGBTQIA plus people. The inquiry found that extraction projects lead to increased violence against Indigenous women at the hands of non-Indigenous men and increased violence within Indigenous communities. This was associated with the nature of the industry including, transient workers and rotational shift work, as well as harassment and assault in the workplace, substance abuse and addictions, and economic insecurity (National Inquiry into Missing and Murdered Indigenous Women and Girls 2019).

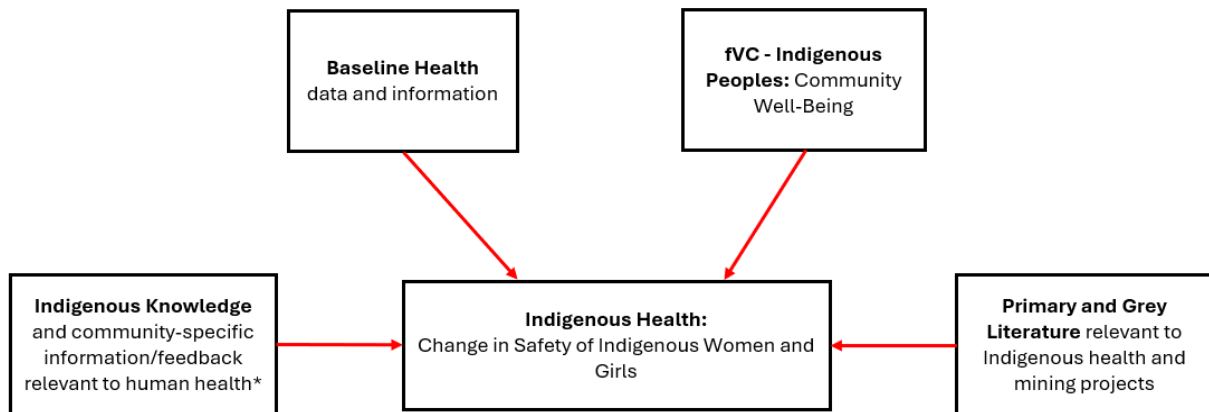
6.2.7.3 POTENTIAL EFFECTS

The following sections provide the inputs, assumptions and results from upstream analyses, Project information, primary and grey literature, and other evidence that supports the assessment of changes in safety of Indigenous women and girls in the context of Indigenous health. The assessment of potential effects first presents the available evidence, acknowledging any limitations and assumptions, followed by an assessment by Project phase (i.e., construction, operations and closure). Finally, a summary of the assessment findings is presented with a discussion regarding mitigation and / or enhancement measures, and GBA Plus considerations.

EVIDENCE FOR ASSESSMENT

The evidence used in the assessment of potential effects to Indigenous health from changes in safety of Indigenous women and girls included (i) findings from relevant upstream valued components (pVCs and fVCs); (ii) primary and grey literature sources; (iii) IK and community-specific information; and (iv) baseline health information (Figure 6-33).

Figure 6-33: Inputs for Safety of Indigenous Women and Girls



Note: additional linkages between individual inputs are not shown
 * Where relevant and available

Each of these sources of information and evidence are further described in the sections below. Collectively, this body of evidence informed the assessment of potential effects described for each Project phase (i.e., construction, operations and closure).

Upstream Conditions (fVC Indigenous Peoples)

The assessment of potential effects to Indigenous health via changes in safety of Indigenous women and girls is influenced by upstream social conditions around public safety and gender-based violence, which was part of the Indigenous Peoples CWB assessment (Impact Statement Sections 10 to 14; fVC). While the CWB assessment did not consider health effects, it did evaluate changes to those upstream conditions that have the potential to influence downstream outcomes related to Indigenous health (Table 6-49).

Table 6-49: Summary of Results from CWB Effects Assessment used in the HIA

Potential Effect / Indicator	LSFN	WFN	ANA	NWOMC	RLEF
Public Safety and Gender-Based Violence	N	N	N	N	N

Notes:

N = No Residual Effects identified under Community Well-Being.

Y = Yes Residual Effects identified under Community Well-Being.

ANA = Asubpeeschoseewagong Netum Anishinabek; CWB = community well-being; HIA = health impact assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

Source: Table recreated with information from Impact Statement Sections 10 to 14 (fVC Indigenous Peoples: LSFN, WFN, ANA, NWOMC, RLEF).

The specific findings that were relevant and taken into consideration in the assessment of potential effects on safety of Indigenous women and girls in the HIA are further described below.

Influence of Public Safety and Gender-Based Violence on Safety of Indigenous Women and Girls:

The CWB assessment identified how public safety and gender-based violence affect community well-being. No direct interactions with public safety or gender-based violence were identified on-reserve for LSFN, WFN or ANA. However, the CWB assessment acknowledged that the Project will bring a temporary influx of non-local workers into the region (relevant to NWOMC and RLEF), which may elevate broader safety concerns, particularly among Indigenous women, girls, and 2SLGBTQQIA plus people. These concerns reflect ongoing systemic safety risks and the national crisis of Missing and Murdered Indigenous Women and Girls. The CWB assessment also identified that for ANA, where environmental trauma and mistrust of external systems are part of the lived experience, the presence of a new workforce, even if not physically proximate, may generate emotional or psychological stress. Perceived risks of violence or misconduct can contribute to a sense of vulnerability, even in the absence of direct interactions, potentially affecting community well-being. No residual effects were identified for any Indigenous communities as part of the CWB assessment from changes to public safety and gender-based violence.

Primary and Grey Literature

Safety of Indigenous women and girls is explored extensively in the primary and grey literature, particularly in the Canadian context with a focus on the national crisis of MMIWG.

The Nation Inquiry on MMIWG was initiated after a call to action for the federal government was made in the Final Report of the Truth and Reconciliation Commission of Canada to “launch a public inquiry into the cases of Indigenous women and girls disproportionately found to be victims of violence, [...] and the excessively high cases of missing and murdered Indigenous women and girls across Canada” (TRC 2015). Specifically in the context of natural resource extraction projects (i.e. mines, oil sands), the Final Report of the National Inquiry into Missing and Murdered Indigenous Women and Girls highlights evidence linking these types of projects to increased victimization of Indigenous women, girls, 2SLGBTQQIA people (National Inquiry into Missing and Murdered Indigenous Women and Girls 2019). Project camps or similar boom-town establishments associated with natural resource extraction operations, frequently within or close to Indigenous lands and communities, are often located in remote

locales with limited social infrastructure. As a result, these project-related settlements have higher occurrence of crimes related to substance abuse, sexual harassment and assault, violence, and the sex industry (National Inquiry into Missing and Murdered Indigenous Women and Girls 2019). Additionally, while on the job of natural resource extraction projects, Indigenous women and 2SLGBTQIA people report increased racism, sexual harassment, and violence (National Inquiry into Missing and Murdered Indigenous Women and Girls 2019).

A study exploring the social impact of mineral development projects on Indigenous communities was conducted as a result of the recommendations made to the extractive sector in the final report of the National Inquiry into MMIWG (PDAC 2022). One of the main study objectives was to understand how impacts affect Indigenous women and girls. The study consisted of a literature review and case study. The literature review summarized available evidence that identified a number of trends including *“high percentages of women reporting harassment, discrimination and mental, physical, and sexual violence at mining camps”* and *“hyper-masculinity perpetuated at these camp environments coupled with limited access and / or trust in law enforcement result in cases of harassment and assault in the workplace against Indigenous women”* (Moodie et al. 2021; National Inquiry into Missing and Murdered Indigenous Women and Girls 2019; PDAC 2022).

In addition, as discussed in the assessment of economics (Section 6.2.1), research shows that in rural or remote communities that lack adequate mental health supports, having higher incomes can often exacerbate existing drug and alcohol addictions, which can subsequently lead to increased incidences of domestic violence, family breakdowns and sexual abuse (NCCIH 2020). For instance, across Canada, higher rates of alcohol consumption are more prevalent among people with higher income (Government of Canada 2018). The NCCIH (2020) also reports that impacts such as domestic violence and sexual abuse *“differentially affect the health of Indigenous girls and women, a population already experiencing high rates of domestic abuse, sexually transmitted diseases and pregnancies.”*

A study by Baruah and Biskupski-Mujanovic (2023) looked at the barriers and opportunities that impede or facilitate Indigenous women's entry, retention and advancement in natural resource employment in Canada. Their findings indicated that women often face sexual harassment, racism, and inequal access and lack of childcare while working in these industries. While the study reported several challenges and barriers for women in these industries, there were several positives that contribute to better health outcomes. Women that work the FIFO schedules reported being able to enjoy personal space, self-care and reflection, which contribute to overall health and wellness. Those with certain drug addictions also found it helpful to work at a dry camp, with access to addiction support and de-addiction counselling while on-site. At work, they interact with people from diverse cultures and backgrounds, which they see as a benefit because it broadens their personal networks and sense of community. During their time off work back in their communities, they can spend more time with family, and engage in their interests such as traditional activities, maintaining cultural practices or volunteering within their community. These positive benefits can contribute to lower stress levels, reduction in substance abuse, and overall better health for Indigenous women (Baruah and Biskupski-Mujanovic 2023).

Indigenous Knowledge and Community-specific Information

This section presents IK that was received from some of the local Indigenous communities, supplemented by other relevant community-specific information that was publicly available, to identify where and how IK was incorporated into the assessment of Indigenous health.

While the TKLUS provided by some of the local Indigenous communities did not include information or data on safety of Indigenous women and girls; general feedback on concerns pertaining to the Project were provided to Great Bear Resources through both confidential reports and consultation activities. In a confidential report prepared for LSFN and WFN, community members identified concerns related to crime, human trafficking, sexually transmitted infections, and violence against Indigenous women and girls due to the increased population.

In addition, the assessment relies on publicly available data on the safety of Indigenous women and girls, as presented in existing conditions sections (6.2.7.2) and the Baseline Health Profile (Attachment A). However, community-specific data on the safety of Indigenous women and girls is very limited, instead

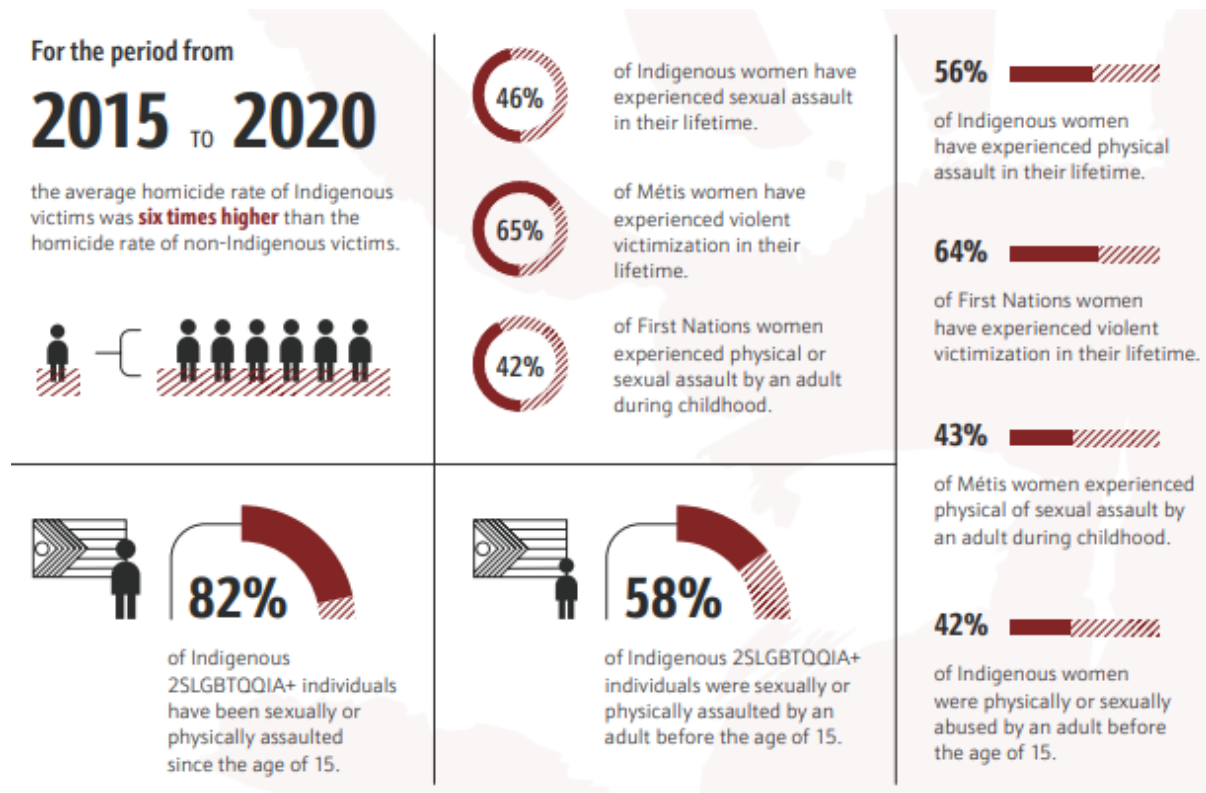
relying on regional public safety trends and information and insights from the Final Report on the National Inquiry into MMIWG.

Relevant Baseline Health Information

Baseline conditions related to the safety of Indigenous women and girls are discussed in Existing Conditions, Section 6.2.7.2. Given the complex and varied interactions between the safety of Indigenous women and girls and human health, there are a variety of health conditions and wellness indicators (e.g., chronic conditions, mental health) that may be influenced by different upstream conditions. Existing health information can be found in the Baseline Health Profile (Attachment A). Existing conditions information related to the safety of Indigenous women and girls provides an indication of current conditions that may already be influencing baseline health status of communities in the region. Understanding these conditions helps establish the current context related to the safety of Indigenous women and girls, in order to identify potential Project related effects on Indigenous health.

As presented in Attachment A, injuries (including intentional and unintentional injuries) accounted for 15% of hospital admissions and 15% of emergency department visits for adults 20 years of age and older among Sioux Lookout area First Nations. Of the Sioux Lookout area First Nations hospitalizations associated with injury between 2012 and 2016, the majority of injuries (57%) were unintentional and 43% were intentional. When examining the common causes of intentional injuries that resulted in hospital admissions between 2012 and 2016 for Sioux Lookout area First Nations adults, assault accounted for 49% of intentional injuries. It is noted that data related to hospitalizations and emergency department visits disaggregated by gender for Sioux Lookout area First Nations was not available. Additionally, for both males and females in the NWHU, the rates of hospitalization for injuries due to assault were higher than provincial rates between 2012 and 2021 (Attachment A). Key findings from the 2018 Survey of Safety in Public and Private Spaces (Heidinger 2022, as cited in IAAC and Narratives Inc. n.d.) are presented in Figure 6-34.

Figure 6-34: Summary of Key Findings from the 2018 Survey of Safety in Public and Private Spaces



Source: (Heidinger and Statistics Canada 2022, as cited in IAAC and Narratives Inc. n.d.).

Overall, Indigenous women, girls, and two-spirit, lesbian, gay, bisexual, transgender, queer, questioning, intersex, and asexual communities, along with other sexual and gender identities represented by the + symbol (2SLGBTQQIA+) individuals are currently experiencing relatively high rates of violence in general, as these trends are not specifically linked to one type of industry or cause (IAAC and Narratives Inc. n.d.). While these indicators do not directly measure safety of Indigenous women and girls, they are provided to contextualize broader circumstances that may influence overall health and wellness.

CONSTRUCTION

Construction phase activities are anticipated to result in a temporary population increase of 1,000 workers during construction and 1,300 during peak construction. As stated in the assessment of CWB for Indigenous Peoples (Impact Statement Sections 10 to 14; fVC), no direct interactions with public safety or gender-based violence are anticipated on-reserve for LSFN, WFN, ANA during construction. However, the Project will bring a temporary influx of non-local workers into the region, including in Red Lake and Ear Falls, which may elevate broader safety concerns, particularly among Indigenous women, girls, and 2SLGBTQQIA+ people. These concerns reflect ongoing systemic safety risks and the national crisis of Missing and Murdered Indigenous Women and Girls. The influx of new and transient workers may affect safety and the perception of safety, particularly for Indigenous women, girls, and 2SLGBTQQIA+ individuals.

Human trafficking and sexual exploitation risks were raised by local service providers, consistent with regional trends documented in the Final Report on Missing and Murdered Indigenous Women and Girls (National Inquiry into Missing and Murdered Indigenous Women and Girls 2019). These concerns may not always be captured through quantitative data but are central to the lived experience and perceived safety in the community. The NCCIH (2020) reports that impacts such as domestic violence and sexual abuse “*differentially affect the health of Indigenous girls and women, a population already experiencing high rates of domestic abuse, sexually transmitted diseases and pregnancies.*” For individuals and groups who already experience disproportionate vulnerability to gender-based violence, increased presence of non-local and transient workers may contribute to heightened fear or unease within the community. This may also intersect with broader historical and systemic factors that contribute to lower levels of trust in public safety systems among some Indigenous and vulnerable populations. Even in the absence of actual incidents, perceived increases in risk can have adverse effects on mental wellness, personal security, and overall community cohesion.

For Indigenous health, there can be both direct and indirect effects on health and wellness in instances where the safety of Indigenous women, girls, and 2SLGBTQQIA+ individuals is compromised, whether in the community or in the workplace. There are direct impacts including the possibility of injury (through sexual assault and violence), death and / or mental health effects (National Inquiry into Missing and Murdered Indigenous Women and Girls 2019). In addition, “*the systems and institutions that Indigenous people reach out to for health care-related support often fail to provide the support needed and, in doing so, often deepen these health concerns*” (National Inquiry into Missing and Murdered Indigenous Women and Girls 2019). These incidents do not only affect the individual, but also their families and broader communities.

A study of Indigenous women employed in natural resource industries in Canada found that “*sexual harassment and misconduct is common in field operations*” and that “*there was a huge difference between what would be tolerated by management in corporate offices and on mine sites*”, specifically referring to incidents of both physical and verbal sexual harassment (Baruah and Biskupski-Mujanovic 2023). Study respondents suggested that development and enforcement of strict sexual harassment policies at mine camps and pre-arrival training for employees about what constitutes harassment and abuse is important (Baruah and Biskupski-Mujanovic 2023). Mitigating such incidents from occurring is the foundation of the calls to action that are listed in the Final Report on Missing and Murdered Indigenous Women and Girls. Five calls to action were specifically directed at extractive and development industries. In addition, IAAC commissioned a study in response to the National Inquiry (MMIWG) and provided further recommendations to mitigate adverse effects to Indigenous women, girls and 2SLGBTQQIA+ individuals (IAAC and Narratives Inc. n.d.). Collectively, these sources have informed the mitigations listed below in Section 6.2.7.4, Mitigations and Enhancements.

Overall, safety of Indigenous women and girls is influenced by a number of interrelated factors that both directly and indirectly affect upstream social and cultural conditions. Safety of Indigenous women and girls is directly linked to health as both violations of physical safety (e.g., through violence, harassment) and perceptions of safety can influence both physical and mental health and wellness. The available evidence from upstream social conditions (i.e., public safety and gender-based violence) and primary and grey literature, including the National Inquiry into MMIWG, indicated that health effects from Project activities (namely the influx of workers) are possible during construction, especially if incidents occur at camp and / or in community that compromise the safety of Indigenous women and girls. While baseline information highlighted that the issues surrounding the national crisis of MMIWG are not specific to a single region or project, they have the potential to be exacerbated with development in remote northern areas.

Mitigation measures and monitoring plans are expected to minimize risks to the safety of Indigenous women and girls during construction; however, they cannot completely eliminate the possibility of incidents occurring. Mitigations include site security (e.g., separate and locked accommodations for women at camp), mandatory cultural awareness training for employees (e.g., safety, harassment awareness and prevention, Missing and Murdered Indigenous Women, Girls, Two-Spirit, Transgender, and Gender-Diverse+ peoples [MMIWG2S+] and human trafficking awareness), tracking incidents in the workplace and protective grievance processes for workers. It is noted that Kinross' Code of Business Conduct and Ethics (Kinross 2025) states that harassment will not be tolerated and Kinross will take disciplinary action against anyone found to be in violation. In community, mitigations include in collaboration with Indigenous communities and local law enforcement to discuss safety considerations regarding the influx of additional workforce into the area, including the possibility of increases in violent crime and / or sexual harassment in local communities. Collectively, these mitigations are expected to help minimize the likelihood of incidents occurring at camp and in community. It is acknowledged that should incidents occur, the physical and mental health consequences for the affected individual(s), and their families, is substantial.

Overall, effects on Indigenous health from changes to safety of Indigenous women and girls as a result of Project activities during construction are possible if incidents were to occur. However, no measurable deviation from baseline population-level health resulting from Project activities is anticipated following implementation of mitigation measures. These findings are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF. Mitigations and enhancements presented in Section 6.2.7.4 are required to address potential effects by minimizing risks to safety of Indigenous women and girls both at camp and in community.

OPERATIONS

The operations phase will result in sustained workforce presence in the region. Peak employment is anticipated to reach approximately 1,100 workers during operations when both the open pit and underground mines are active; however, the workforce is expected to decrease to approximately 700 workers during underground mining operations (approximately after year 9). As stated in the assessment of CWB for Indigenous Peoples (Impact Statement Sections 10 to 14; fVC), no direct interactions with public safety or gender-based violence are anticipated on-reserve in LSFN, WFN, and ANA during operations. However, the Project will sustain a temporary influx of non-local workers into the region, including in Red Lake and Ear Falls, which may continue to elevate broader safety concerns among Indigenous women, girls, and 2SLGBTQQIA+ people. These concerns reflect ongoing systemic safety risks and the national crisis of Missing and Murdered Indigenous Women and Girls. Even in the absence of actual incidents during operations, perceived increases in risk can continue to have adverse effects on mental wellness, personal security, and overall community cohesion.

During operations, there can be direct and indirect effects on health in instances where the safety of Indigenous women, girls, and 2SLGBTQQIA+ individuals is compromised, whether in the community or in the workplace. Should incidents occur, they do not only affect the individual, but also their families and broader communities. The available evidence shows that health effects from Project activities (continued presence of workforce) are possible during operations, especially if incidents (e.g., violence, sexual harassment) occur at camp and / or in community that compromise the safety of Indigenous women and girls.

Mitigation measures and monitoring plans are expected to continue to minimize risks to the safety of Indigenous women and girls during operations; however, they cannot completely eliminate the possibility of incidents occurring. The mitigations identified for construction, are expected to be continued throughout the operational life of the mine, including measures to protect Indigenous women at camp and Indigenous woman and girls in community. However, it continues to be acknowledged that should incidents occur, the physical and mental health consequences for the affected individual(s), and their families, is substantial.

Overall, effects on Indigenous health from changes to safety of Indigenous women and girls as a result of Project activities during operations are possible if incidents were to occur. However, no measurable deviation from baseline population-level health resulting from Project activities is anticipated following implementation of mitigation measures. These findings are applicable to the local Indigenous communities (i.e., LSFN, WFN, ANA, NWOMC and RLEF). Mitigations presented in Section 6.2.7.4 are required to address potential effects by minimizing risks to the safety of Indigenous women and girls both at camp and in community.

CLOSURE

The closure phase will result in a substantial reduction in the Project workforce. As described in the CWB assessment, employment levels will decrease to pre-Project levels during the closure phase, after the active closure period. The conclusion of operations may reduce workforce-related safety concerns (e.g., violence, harassment, trafficking), particularly for Indigenous women, girls and 2SLGBTQQIA+ individuals, and allow for gradual improvement in social stability and community health and safety. The improvement in both safety and perception of safety could improve the health and wellbeing of Indigenous women and girls in the region. However, it is important to note that the issues surrounding MMIWG are national in scale, existed before the Project, and will likely continue after the project. It is expected that mitigation measures are continued throughout active closure to continue to minimize risks to the safety of Indigenous women and girls (Section 6.2.7.4).

6.2.7.4 MITIGATION AND ENHANCEMENT

Table 6-50 outlines the key mitigation measures recommended based on the assessment of changes to safety of Indigenous women and girls. These mitigation measures are anticipated to apply across all Project phases unless otherwise specified.

Table 6-50: Mitigation and Enhancement Measures for Safety of Indigenous Women and Girls

Mitigation and Enhancement Measures for Safety of Indigenous Women and Girls	Rationale
<p><u>Education and Training (Project):</u> Deliver mandatory Cultural Awareness training for employees and contractors (including supervisors and managers) on safety, harassment awareness and prevention, and MMIWG2S+ and human trafficking awareness training. ⁽¹⁾</p>	<p>The findings in the National Inquiry on Missing and Murdered Indigenous Women and Girls (MMIWG) recommend mandatory cultural awareness training, including for supervisors and managers. This promotes cultural sensitivity and awareness of the code of conduct, including sexual harassment policies and repercussions at all levels. This measure is anticipated to minimize risks of incidents at camp and in community.</p>
<p><u>Inclusive and Local Hiring Strategy (hiring policies):</u> Partner with Indigenous training and employment organizations to support culturally appropriate recruitment and retention of Indigenous candidates, to support employment of Indigenous workers, provide training, priority hiring and work towards continuous improvement including training and employment opportunities for Indigenous women. ⁽¹⁾</p>	<p>Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. By prioritizing hiring of Indigenous workers where possible, the benefits of employment (income, skills training, health / dental benefits, retirement supports) can be realized by Indigenous communities. In additional, the hiring of Indigenous women specifically was one of the calls to action in the National Inquiry on MMIWG for the resource development industry.</p>

Mitigation and Enhancement Measures for Safety of Indigenous Women and Girls	Rationale
<p><u>Camp Operations and Services (site security):</u> Site security will be maintained and consistent with other Ontario mining operations. Access will be limited to Great Bear Resources' workers and contractors, and approved visitors. Security guardhouses will be positioned where appropriate. Cameras, routine patrols and other methods will be utilized to monitor and aim for site security. Workers will be housed in separate accommodations by gender with locked access (e.g., keys) for each room and a separate mining dry / change rooms. Ongoing monitoring will occur throughout the mine life and policies will be updated as required. ⁽¹⁾</p>	<p>The safety of Indigenous women at camp is a complex issue with cascading issues around violence and harassment (verbal and sexual). Evidence related to the safety of women (and Indigenous women) in worker camps strongly supports measures that include separate accommodations, locked rooms and restricted access. These measures not only improve actual safety on-site but also improve perceptions of safety by female workers.</p>
<p><u>Training and Tracking Incidents of Harassment and Violence in the Workplace:</u> Provide mandatory training on the code of conduct and ethics, with a specific focus on unlawful discrimination, harassment, and workplace violence for employees and contractors, including supervisors and managers. This training will include clear and specific examples of sexual and gender-based harassment and assault (verbal, physical) and outline steps for action if the perpetrator is a mine worker, supervisor or manager. These policies will also include incident tracking and review, a monitoring plan for policy effectiveness, and an adaptive management process.</p>	<p>Evidence shows that verbal and sexual harassment is an issue in mine camps. This measure was one of the calls to action in the National Inquiry on MMIWG for the resource development industry. By providing mandatory training on this specific aspect of GBR's code of conduct, the measure is expected to minimize these incidents to the extent possible. The monitoring and adaptive management supports are in place to monitor the effectiveness of the policy and associated interventions over the life of the Project. Protecting women in the workplace has far-reaching effects on both physical and mental health.</p>
<p><u>Workplace Incident Reporting (at Camp):</u> Implement the Code of Conduct policy which provides clarity that employees reporting incidents will be protected against wrongful termination or other negative actions.</p>	<p>Evidence suggests that female employees have under-reported instances of verbal and sexual assault in the workplace due to the camp culture or lack of support from managers, supervisors. This measure is intended to mitigate against both under-reporting of workplace misconduct and to promote a consistent and transparent approach for reporting, review and follow-up, without fear of repercussions.</p>
<p><u>Community Safety Enhancement:</u> Work in collaboration with Indigenous communities and local law enforcement to discuss safety considerations regarding the influx of additional workforce into the area, including the possibility of increases in violent crime and / or sexual harassment in local communities.</p>	<p>This collaborative measure is anticipated to provide some mitigation against issues related to community safety, safety of Indigenous women and girls, and perceptions of safety over time, thereby minimizing downstream adverse health outcomes. In addition, this measure (collaborating with police services) was one of the calls to action in the National Inquiry on MMIWG for the resource development industry.</p>

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC). EAP = Employee Assistance Program; fVC = federal valued component; GBR = Great Bear Resources; HIA = Health Impact Assessment; MMIWG = Murdered Indigenous Women and Girls; MMIWG2S+ = Missing and Murdered Indigenous Women, Girls, Two-Spirit, Transgender, and Gender-Diverse+ peoples; OCAP = ownership, control access and possession; pVC = pathway valued component.

The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2) are in place as planned.

6.2.7.5 GBA PLUS CONSIDERATIONS

In accordance with Health Canada guidance (Health Canada 2024a), the HIA takes an equity approach to assessing potential effects by examining the potential distribution of effects across different sub-populations within the Indigenous communities. This section highlights how Indigenous identity intersects with the other GBA Plus identity factors described below. Table 6-51 applies a GBA Plus lens that treats Indigenous identity as a central identity factor, and the other identity factors described below are discussed within this context. At the bottom of this table there is a section highlighting key intersectionality considerations, Indigenous identity is at the center of this qualitative analysis.

It is important to note that while this section identified subgroups that have the potential to experience effects uniquely from changes to safety of Indigenous women and girls, the analysis should be considered in the context of the potential effects assessment findings. The analysis below identifies populations that could be disproportionately affected and also discusses the potential health effects, or lack thereof, as identified in the assessment.

Table 6-51: GBA Plus and Equity Considerations - Safety of Indigenous Women and Girls

Identity Factor	Potential Distribution of Effects and Relevant Subgroups	Description of GBA Plus Considerations
Gender	Disproportionate (Women+)	Gender-specific differences in safety both in Camp and in community are expected to disproportionately affect women and girls (National Inquiry on Missing and Murdered Indigenous Women and Girls 2019).
Age	Disproportionate (Youth, Young adults, working-age women)	Safety issues are more likely to occur in working-age women (at camp) and / or girls, youth and women of various ages in community (National Inquiry on Missing and Murdered Indigenous Women and Girls 2019).
Physical Ability	Even	Available evidence does not suggest unique exposure pathways or health risks for Indigenous women and girls beyond those experienced by the general population. However, women and girls' physical stature makes them more vulnerable to safety concerns in the first place and evidence suggest violence is often at the hands of non-Indigenous men (National Inquiry on Missing and Murdered Indigenous Women and Girls 2019).
Socioeconomic Status	Disproportionate (Low-income individuals and households)	Low-income individuals and households may be at higher risk of experiencing safety issues such as domestic violence, and lower-income individuals may be less willing to report issues in the workplace.
Mental Ability	Even	Available evidence does not suggest individuals with pre-existing mental health conditions would experience differential effects compared to the broader population. However, should an adverse event occur, pre-existing mental health or substance abuse issues could impact ability to cope and recover (National Inquiry on Missing and Murdered Indigenous Women and Girls 2019).
Intersectional Analysis:	Intersectional effects may occur for individuals who are women / girls, are working age, and are lower-income, the identified sub-groups, as the combined influence of gender, age and reduced financial resources can compound vulnerabilities around safety, particularly those identified in the National Inquiry on MMIWG. It is acknowledged that Indigenous identity intersects with the identity factors listed above and that this determinant is uniquely specific to Indigenous women and girls.	

Notes: GBA Plus = Gender Based Analysis Plus.

6.2.7.6 SUMMARY OF POTENTIAL EFFECTS: SAFETY OF INDIGENOUS WOMEN AND GIRLS

The following is a summary of the findings from the assessment of potential effects to Indigenous health based on changes to multi-media environmental quality (Table 6-52). The specific mitigation and enhancement measures based on the assessment of changes to safety of Indigenous women and girls, including a description and rationale, are described in Section 6.2.7.4.

Table 6-52: HIA Potential Effects Summary - Safety of Indigenous Women and Girls

Criteria	Description	Characterization
Health Determinant	Identify the determinant of health being assessed	<ul style="list-style-type: none"> Safety of Indigenous Women and Girls (Social Determinant of Health)
Direction of Potential Effect	Describe whether the potential effect may be beneficial or adverse	<ul style="list-style-type: none"> Adverse: the potential effect on human health may be adverse, thereby diminishing conditions that support Indigenous health.
Scale of Potential Effect for this Determinant (post- mitigation)	Describes the expected scale of the Project-related effect to Indigenous health for this determinant	<ul style="list-style-type: none"> Minor: the effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures. The assessment findings identified that despite mitigations, Project-related changes to the risk of incidents cannot be completely removed. It is acknowledged that should incidents occur, the physical and mental health consequences for the affected individual(s), and their families, is substantial. While some individuals may experience adverse health effects, a population-level shift in Indigenous health is not expected.
Affected Populations (Indigenous Communities)	Refers to the distribution of the effects across Indigenous communities and includes equity considerations	<ul style="list-style-type: none"> Assessment findings (i.e., Project-related changes) are applicable to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF.
GBA Plus	Identify relevant GBA Plus considerations for this determinant	<ul style="list-style-type: none"> There are groups that may experience effects differently for this determinant. Details are discussed in the safety of Indigenous women and girls GBA Plus section (Section 6.2.7.5).
Mitigations and Enhancements	Additional measures listed based on the assessment of potential effects for this determinant. Assumes measures included in upstream pVC and fVC sections of the Impact Statement are also implemented.	<ul style="list-style-type: none"> The following measures were developed as part of the assessment of Indigenous health and are described in Section 6.2.7.4 and Section 7: <ul style="list-style-type: none"> Education and training (Project) ⁽¹⁾ Education and Training (Region): Inclusive and Local Hiring Strategy (hiring policies) ⁽¹⁾ Site Security ⁽¹⁾ Training and Tracking Incidents of Harassment and Violence in the Workplace Workplace Incident Reporting (at Camp)

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC)
 ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; GBA Plus = Gender-based Analysis Plus (sometimes referred to as GBA+); HIA = Health Impact Assessment; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; pVC = pathway valued component; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

While these findings are specific to this determinant of health (safety of Indigenous women and girls), an overall determination of the potential for residual effects for Changes to Health (fVC Indigenous Peoples) is provided in Section 8.

7 MITIGATION AND ENHANCEMENT MEASURES (HEALTH)

Mitigation measures are features of a project intended to eliminate, reduce, control or offset the adverse effects of a project (e.g., treating discharge water from a mine). They include restitution for any damage to the environment caused by those effects through replacement, restoration, compensation or other means (e.g., replacing lost fish habitat). Mitigation measures must be technically and economically feasible.

Mitigation measures for health consider both direct and indirect effects, and includes Project design measures, workforce policies, community partnerships, Indigenous engagement, regionally targeted supports as well as monitoring and adaptive management plans.

The goal of these measures is to reduce the scale / severity, duration, and likelihood of adverse residual effects on Indigenous health, including changes to the biophysical and social determinants of health for both Indigenous and non-Indigenous communities.

For health, mitigation approaches reflect a combination of:

- Physical design measures (e.g., worker accommodations, site security and on-site medical facilities)
- Program and policy measures (e.g., hiring policies, workforce training, cultural awareness programming, employee supports and benefits, incident tracking and grievance reporting)
- Monitoring and adaptive management plans (including but not limited to, environmental quality monitoring inclusive of health parameters, and on-site medical and off-site referral monitoring)
- Community and service supports (e.g., partnerships with Indigenous service providers, coordination with local agencies, funding to expand health-focused community services and programs).

Table 7-1 outlines which mitigations were relevant to each determinant of health within the HIA and Table 7-2 provides a description of each proposed mitigation, and a rationale for its inclusion and impact on the assessment. These mitigations are anticipated to apply across all Project phases unless otherwise specified.

While the measures identified below are the key ones identified and developed for Indigenous health, many other measures identified in the CSI, CULRTP and CWB assessments (Impact Statement Sections 10 to 14; fVC Indigenous Peoples), as well as measures identified throughout the Impact Statement in the upstream pVC and fVC sections (summarized in Table 6-2), are directly or indirectly relevant to Indigenous health, and the upstream conditions that influence health.

Table 7-1: Mitigation and Enhancement Measures for each Determinant of Health

Potential Effect	Indicator	Mitigation and Enhancement Measures (Headings Only)
Change in Health (Biophysical Determinants)	Air Quality	<ul style="list-style-type: none"> Environmental Management Committee ⁽¹⁾ Air Quality Monitoring Environmental Data Sharing Agreements
	Multi-media Environmental Quality	<ul style="list-style-type: none"> Environmental Management Committee ⁽¹⁾ Environmental Monitoring Environmental Data Sharing Agreements Indigenous Environmental Monitoring Programs
	Access and Availability of Water	<ul style="list-style-type: none"> Environmental Management Committee ⁽¹⁾ Environmental Monitoring Environmental Data Sharing Agreements Indigenous Environmental Monitoring Programs
	Access and Availability of Traditional Foods	<ul style="list-style-type: none"> Environmental Management Committee ⁽¹⁾ Education and Training (Region); Inclusive and Local Hiring Strategy (hiring policies) ⁽¹⁾ Environmental Monitoring Environmental Data Sharing Agreements Indigenous Environmental Monitoring Programs Support for Indigenous-led Education and Training for Land-Based Activities
	Sensory Disturbances (sound, vibration and light)	<ul style="list-style-type: none"> Not applicable: Additional mitigations / enhancements are not required beyond what is proposed in Impact Statement Section 7.3 (pVC Sound), Impact Statement Section 7.4 (pVC Vibration) and the Great Bear Project Night-Time Light Levels Baseline and Predictive Assessment (Impact Statement Appendix G; WSP 2025e).
Change in Health (Social Determinants)	Economics (Employment, Income, Education)	<ul style="list-style-type: none"> Education and Training (Project)⁽¹⁾ Education and Training (Region); Inclusive and Local Hiring Strategy (hiring policies)⁽¹⁾ Social Closure Plan⁽¹⁾ Retirement Planning and Support Employee Benefits Program Indigenous Procurement (Local Procurement Policy) Support for Indigenous-led Education and Training for Land-Based Activities
	Housing	<ul style="list-style-type: none"> Education and Training (Region): Inclusive and Local Hiring Strategy (hiring policies) ⁽¹⁾ Community Financial Support (Change in Housing and Accommodations) ⁽¹⁾ Social Closure Plan ⁽¹⁾ Exploration of a Community Health and Well-being Survey

Potential Effect	Indicator	Mitigation and Enhancement Measures (Headings Only)
Change in Health (Social Determinants)	Access to Health and Social Services	<ul style="list-style-type: none"> • Camp Operations and Services (healthcare) ⁽¹⁾ • Camp Operations and Services (telehealth) ⁽¹⁾ • Community Financial Support (access to services) ⁽¹⁾ • Medical Management and Response • Employee Benefit Program
	Food Security	<ul style="list-style-type: none"> • Environmental Management Committee ⁽¹⁾ • Education and Training (Project) ⁽¹⁾ • Education and Training (Region): Inclusive and Local Hiring Strategy (Hiring Policies) ⁽¹⁾ • Social Closure Plan ⁽¹⁾ • Environmental Monitoring • Environmental Data Sharing Agreements • Indigenous Environmental Monitoring Programs • Support for Indigenous-led Education and Training for Land-Based Activities • Indigenous Procurement (Local Procurement Policy) • Retirement Planning and Support • Employee Benefits Program
	Mental Wellness and Personal Behaviours	<ul style="list-style-type: none"> • Environmental Management Committee ⁽¹⁾ • Camp Operations and Services (healthcare) ⁽¹⁾ • Camp Operations and Services (site security) ⁽¹⁾ • Education and Training (Project) ⁽¹⁾ • Inclusive and Local Hiring Strategy ⁽¹⁾ • Education and Training (Region): Inclusive and Local Hiring Strategy (hiring policies) ⁽¹⁾ • Community Financial Support ⁽¹⁾ • Social Closure Plan ⁽¹⁾ • Environmental Monitoring • Environmental Data Sharing Agreements • Indigenous Environmental Monitoring Programs • Exploration of a Community Health and Well-being Survey • Support for Indigenous-led Education and Training for Land-Based Activities • Employee Benefits Program • Retirement Planning and Support • Indigenous Procurement (Local Procurement Policy) • Public Safety Communications • Community Safety Enhancement • Project / Benefit Agreements • Training and Tracking Incidents of Harassment and Violence in the Workplace • Workplace Incident Reporting (at Camp)

Potential Effect	Indicator	Mitigation and Enhancement Measures (Headings Only)
Change in Health (Social Determinants)	Actual and Perceived Public Safety (Accidents and Malfunctions)	<ul style="list-style-type: none"> Environmental Management Committee ⁽¹⁾ Environmental Monitoring Environmental Data Sharing Agreements Indigenous Environmental Monitoring Programs Exploration of a Community Health and Well-Being Survey Support for Indigenous-led Education and Training for Land-Based Activities Public Safety Communications
	Safety of Indigenous Women and Girls	<ul style="list-style-type: none"> Education and training (Project) ⁽¹⁾ Education and Training (Region): Inclusive and Local Hiring Strategy (hiring policies) ⁽¹⁾ Camp Operations (site security) ⁽¹⁾ Training and Tracking Incidents of Harassment and Violence in the Workplace Workplace Incident Reporting (at Camp)

Notes:

1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC). fVC = federal valued component; pVC = pathway valued component.

The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2) are in place as planned.

The table above (Table 7-1) describes which mitigation and enhancement measures were relevant to each determinant of health, to provide a transparent accounting of their specific influence on Indigenous health and the upstream conditions of influence. While some mitigation measures were specific to addressing a single determinant, many of the measures mitigate effects associated with several different determinants of health; an indication of the complex and interconnected nature of health. The table below (Table 7-2) provides a list of mitigations identified in the HIA overall, and a rationale for their inclusion and influence on Indigenous health.

Table 7-2: Details and Rationale for Mitigation and Enhancement Measures for Health

Mitigation and Enhancement Measures (Heading and Description)	Rationale and Influence
<u>Air Quality Monitoring:</u> Air quality monitoring for the Project will include constituents and related health-based benchmarks (e.g., NO ₂ and DPM [as PM _{2.5}]) until assumptions are validated, to trigger action, if needed.	While the HHERA inhalation assessment results do not indicate an effect to human health from the Project, including human health-based constituents and benchmarks in air quality monitoring plans is important to validate assessment assumptions, provide evidence regarding the effectiveness of mitigation measures, and assist in mitigating community perception issues related to safety, environmental quality and health.
<u>Environmental Monitoring:</u> Environmental monitoring programs for surface water and aquatics will include constituents and related health-based benchmarks as considered in the health assessment (such as arsenic, mercury, methylmercury and selenium). Aquatics sampling programs will also include ongoing sampling and testing of fish quality in species identified for human consumption (i.e., walleye / pickerel, lake whitefish, northern pike, trout) as captured.	While the HHERA multi-media assessment results do not indicate an effect to human health from the Project, including human health-based constituents and benchmarks in water and aquatic / fish monitoring programs is important to validate assessment assumptions, provide evidence regarding the effectiveness of mitigation measures, and assist in mitigating community perception issues related to safety, environmental quality and health.

Mitigation and Enhancement Measures (Heading and Description)	Rationale and Influence
<p><u>Indigenous Environmental Monitoring Programs:</u> GBR is committed to involving Indigenous communities in environmental monitoring activities throughout all phases of the Project, including opportunities for participation in the collection and sharing of environmental monitoring information and results.</p>	<p>This Indigenous initiative is expected to have a positive effect on participating Indigenous communities, enhancing knowledge transfer and community cohesion. It is also expected to mitigate against adverse perceptions of environmental quality and safety, and promote overall physical and mental health and wellness through time spent on the land.</p>
<p><u>Environmental Data Sharing Agreements:</u> GBR will share environmental monitoring data (air, water, fish) with Indigenous communities that request it on an annual basis and provide opportunities (including funds) to conduct their own reviews.</p>	<p>Providing environmental monitoring data, in a timely manner, to interested Indigenous communities is anticipated to promote transparency and relationship-building, while provision of funding for communities to conduct their own reviews, analyses and / or assessments using the data will empower and resource Indigenous communities. This measure is anticipated to mitigate against mental wellness and community cohesion effects, related to perception issues, lack of trust, and environmental quality concerns, over time.</p>
<p><u>Environmental Management Committee:</u> Great Bear Resources will work with the environmental management committee(s) and interested Indigenous members throughout the duration of the Project (all phases), to facilitate ongoing communications, sharing and integration of Indigenous knowledge and environmental information, and share and evaluate Project approvals, adaptive management and monitoring plans, and address emerging issues and interests identified by Indigenous Nations. ⁽¹⁾</p>	<p>Key aspects of the environmental management committee(s) related to Indigenous health are that: (1) it includes Indigenous members and (2) the committee will continue to operate for the duration of the Project. The committee is expected to mitigate against perception issues associated with environmental degradation and mistrust and is supportive of self-determination in addressing Indigenous issues. Collectively, these are expected to help mitigate against adverse mental health and community cohesion concerns.</p>
<p><u>Education and Training (Region):</u> <u>Inclusive and Local Hiring Strategy (hiring policies):</u> Partner with Indigenous training and employment organizations to support culturally appropriate recruitment and retention of Indigenous candidates, to support employment of Indigenous workers, provide training, priority hiring and work towards continuous improvement including training and employment opportunities for Indigenous women. ⁽¹⁾</p>	<p>Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. By prioritizing hiring of Indigenous workers where possible, the benefits of employment (income, skills training, health / dental benefits, retirement supports) can be realized by Indigenous communities. In addition, the hiring of Indigenous women specifically was one of the calls to action in the National Inquiry on MMIWG for the resource development industry.</p>
<p><u>Education and Training (Project):</u> Provide budgeting and financial literacy tools available to all employees through the EAP, including a combination of organized workshops during working hours and optional individual supports that employees and their families can access on their own time. ⁽¹⁾</p>	<p>Financial literacy and money management skills have been shown to help to mitigate against adverse personal behavioural choices, including spending on alcohol and drugs. By making training available for all employees, and their families, this is expected to reduce the likelihood of adverse downstream health effects resulting from behaviours such as substance abuse, gambling and domestic violence.</p>
<p><u>Education and Training (Project):</u> Deliver mandatory Cultural Awareness training for employees and contractors (including supervisors and managers) on safety, harassment awareness and prevention, and MMIWG2S+ and human trafficking awareness training. ⁽¹⁾</p>	<p>The findings in the National Inquiry on Missing and Murdered Indigenous Women and Girls (MMIWG) recommend mandatory cultural awareness training, including for supervisors and managers. This promotes cultural sensitivity and awareness of the code of conduct, including sexual harassment policies and repercussions at all levels. This measure is anticipated to minimize risks of incidents at camp and in community.</p>

Mitigation and Enhancement Measures (Heading and Description)	Rationale and Influence
<u>Employee Benefits Program:</u> Benefits program will include coverage for health care, prescription drugs, dental and access to in-person and online mental health services for employees and their families.	Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. The inclusion of benefits for employees and their immediate families mitigates against broader affordability issues including access to health care, dental and mental health (including addiction) services.
<u>Retirement Planning and Support:</u> Offer a retirement pension plan, Registered Retirement Savings Plan matching or equivalent, to employees to help support longer term financial stability.	Employment and income are key determinants of health, with several downstream benefits to both physical and mental health. Financial literacy and financial planning, including retirement planning and support, help to mitigate against a wide range of economic-related downstream health issues in elderly (retired) populations.
<u>Indigenous Procurement (Local Procurement Policy):</u> Help strengthen Indigenous participation in business opportunities by developing Project procurement policies that support Indigenous economic development and reconciliation.	Supporting the local Indigenous economy helps to protect against disparities that currently exist between Indigenous and non-Indigenous communities. Supporting Indigenous businesses, where appropriate, focuses more of the economic benefits of the Project on Indigenous communities broadly rather than concentrated on the working population (i.e., those employed by the Project). This is anticipated to mitigate against physical and mental health outcomes associated with lower socio-economic status.
<u>Project / Benefit Agreements:</u> Economic benefits to Indigenous communities, based on collaborative engagement with local Indigenous communities.	Project agreements have the potential to provide ongoing economic benefits to Indigenous communities over the lifetime of the Project, both on reserve and for off reserve Band members. This measure aims to both enhance the Project-related economic opportunities for Indigenous communities, while mitigating against economic inequities brought on by disproportionate inclusion in the Project workforce.
<u>Support for Indigenous-led Education and Training for Land-Based Activities:</u> Support for Indigenous-led education and training for land-based activities (hunting, gathering, plant harvesting) in the region and promote skills and knowledge transmission among Indigenous communities, including Indigenous youth.	Primary literature indicates that land-based learning among Indigenous people has beneficial downstream effects on health, mental wellness and cultural / community cohesion. This mitigation is intended to act as a mitigation to minimize adverse effects and also an enhancement intended to support Indigenous practices, cultural continuity, traditional economy and growth of the eco-tourism industry in the area.
<u>Community Financial Support (Change in Housing and Accommodations):</u> Great Bear Resources will work collaboratively to support culturally appropriate housing initiatives led by Indigenous and municipal partners. This will include development of a housing strategy and plans for ongoing monitoring of housing capacity issues, and an adaptive management approach (as part of the Social Performance Plan) to address additional pressures imposed from the influx of workers and their families. ^(1,2)	Housing is a key determinant of health, influencing both physical and mental health outcomes for individuals and families. Homelessness and cascading effects (e.g., mental health and substance abuse) are a pre-existing issue in the region, with an influx of workers and their families posing additional pressures. This measure is anticipated to support ongoing efforts to minimize additional pressures placed on local housing through development of a housing strategy and adaptive management of the issue over time, as needed.
<u>Community Financial Support (Access to Services):</u> Great Bear Resources will work collaboratively to fund programming through the Friendship Centre and community partners, including programming and supports to promote physical and mental health outcomes for Indigenous adults and youth. ⁽¹⁾	Providing funding and resources for programming for Indigenous adults and youth has the potential to provide downstream benefits to health. Specifically including physical and mental health programs as an outcome of the funding is important to mitigating the additional pressure that will be placed on local / regional health (including mental health) services.

Mitigation and Enhancement Measures (Heading and Description)	Rationale and Influence
<p>Community Financial Support (Access to Services): Support local communities regarding access to social services and health care services in the region, including mental health and addiction services, and implement an adaptive management approach (as part of the Social Performance Plan) to address additional pressures resulting from the influx of workers and their families. ⁽¹⁾</p>	<p>Evidence shows that timely access to quality health (and mental health) care is protective of health and wellness. This measure (capacity building for health care services) was one of the calls to action in the National Inquiry on MMIWG for the resource development industry and is anticipated to mitigate against the increased pressures placed on local health care services (including mental health and addiction services). This measure is also anticipated to support ongoing adaptive management surrounding access to health and social services over time.</p>
<p>Camp Operations and Services (telehealth): Create access to Telus telehealth or similar provider for employees (and immediate family members) throughout the life of the Project, helping to alleviate pressures on local services. ⁽¹⁾</p>	<p>Evidence shows that timely access to quality health care is protective of health and wellness. Benefits of access to a telehealth service are far reaching, promoting convenient access to health (including mental health) and social services (including addiction services), also reducing barriers related to service capacity and transportation.</p>
<p>Camp Operations and Services (health care): Provide emergency response and basic health services to the on-site workforce. On-site medical facilities and staff will be in place to address health services for emergencies, injuries, and other routine needs. Medical personnel will be trained on supports that are available through Employee Assistance Program (EAP), Telus telehealth (or similar service / provider), and local / regional providers to foster connected health care on and off-site. Information about these services and supports (available to employees and their immediate families), will be posted in a visible location at the medical facilities and accommodations. ⁽¹⁾</p>	<p>Studies have shown that some of the primary negative pressures on local health services include increased use of emergency departments and primary care services within the local community, highlighting the importance of the provision of on-camp health services. This mitigation around camp and worker health care mitigates against adverse health effects through on-site medical care, plans to educate / support employees and their families with additional resources, and dissemination of important health and wellness information throughout the camp and site facilities. This measure is also anticipated to mitigate against underutilization of health supports and services provided through EAP and Telus telehealth (or similar), due to lack of awareness and uptake. It also helps to promote connected healthcare on and off site.</p>
<p>Medical Management and Response: Track on-site medical responses needed for employees (anonymously) and referrals for off-site health services. GBR will continue to work with local health care service providers if capacity issues should arise in relation to an influx of employee referrals.</p>	<p>Medical resources are constrained across much of northern rural Ontario, and access to services by Indigenous populations can be precarious. This measure is anticipated to mitigate against additional pressures placed on local health care services by implementing a plan to track on site medical response and off site referrals, thereby monitoring the impact of the Project on local medical and emergency services. This mitigation is expected to minimize broader community effects related to access to services and associated downstream health outcomes.</p>
<p>Public Safety Communications: Involve and consult with Indigenous communities in the development of communications approaches that will identify how important information will get disseminated, including as part of emergency response plans.</p>	<p>Evidence suggests that communities having a lack of information can lead to negative perceptions (of risk / safety) and fears of the unknown. Additionally, in the event of an emergency, clear and efficient dissemination of information is critical. This measure is intended to mitigate against perception issues around the Project in general and specifically around accidents and malfunctions, and other emergencies before construction and during operations.</p>

Mitigation and Enhancement Measures (Heading and Description)	Rationale and Influence
<p><u>Community Safety Enhancement:</u> Work in collaboration with Indigenous communities and local law enforcement to discuss safety considerations regarding the influx of additional workforce into the area, including the possibility of increases in violent crime and / or sexual harassment in local communities.</p>	<p>This collaborative measure is anticipated to provide some mitigation against issues related to community safety, safety of Indigenous women and girls, and perceptions of safety over time, thereby minimizing downstream adverse health outcomes. In addition, this measure (collaborating with police services) was one of the calls to action in the National Inquiry on MMIWG for the resource development industry.</p>
<p><u>Camp Operations (site security):</u> Site security will be maintained and consistent with other Ontario mining operations. Access will be limited to Great Bear Resources' workers and contractors, and approved visitors. Security guardhouses will be positioned where appropriate. Cameras, routine patrols and other methods will be utilized to monitor and ensure site security. Workers will be housed in separate accommodations by gender with locked access (e.g., keys) for each room and a separate mining dry / change rooms. Ongoing monitoring will occur throughout the mine life and policies will be updated as required. ⁽¹⁾</p>	<p>The safety of Indigenous women at camp is a complex issue with cascading issues around violence and harassment (verbal and sexual). Evidence related to the safety of women (and Indigenous women) in worker camps strongly supports measures that include separate accommodations, locked rooms and restricted access. These measures not only improve actual safety on-site but also improve perceptions of safety by female workers.</p>
<p><u>Training and Tracking Incidents of Harassment and Violence in the Workplace:</u> Provide mandatory training on the code of conduct and ethics, with a specific focus on unlawful discrimination, harassment, and workplace violence for all employees and contractors, including supervisors and managers. This training will include clear and specific examples of sexual and gender-based harassment and assault (verbal, physical) and outline steps for action if the perpetrator is a mine worker, supervisor or manager. These policies will also include incident tracking and review, a monitoring plan for policy effectiveness, and an adaptive management process.</p>	<p>Evidence shows that verbal and sexual harassment is an issue in mine camps. This measure was one of the calls to action in the National Inquiry on MMIWG for the resource development industry. By providing mandatory training on this specific aspect of GBR's code of conduct, the measure is expected to minimize these incidents to the extent possible. The monitoring and adaptive management supports are in place to monitor the effectiveness of the policy and associated interventions over the life of the Project. Protecting women in the workplace has far-reaching effects on both physical and mental health.</p>
<p><u>Workplace Incident Reporting (at Camp):</u> Implement the Code of Conduct which provides clarity that employees reporting incidents will be protected against wrongful termination or other negative actions.</p>	<p>Evidence suggests that female employees have under-reported instances of verbal and sexual assault in the workplace due to the camp culture or lack of support from managers, supervisors. This measure is intended to mitigate against both under-reporting of workplace misconduct and to promote a consistent and transparent approach for reporting, review and follow-up, without fear of repercussions.</p>
<p><u>Exploration of a Community Health and Well-being Survey:</u> Consider options for Indigenous-led survey and data collection on project related metrics and health indicators, funded by GBR. This program could be further developed as part of the Social Performance Plan.</p>	<p>Data and information about health and wellness can be important tools for Indigenous self-determination. There is currently a lack of local Indigenous health and well-being data available, especially at the community-level. A community health and well-being survey, led by local Indigenous communities, would help to fill this data gap and monitor key project-related health determinants and indicators prior construction and then at regular intervals throughout the life of the Project. This information can help validate assessment assumptions, provide evidence regarding effectiveness of mitigation and enhancement measures, and empower Indigenous communities through data OCAP principles.</p>

Mitigation and Enhancement Measures (Heading and Description)	Rationale and Influence
<p>Social Closure Plan: Support consistent communication and planning throughout closure with emphasis on legacy, continuity, and shared decision-making. Develop a community transition plan in consultation with local Indigenous communities and groups so that decisions are made with integrity, based on cultural, spiritual and Indigenous well-being in mind. The plan will include collaborative planning, implement job-matching, retraining programs, financial literacy workshops, and economic diversification supports in anticipation of closure. ⁽¹⁾</p>	<p>Evidence shows that closure of a large employer in northern rural areas can have adverse effects, particularly in terms of income and employment, which is a key determinant of health. These boom-bust cycles have been well documented, with pre-closure mitigations playing a large role in the successful transition of local economies. This measure is anticipated to help mitigate against adverse health and well-being effects related to closure.</p>

Notes:

- 1 Measure may also appear in other Indigenous Peoples assessment sub-sections (Impact Statement Sections 10 to 14; fVC).
- 2 The change in housing is expected to be regional and will not change on-reserve systems. Mitigation is relevant for off-reserve housing in the region, including Red Lake and Ear Falls.

DPM = diesel particulate matter; EAP = Employee Assistance Program; fVC = federal valued component; GBR = Great Bear Resources; HHERA = Human Health and Ecological Risk Assessment; HIA = Health Impact Assessment; MMIWG = Murdered Indigenous Women and Girls; MMIWG2S+ = Missing and Murdered Indigenous Women, Girls, Two-Spirit, Transgender, and Gender-Diverse+ peoples; NO₂ = nitrogen dioxide; OCAP = ownership, control access and possession; PM_{2.5} = particulate matter less than 2.5 micrometres; pVC = pathway valued component.

The HIA assumes that all mitigations and follow-up programs from the identified linked pVCs and fVCs (Table 6-2), including those throughout the Indigenous Peoples Sections are in place as planned.

Following the identification of potential effects, each interaction between Project activities and Indigenous health indicators was evaluated to determine whether the proposed mitigation and enhancement measures would fully address the effect. Where mitigation measures were determined to effectively avoid or minimize the interaction, no residual effect was carried forward. Where the mitigation measures reduced, but did not fully eliminate, the potential for an effect, the interaction was carried forward for residual effect characterization. For some health determinants, multiple pathways of effect were assessed whereby actual risks were fully mitigated but effects due to perceptions of risk were partially mitigated. Therefore, this process aimed to focus on those determinants with unmitigated or partially mitigated effects for residual effect characterization (Section 8).

8 RESIDUAL EFFECTS AFTER MITIGATION

The assessment of residual effects is a concept used in Impact Assessments. Traditionally, HIA methodology (outside of an Impact Assessment process) does not typically include residual effects; however, HIA does include an overall holistic assessment of health and wellness based on the predicted effects associated with the determinants under consideration. For this reason, the HIA process can be adapted to include an assessment of residual effects as per the Impact Statement methodology (Impact Statement Section 6). Therefore, an assessment was conducted to determine whether residual effects from Project activities are predicted for changes to health for Indigenous people, after implementation of mitigation measures. Given the number of determinants assessed as part of the HIA, the assessment of potential effects for each one was considered individually and holistically in order to come to an overall determination of residual effects for Indigenous health.

8.1 RESIDUAL EFFECTS FOR UPSTREAM CONDITIONS

To determine whether there is a change in health for Indigenous people, the results from each individual determinant of health are evaluated in combination to consider, on balance, whether there is a residual change in health, resulting from Project activities for each Indigenous community.

One important component under consideration was whether Project activities resulted in residual effects to the upstream environmental, social, cultural and / or economic conditions that influence health. A summary of residual effects identified in the relevant upstream assessments under the fVC Indigenous Peoples sections (Impact Statement Sections 10 to 14) provide a foundation for the assessment of Indigenous health and are presented in Table 6-53.

Table 8-1: Summary of Residual Effects Identified from Relevant Upstream Assessments for fVC Indigenous Peoples (Not Health)

Potential Upstream Effect (fVC Indigenous Peoples)		Potential Residual Effect Remaining After Mitigation (Y / N)				
		LSFN	WFN	ANA	NWOMC	RLEF
Community Services and Infrastructure (CSI)		N	N	N	Y⁽¹⁾	Y⁽¹⁾
Change in the region's housing and accommodations		-	-	-	N	N
Change in the region's municipal, provincial and non-profit service delivery capacity		-	-	-	Y	Y
Change in region's transportation infrastructure		-	-	-	N	N
Current Use of Lands and Resources for Traditional Purposes (CULTRP)		Y⁽¹⁾	Y⁽¹⁾	Y⁽¹⁾	Y⁽¹⁾	Y⁽¹⁾
Change in availability, access to, and quality of experience related to traditional terrestrial wildlife harvesting (hunting and trapping)	Availability (quantity of traditionally hunted and trapped wildlife species available)	Y	Y	Y	Y	Y
	Access (to locations and areas for hunting and trapping)	Y	N	N	N	Y
	Quality of experience (detectable changes to sensory conditions at harvesting sites or areas)	Y	Y	Y	Y	Y
Change in availability, access to, and quality of experience related to traditional aquatic harvesting (fishing)	Availability (quantity of traditionally fished species available)	N	N	N	N	N
	Access (to locations for fishing and aquatic harvesting)	N	N	N	N	N
	Quality of experience (detectable changes to sensory conditions at harvesting sites identified)	N	N	N	N	N

Potential Upstream Effect (fVC Indigenous Peoples)		Potential Residual Effect Remaining After Mitigation (Y / N)				
		LSFN	WFN	ANA	NWOMC	RLEF
Change in availability, access to, and quality of experience related to traditional plant harvesting (food and medicinal purposes)	Availability (quantity of traditionally fished species available)	Y	N	N	N	Y
	Access (to locations for fishing and aquatic harvesting)	Y	N	N	N	Y
	Quality of experience (detectable changes to sensory conditions at harvesting sites identified)	Y	Y	N	Y	Y
Change in availability, access to, and quality of experience related to traditional habitation, cultural, and spiritual sites and areas	Availability (of traditional habitation, cultural, and spiritual sites and areas currently used – e.g., not altered or destroyed)	N	N	N	N	N
	Access (changes to access to sites and areas identified as currently used)	N	N	N	N	N
	Quality of experience (detectable changes to sensory conditions at traditional habitation, cultural, or spiritual sites and areas currently used)	Y	Y	Y	Y	Y
Community Well-Being (CWB)		Y⁽¹⁾	Y⁽¹⁾	Y⁽¹⁾	Y⁽¹⁾	Y⁽¹⁾
Population Growth, Housing Availability and Affordability		N	N	N	N	N
Cost of Living and Traditional Economy		Y	Y	Y	Y	Y
Access to Services (Health, Social, and Education Services)		Y ⁽²⁾	Y ⁽²⁾	Y ⁽²⁾	Y	Y
Household dynamics		N	N	N	Y	N
Public Safety and Gender-Based Violence		N	N	N	N	N
Community Cohesion		N	N	Y	Y	N
Access to land and resources		Y	Y	Y	Y	Y
Population Dynamics		N/A	N/A	N/A	-	-
Economic Opportunity and Inequality		Y	Y	N ⁽³⁾	Y	Y

Notes:

1 The residual effect was not significant.

2 The effect was identified as Regional in Impact Statement Sections 10 to 14 (fVC Indigenous Peoples).

3 Economic opportunity and inequality was not assessed for ANA as it was examined at a regional scale, referring to the evaluation for Red Lake and Ear Falls in Impact Statement Section 14 (fVC Indigenous Peoples: Red Lake and Ear Falls).

- Not assessed / not provided.

Y=Yes Residual Effects identified under either Community Services and Infrastructure, Current Use of the Land and Resources for Traditional Purposes, or Community Well-Being.

N=No Residual Effects identified under either Community Services and Infrastructure, Current Use of the Land and Resources for Traditional Purposes, or Community Well-Being.

ANA = Asubpeeschoseewagong Netum Anishinabek; CWB = Community Well-Being; CULRTP = Current Use of the Land and Resources for Traditional Purposes; CSI = Community Services and Infrastructure; fVC = federal valued component; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

Source: Table recreated with information from Impact Statement Sections 10 to 14 (fVC Indigenous Peoples: LSFN, WFN, ANA, NWOMC, RLEF).

These residual effects results for the other Indigenous Peoples assessments (upstream) (Impact Statement Sections 10 to 14; fVC) are being presented based on their relevance to and influence on potential residual effects for Indigenous health. The findings from these assessments provided a foundation for identifying whether the change in upstream environmental, social, cultural and economic conditions was sufficient to influence downstream effects on Indigenous health. Overall, residual effects were identified for CWB and CULRTP for the Indigenous communities (LSFN, WFN, ANA, NWOMC, RLEF), and residual effects were identified for CSI for NWOMC and RLEF. These findings directly inform the assessment of residual effects for Indigenous health (Section 8.2).

8.2 RESIDUAL EFFECTS FOR HEALTH

Based on these findings, the potential for effects assessment for health was conducted using Project information, technical modelling results, existing conditions data, primary and grey literature, government and agency resources, IK and community-specific information. The key results of the potential effects assessment for each biophysical and social determinant of health are summarized in Table 8-2. The scale of potential effects for each determinant of health is based on the definitions below, which are detailed in the HIA methodology (Section 2.4.3):

- **Negligible:** there is limited to no effect on Indigenous health expected as a result of Project activities for this determinant following implementation of mitigation measures.
- **Minor:** the effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures.
- **Moderate:** the effect on Indigenous health is expected to be moderate following implementation of mitigation measures; measurable deviation from baseline population-level health is possible due to Project activities for this determinant. If the effect is adverse, some support may be required to maintain baseline (current conditions).
- **Major:** the effect on Indigenous health is expected to be major following implementation of mitigation measures; measurable deviation from baseline population-level health is probable due to Project activities for this determinant, with a high degree of support required to mitigate adverse effects in order to maintain baseline levels and / or baseline levels are no longer attainable.

In Table 8-2, where a rating of negligible was identified for a determinant, that determinant was not expected to contribute to an overall change in health. Where a rating of minor was identified for a determinant, that determinant was expected to contribute to an overall change in health. Taking a conservative approach, where a rating of minor (i.e., a yes in the table below) was identified for any of the determinants of health, an assumption of potential residual effects for health overall was identified for that community. None of the determinants were characterized as moderate or major based on the findings of the HIA.

For each determinant of health, descriptions of the methods, existing conditions, assessment of potential effects and mitigation measures, are provided in the respective assessment sections (Section 6). A summary of the findings for each determinant of health as it relates to scale of potential effect, is provided in Table 8-2. While only the scale of potential effect is presented below, the determination of whether residual effects exist or not for each Indigenous community was based on the collective evidence presented and assessment completed in Section 6.

Residual effects are identified for each community based on an overall change in health (fVC Indigenous Peoples). An assessment of the significance of residual effects (change in health) for each Indigenous community is presented in Section 8.3.

Table 8-2: Identification of Residual Effects for Health (Indigenous Peoples)

Determinant of Health	Potential Effect Contributing to a Change in Health (Yes ⁽¹⁾ /No ⁽²⁾) and (Scale of Potential Effect After Mitigation)				
	LSFN	WFN	ANA	NWOMC	RLEF
Air Quality	No (Negligible)	No (Negligible)	No (Negligible)	No (Negligible)	No (Negligible)
Multi-media Environmental Quality	No (Negligible)	No (Negligible)	No (Negligible)	No (Negligible)	No (Negligible)
Access and Availability of Water	Yes (Minor)	Yes (Minor)	Yes (Minor)	Yes (Minor)	Yes (Minor)
Access and Availability of Traditional Foods	Yes (Minor)	Yes (Minor)	Yes (Minor)	Yes (Minor)	Yes (Minor)
Sensory Disturbances (Sound, Vibration and Light)	No (Negligible)	No (Negligible)	No (Negligible)	No (Negligible)	No (Negligible)
Economics (Employment, Income and Education) ⁽³⁾	Yes (Minor)	Yes (Minor)	Yes (Minor)	Yes (Minor)	Yes (Minor)
Housing	No (Negligible)	No (Negligible)	No (Negligible)	Yes ⁽⁴⁾ (Minor)	Yes ⁽⁴⁾ (Minor)
Access to Health and Social Services	Yes ⁽⁵⁾ (Minor)	Yes ⁽⁵⁾ (Minor)	Yes ⁽⁵⁾ (Minor)	Yes ⁽⁵⁾ (Minor)	Yes ⁽⁵⁾ (Minor)
Food Security	Yes (Minor)	Yes (Minor)	Yes (Minor)	Yes (Minor)	Yes (Minor)
Mental Wellness and Personal Behaviours	Yes (Minor)	Yes (Minor)	Yes (Minor)	Yes (Minor)	Yes (Minor)
Actual and Perceived Public Safety	No (Negligible)	No (Negligible)	Yes (Minor)	No (Negligible)	No (Negligible)
Safety of Indigenous Women and Girls	Yes (Minor)	Yes (Minor)	Yes (Minor)	Yes (Minor)	Yes (Minor)
Residual Effect (Change in Health) Remaining After Mitigations? ⁽⁶⁾	Yes	Yes	Yes	Yes	Yes

Notes:

- 1 Yes = the determinant contributes to an overall change in health for Indigenous Peoples, with a rating of Minor: the effect on Indigenous health is expected to be minor; with no measurable deviation from baseline population-level health resulting from Project activities for this determinant following implementation of mitigation measures. The scale of effect is presented in brackets for each applicable determinant of health.
- 2 No = the determinant does not contribute to an overall change in health for Indigenous Peoples, with a rating of Negligible: there is limited to no effect on Indigenous health expected as a result of Project activities for this determinant following implementation of mitigation measures. The scale of effect is considered negligible, as presented in brackets for each applicable determinant of health.
- 3 An overall net positive effect associated with economic changes is expected; however, cost of living (regional) and personal behaviour choices from higher incomes (for some individuals) are reflected here to maintain conservatism.
- 4 The change in housing is expected to be regional and will not change on-reserve systems; however, direct effects related to changes to housing is expected for Red Lake and Ear Falls (including NWOMC population living in these communities).
- 5 The change in access to health and social services is expected to be regional and will not change on-reserve systems; however, direct effects related to changes to access to services is expected for Red Lake and Ear Falls (including NWOMC population living in these communities), which will influence LSFN, WFN and ANA members who access services in Red Lake and Ear Falls. This finding aligns with the assessment of Community Well-Being.
- 6 Residual effects are assessed for adverse effects only and take into account implementation of the upstream pVC and fVC mitigations as well as health mitigations identified in Section 7.

ANA = Asubpeeschoseewagong Netum Anishinabek; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation; ANA = Asubpeeschoseewagong Netum Anishinabek; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; RLEF = Red Lake and Ear Falls; WFN = Wabauskang First Nation.

8.3 SIGNIFICANCE OF RESIDUAL EFFECTS

If residual effects are identified, an assessment of significance is completed in a structured format described in Impact Statement Section 6.6.2. The determination of the significance of residual effects according to these criteria is evaluated utilizing the following attributes according the three threshold levels listed in Table 6-55. For a residual effect of a criteria to be determined to be significant, the following conditions must both be satisfied:

- A Level II or III rating is attained for ecological and / or social context
- A Level II or III rating is attained for all of the attributes involving magnitude, extent, duration, frequency, reversibility and timing as applicable.

Similarly, the residual effect is not likely to be significant if it has low or limited importance to the ecological and / or social context. If a Level I rating is achieved for any of the attributes involving magnitude, extent, duration, frequency, reversibility or timing; or, if a Level I rating is achieved for the ecological and / or social context, then the residual effect is not considered to be significant.

After implementation of mitigation and enhancement measures, assessment and characterization of potential residual effects on Indigenous health are assessed (Table 6-55) using the methodology outlined in Impact Statement Section 6 and detailed in the HIA in Section 2.4.3.2.

Changes to Indigenous health and wellness are both directly and indirectly linked to Project activities, through a complex series of changes to upstream environmental, social, cultural and economic conditions, and through behavioural changes related to perceived risks and effects. While Project-related effects on Indigenous health at the population-level were not identified (e.g., negligible risks from air, multi-media environmental exposure, noise, vibration and light), effects on health and wellness for some individuals was identified via actual and perceived changes to access and availability of water and traditional foods, cost of living, housing, access to health and social services, food security, mental wellness and safety.

While the Project may contribute to actual and perceived changes to upstream conditions regionally, a change to population-level health, resulting in measurable deviation from baseline, is not anticipated. However, pre-existing systemic limitations may persist, particularly for Indigenous residents and vulnerable groups. Given the current barriers being experienced by Indigenous communities in the region, monitoring of population health and wellness over time in the context of Project activities, will support ongoing collaborative efforts between Great Bear Resources, and local and regional partners and help inform adaptive management measures, where applicable.

Table 8-3: Characterization of Adverse Residual Effects for Indigenous Health

Attribute	Category ⁽¹⁾					Rationale
	LSFN	WFN	ANA	NWOMC	RLEF	
Ecological or Social Context	Level I	Level I	Level I	Level I	Level I	Criteria may or may not be sensitive, and can support the predicted change with typical mitigation measures
Magnitude (Health)	Level I	Level I	Level I	Level I	Level I	Measurable Project-related changes in environmental exposures and / or social determinants of health are unlikely to result in a material adverse change in population-level health status of local Indigenous people.
Geographic Extent	Level II	Level II	Level II	Level II	Level II	Effect extends beyond the LSA but within the RSA.
Duration	Level II	Level II	Level II	Level II	Level II	Effect occurs over the medium term: more than three years but less than 32 years.

Attribute	Category ⁽¹⁾					Rationale
	LSFN	WFN	ANA	NWOMC	RLEF	
Frequency	Level II	Level II	Level II	Level II	Level II	Effect occurs intermittently or regularly.
Reversibility	Level II	Level II	Level II	Level II	Level II	Effect is partially reversible during the Project phases.
Timing	Level I	Level I	Level I	Level I	Level I	Effects do not occur during a sensitive period, or related effects are fully mitigated.

Notes:

1 Residual effects are identified for each community based on an overall change in health (fVC Indigenous Peoples). No residual effects are expected from changes in environmental quality (air and multi-media environmental parameters, noise, vibration, light); therefore, residual effects identified for health overall do not include these aspects.

ANA = Asubpeeschoseewagong Netum Anishinabek; fVC = federal valued component; LSA = Local Study Area; LSFN = Lac Seul First Nation; NWOMC = Northwestern Ontario Métis Community; pVC = pathway valued component; RSA = Regional Study Area; RLEF = Indigenous people living in the Red Lake and Ear Falls area; WFN = Wabauskang First Nation.

As shown in the table above, there is one or more attribute at Level I for each community, and therefore the residual effect to health is not significant for any of the local Indigenous communities (LSFN, WFN, ANA, NWOMC and RLEF).

8.4 CONFIDENCE

The prediction confidence assignment reflects the information available through Project-specific TKLUS reports, publicly available data, understanding of the effectiveness of applicable mitigation measures, and outcomes of other pVCs and fVCs. Reliance on well-established methodologies, conservative modelling assumptions, calculated health risks, published peer-reviewed information, and community-specific data and Indigenous knowledge, all contributed to a higher level of confidence in the overall assessment of health. Conversely, limited availability of Indigenous knowledge (not provided by all communities) and baseline data for Indigenous health, limitations on the applicability of published information, and inherent limitations associated with predictive modelling contributed to a moderate level of confidence in the overall assessment of health.

The assessment is supported by both the findings of the HHERA and the HIA, which were informed by substantial primary and secondary information and robust analysis; however, as noted above, there are some instances where the information collected had limitations or lacked detail. Therefore, the overall confidence in residual effect and significance predictions for a change in health (fVC Indigenous Peoples) is considered to be moderate. This confidence rating applies to the local Indigenous communities: LSFN, WFN, ANA, NWOMC, RLEF. This determination was made through qualitative analysis of available information and data, including uncertainties and limitations listed throughout the HIA and HHERA (Impact Statement Appendix N-1; WSP 2026a).

These limitations and uncertainties (Section 11) associated with the assessment of health overall, including those associated with the upstream inputs (pVCs and fVCs), collectively informed the confidence rating. The confidence rating also informed the development of mitigation and enhancement measures (Section 7), including monitoring for validation of assessment assumptions and other adaptive management frameworks, where applicable.

As additional information continues to be shared through Great Bear Resources' ongoing consultation with local Indigenous communities over the Project life, relevant information will be incorporated into Project planning as practical.

9 MONITORING AND EVALUATION

9.1 MONITORING

Great Bear Resources Ltd. (Great Bear Resources) is a wholly owned subsidiary of Kinross Gold Corp. (Kinross) which has a strong track record of environmental protection across its operations and projects. The Kinross Environmental Management System (EMS) has been in place for more than a decade and supports its environmental commitments. The EMS has recently been reviewed and modernized for full implementation during 2025. The EMS includes 15 robust standards, 13 of which are applicable and will be used to guide Project-specific environmental management planning:

- Air
- Biodiversity
- Closure and reclamation
- Cultural heritage
- Document control
- Environmental incident management
- Hazardous materials
- Mine rock
- Noise
- Permitting and compliance
- Tailings management
- Vibration
- Waste
- Water management.

Sustainalytics (2025) has ranked Kinross as strong, the highest ranking for management of environmental, social and governance, reflecting the robustness of its programs, practices and policies.

Additional information regarding the Project Social Performance Management System, which is another core aspect of sustainability, is informed by 10 social performance standards. Additional detail is provided in Impact Statement Section 18.6.3.

In addition to the EMS and Social Performance Management System, the HIA has included mitigation measures to track, monitor and adaptively manage issues directly and indirectly related to Indigenous health (See Section 7), as needed. Collectively, these will allow for ongoing monitoring of important aspects of Indigenous health that can be used to both validate assumptions made in predictive models and assessments, and to address existing data limitations, where appropriate.

9.2 EVALUATION

Given this HIA is being completed as part of the Impact Assessment regulatory process under the *Impact Assessment Act* (2019), the evaluation step typically included in HIA is not required and is identified as optional in Health Canada's interim HIA guidance (Health Canada 2024a). Instead, the Impact Statement process includes its own mechanisms for evaluation and follow-up as needed. Mitigations are discussed in Section 7 and monitoring plans are discussed in Section 9.1.

10 CONCLUSIONS

The objective of this HIA was to assess potential changes associated with the Project on the health of Indigenous communities in the surrounding area, including LSFN, WFN, ANA, NWOMC and RLEF. To achieve this objective, the HIA identified the suite of factors (determinants) that may be influenced by the Project and assessed them individually and holistically. This HIA relied on a variety of sources (qualitative and quantitative) to assess potential beneficial and adverse effects to health while weaving in IK where available.

The HIA included assessment of a wide range of determinants of health, including biophysical and social determinants. The assessment relied on the findings from other assessments, including the HHERA (Impact Statement Appendix N-1; WSP 2026a) and other Impact Statement Sections (pVCs and fVCs), to understand changes to upstream environmental, social, economic and cultural conditions that have the potential to directly or indirectly influence Indigenous health.

Indigenous people, including LSFN, WFN, ANA, NWOMC and RLEF experience pre-existing health issues and inequities. Colonialism in Canada has operated as an interconnected system of laws, institutions, and policies, including the residential school system, that displaced First Nations, Inuit, and Métis peoples from their lands, suppressed their cultures and governance systems, and undermined self-determination, with lasting impacts on health and wellness (PHAC 2024). Many current health disparities observed in Indigenous populations are a result of colonialism in Canada (PHAC 2024; SLFNHA 2024a). The existing conditions data and information available for local Indigenous communities was provided in the Baseline Health Profile (Attachment A).

The assessment followed Health Canada (2024a) interim HIA guidance, and best practices in the field (Section 2.4). The approach used in the assessment included characterizing potential effects from Project activities on Indigenous health and wellness, with incremental changes compared to baseline conditions. This allowed for characterization of potential effects to take into account existing environmental, social, economic and cultural conditions that are currently experienced by local Indigenous communities and identify whether Project activities will result in a residual change after mitigations during construction and operations phases. For closure, the assessment assumed that Project activities cease and the mine proceeds into the closure phase and post-closure.

Overall, changes to Indigenous health and wellness are both directly and indirectly linked to Project activities, through a complex series of changes to upstream environmental, social, cultural and economic conditions, and through behavioural changes related to perceived risks and effects. While Project-related effects on Indigenous health at the population-level were not identified (e.g., negligible risks from air, multi-media environmental exposure, noise, vibration, light), effects on health and wellness for some individuals were identified via actual and perceived changes to access and availability of water and traditional foods, cost of living, housing, access to health and social services, food security, mental wellness, and safety. While the Project may contribute to actual and perceived changes to upstream conditions regionally, a change to population-level health, resulting in measurable deviation from baseline, is not anticipated. However, pre-existing systemic limitations may persist, particularly for Indigenous residents and vulnerable groups. Given the current barriers being experienced by Indigenous communities in the region, monitoring of population health and wellness over time in the context of Project activities, will support ongoing collaborative efforts between Great Bear Resources and local and regional partners and help inform adaptive management measures, where applicable. Mitigation measures for Indigenous health were identified through the HIA process. A list of mitigation and enhancement measures is presented in Section 7.

Residual effects after mitigation were identified for LSFN, WFN, ANA, NWOMC and RLEF from changes to Indigenous health. A residual effects assessment concluded that measurable Project-related changes in environmental exposures and / or social determinants of health are unlikely to result in a material adverse change in population-level health status of local Indigenous people. The residual effect is not significant.

11 LIMITATIONS AND UNCERTAINTIES

The following is a summarized list of the key limitations and uncertainties associated with the assessment of Indigenous health, including the HIA and HHERA. Given the HIA uses modelling and data inputs from a number of other assessments and disciplines (e.g., air, water, etc.), the limitations and uncertainties described in each of those assessments are also applicable to this report and are not repeated below. While the following is not an exhaustive list, it captures the key areas of uncertainty associated with the inputs, methods, analysis and outcomes.

11.1 INPUT DATA

- The HIA relies on data collected as part of the engagement and consultation with local Indigenous communities (i.e., IK and TKLUS). There are limitations associated with certain survey methods, including differences in interpretations of the question, sample representation, and subject matter bias. Such secondary data sources may have limitations associated with the specific data collection and analysis methodologies applied; these limitations are described, where applicable, in the original source documents. Further, information gathered through interviews is dependent on the willingness of individuals to participate in the research and freely share information. The information shared may be subject to bias.
- There are limitations and uncertainties associated with the information taken from IK and TKLUS reports. Efforts were made to allocate additional focus to topics identified by the local Indigenous communities as being of particular interest. As a result, while scientific and technical writing typically avoids generalized statements, their use was necessary at times to effectively summarize complex information and maintain focus within the constraints of this assessment, while also maintaining due confidentiality.
- The Baseline Health Profile, presented in Attachment A, included data from publicly available health data including public reports and statistics published by Statistics Canada, Public Health Ontario, Crown-Indigenous Relations and Northern Affairs Canada, regional health units (i.e., NWHU), and Indigenous health authorities (i.e., SLFNHA). Limited community-specific data and information were available for current / baseline health conditions specific to the local Indigenous communities including LSFN, WFN, ANA, NWOMC and RLEF. Where relevant publicly available data for a district or region or province were available, they were included in the absence of community-level data. However, it is recognized that public health datasets often do not fully capture people living on First Nations reserves or in small, remote communities, and are constrained by sampling limitations. As a result, some publicly available data may not be representative of community-specific existing health conditions and should be interpreted with this limitation in mind. Detailed assumptions and information limitations specific to the Baseline Health Profile are provided in Section 5.2 of this report and in Section 2.1 of Attachment A.
- There are limitations associated with the socio-economic data availability and accuracy. Secondary data represents information for a specific point in time and socio-economic conditions may change subsequently. For the HIA, the most recent available data were used when possible. Data must be interpreted with caution when comparing across different sources and years. Secondary data relied on includes that from Statistics Canada. Statistics Canada may suppress data for confidentiality concerns (e.g., data for small populations that could be identified as individuals or organizations) or data quality issues (e.g., a high global non-response rate to the census). Indicators pertaining to Indigenous communities tend to be more affected with data quality issues, due to incomplete enumeration and non-responses.
- The HIA relied on information provided in reports and Impact Statement Sections completed by others. It was assumed that referenced information provided by others was correct and complete. Where possible, references were validated and updated as necessary. It is acknowledged that validation of all references was not possible.

- The HIA relied on results from upstream pVC (Impact Statement Section 7) and fVC sections for Fish and Fish Habitat and Migratory Birds (Impact Statement Sections 8 and 9, respectively), including other sub-sections of the fVC Indigenous Peoples sections (Impact Statement Sections 10 to 14). The uncertainties, limitations, and conservatism associated with these upstream pVC and fVC assessments are relevant to the HIA. Specific details of such uncertainties, limitations, and conservatism are presented in the relevant Impact Statement Sections, as referenced throughout the HIA.
- The HIA relied on results from the HHERA (Impact Statement Appendix N-1; WSP 2026a) for the assessment of environmental quality. The HHERA relied on predicted data from the air dispersion modelling (Impact Statement Appendix D-2; WSP 2025a) and the receiver water body modelling (Impact Statement Appendix K-3; WSP 2025c), which were estimated based on conservative assumptions and uncertainties. Details on the uncertainties, limitations, and conservatism associated with the HHERA and as a result, the HIA, are presented in the HHERA (Impact Statement Appendix N-1; WSP 2016a). The major conservative assumptions associated with data inputs from the air dispersion modelling, receiver water body modelling and HHERA applied in the HIA included but are not limited to:
 - The HHERA relied upon output data for an air dispersion model which incorporated a number of conservative assumptions, as detailed in the source report (Impact Statement Appendix D-2; WSP 2025a).
 - The HHERA relied on output data for a predictive water balance and water quality model which incorporated a number of conservative assumptions, as detailed in the source report (Impact Statement Appendix K-3; WSP 2025c).
 - The HHERA relied on measured concentrations collected as part of baseline field programs, to characterize baseline environmental quality, where sample size was sufficient or sample type was considered representative of exposure by Indigenous people. Where measured data were not considered applicable for use to evaluate baseline conditions, predicted concentrations or use of publicly available data (e.g., FNFNES, other data sources) were reviewed for consideration of use in the HHERA.
 - The HHERA considered maximum concentrations in each media for use in the initial identification of POPCs. This was considered to be a conservative approach, particularly for mobile receptors (i.e., humans, mammals, birds, fish).
 - Where appropriate, the HHERA used statistics (i.e., 95% upper confidence limit of the mean [UCLM]) for use as exposure point concentrations for the evaluation of exposure doses, where sufficient sample size was available. Where it was not appropriate to apply a statistic (i.e., sample size <10), the maximum concentration was used in the HHERA.
 - Data and information were available regarding locations at which receptors considered in the HHERA may be exposed to Project POPCs was limited to the information available in IK / TKLUS reports. As stated above, the interpretations presented for ANA and RLEF should be viewed as informed assumptions, rather than definitive community-specific conclusions, based on the lack of available community-specific IK / TKLUS reports. As discussed in Section 4.4, and detailed in the HHERA, information available related to traditional land-use areas and practices as identified through consideration of data from IK / TKLUS reports was used to identify and validate selected exposure locations considered in the HHERA.
 - As presented in Section 4.4 and detailed in the HHERA, information from IK / TKLUS reports was used to identify species of cultural importance and species commonly consumed as traditional foods. It is recognized that the species evaluated in the HHERA do not represent the full range of species of cultural importance and / or species consumed by Indigenous people in the area of the Project. However, through consideration of both species reported as most frequently consumed in the IK / TKLUS reports and top consumed species identified based on the FNFNES report (Chan et al. 2014), the HHERA provided a reasonable evaluation of potential exposure to Project-related POPCs by valued ecological components,

- and potential exposure to Project-related POPCs by human receptors through ingestion of traditional foods.
- The HHERA relied on data available in the FNFNES for Ontario (Chan et al. 2014; 2021). It is recognized that while the FNFNES followed guidance applicable to Inuit and Métis, specifically the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (Chan et al. 2014) and considered publicly available data for Inuit and Métis (e.g., Canada's Food Guide – First Nations, Inuit and Métis [Health Canada 2007; as cited in Chan et al. 2014]), data were not specifically collected from Métis groups. Further, while FNFNES for Ontario was developed based on data from First Nations communities in Ontario, it is recognized that these data were not specific to the local Indigenous communities in the area of the Project but were based on pooled data from communities that have similar consumption patterns and lifestyles.
 - In the absence of consumption data specific to the local Indigenous communities, the FNFNES for Ontario was considered to provide a reasonable representation of traditional foods consumption data by Indigenous communities in Ontario. As stated above, information provided in the IK / TKLUS reports was used to validate information provided in the FNFNES.
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11.2 METHODOLOGIES

- The HIA relies on a variety of different approaches (quantitative and qualitative) to define, characterize, and assess potential effects to Indigenous health and wellness. This approach is necessary to include a holistic view of health; however, it has inherent limitations because the interpretation of qualitative information can be subjective and professional judgement can vary by practitioners.
- The review and inclusion of information from IK / TKLUS reports is done with the utmost care and respect; however, it should be acknowledged that the authors of this HIA are not Indigenous people and therefore, can only interpret what has been provided to the best of their professional ability. While ongoing collaboration with local Indigenous communities has limited the risk of misinterpretation or improper application of information from IK / TKLUS reports, reliance on local Indigenous people reviewers to confirm and provide feedback is paramount.
- The HIA relied on results from the HHERA for the assessment of environmental quality (i.e., air, soil, water, traditional foods quality). While approaches are specific to Indigenous receptors, and health-based benchmarks or thresholds are considered protective of human health outcomes, the HHERA process is not designed to take into account the fact that any changes in the local environment may uniquely affect Indigenous communities due to their inherent connection to the land and waters. Based on information provided in confidential reports for Indigenous communities in the region, Indigenous people view health as a holistic balance, therefore, potential effects to health associated with environmental quality should be interpreted in the context of the interconnectedness of physical, mental, emotional and spiritual health. With respect to Métis, both Indigenous and Western knowledge is important to holistically draw findings (i.e., narratives, experiences, information and data) from these different ways of knowing (PHAC 2018). Consideration of Indigenous people's connection with the land, their views, way of life and IK was considered throughout the HIA, and it is acknowledged that these aspects are deeply personal and vary widely across families and communities. For these reasons, there is no single approach that can be taken to quantify these considerations across all determinants of health, which is why these important aspects were woven into the narrative and acknowledged qualitatively. It is acknowledged that any change to the environment may be perceived by some Indigenous people as unacceptable and potentially affecting their way of life. It is acknowledged that quality of environmental media is only one factor that contributes to overall Indigenous health and wellness.
- The major conservative assumptions associated with methodology applied in the HHERA included but are not limited to:

- The purpose of the HHERA was to evaluate Project-related health effects on human and ecological receptors through the assessment of exposures and associated risks under existing conditions (baseline) as well as those that are predicted to occur from Project-related POPCs under Project Alone Scenario and Baseline Plus Project Scenario for each of the Project phases (i.e., construction, operations and closure), and compare the changes between baseline and Project contributions to identify if Project POPC contributions represent concentrations above acceptable health-based targets. Where existing risks were identified through the HHERA for baseline conditions, the HHERA did not evaluate the causes of these concentrations above acceptable health-based targets beyond the identification of driving exposure pathways. Assessment of the causes and effects of existing baseline risks was beyond the scope of the HHERA.
- The MPOI is the location outside the Project footprint with the highest predicted ground level concentrations in air expected outside of the Project property boundaries, in close proximity to the PA. Evaluation of the MPOI is a conservative approach to air quality assessments where the maximum off-site concentration is compared to health-based air quality screening criteria, regardless of whether receptors are expected to be present at this location. However, use or access to the MPOI is considered to occur on an infrequent basis. The HHERA conservatively assumed that receptors would be present at the MPOI 100% of their time for up to 24 hours a day.
- The HHERA inhalation assessment assumed that receptors were exposed to POPCs in air due to the Project 100% of their time at long-term / chronic POR locations, and up to 24 hours at short-term / acute POR locations.
- The HHERA incorporated conservative assumptions, in both the exposure and toxicity assessment, that represent reasonable worst-case assumptions so that the assessment of risks to receptors (i.e., Indigenous Resident) were not underestimated.
- Sediment and groundwater exposure pathways were not directly assessed in the HHERA. Sediment concentrations were not anticipated to change as a result of the Project. Contact with sediment while swimming, wading or fishing was expected to be minimal and / or infrequent. The assessment of potential Project impacts to soil and surface water were considered to be protective of Project-related change to sediment quality. For groundwater, it was assumed that an Indigenous resident's access to groundwater would be limited to exposure via groundwater wells, however, it was determined that there were no groundwater water wells (including drinking water wells) present within the LSA and RSA which would be affected by the Project (Impact Statement Section 7.5; pVC Groundwater). Groundwater exposure pathways were therefore considered to be incomplete for the Project, and groundwater was not considered in the HHERA. For the assessment of aquatic ecological receptors, the evaluation of POPCs in surface water was considered to be protective of groundwater which may discharge to surface water.
- The HHERA assumed that human receptors (i.e., Indigenous Resident) would be present in the LSA / RSA for their entire lifetime and assumed to obtain a large portion of their diet from traditional foods derived from the LSA and RSA. The HHERA also assumed that drinking water would be sourced from surface water within the LSA and RSA. Further, the HHERA assumed that swimming / bathing in surface water was assumed to occur for 2 hours per day, 365 days per year.
- The TRVs used in the HHERA were assumed to be protective of sensitive people within the receptor groups (e.g., infants and young children, women of child-bearing age, the elderly, and / or individuals with compromised health). The uncertainty associated with TRVs is highly dependent on the type and number of studies available, and whether the key study was based on humans (higher certainty) or animals (lower certainty).
- ILCR values were calculated assuming a lifetime of exposure (i.e., 80 years); however, the Project is only expected to be in operation for a portion of that timeframe. Therefore, the predicted ILCR values are considered to be conservative.

11.3 GENDER BASED ANALYSIS PLUS

- The HIA has limited disaggregated health data, which restricted the ability to fully assess how potential health effects may vary across different subgroups of the population. Specifically, there was limited availability of disaggregated data specific to the local Indigenous communities, including LSFN, WFN, ANA, NWOMC and RLEF, which constrained the analysis of potential health effects by gender, age, socio-economic status and health status, for instance.
- The HIA was unable to determine which subgroups within the population are more actively engaged in land use or traditional practices in the areas surrounding the Project as identity factors (e.g., age, gender) of the individuals who are more likely to engage in land-use activities in proximity to the Project, was not available. This data is an important factor in understanding how specific determinants of health impact different subgroups, as for some determinants the predicted health effect is correlated with exposure to the changes associated with the Project.

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Attachment A
Baseline Health Profile



1 BASELINE HEALTH PROFILE

1.1 OVERVIEW

This attachment provides a summary of baseline health-related information from both publicly available sources and consideration of confidential reports prepared by Indigenous communities (LSFN, NWOMC, WFN) for Great Bear Resources. In addition to population health indicators (e.g., burden of disease, birth rates, injuries, mental health rates / status), Indigenous-specific indicators such as land-based health, cultural continuity, community relationships, language and knowledge preservation, and spiritual health and well-being are described within this attachment.

Baseline conditions were characterized using a tiered hierarchy of information sources. Indigenous knowledge (IK) studies, community provided information, and consultation inputs were prioritized where available. Where available, local First Nations specific health data were used, primarily sourced from publications by the Sioux Lookout First Nations Health Authority (SLFNHA). To supplement these sources, regional health data from Public Health Ontario's Northwestern Health Unit (NWHU) were also considered, recognizing that these data are not specific to Indigenous health.

This Baseline Health Profile is intended to support and be considered alongside the Health Impact Assessment (HIA; Impact Statement Appendix N-2), which includes consideration of baseline health status in the assessment of potential effects on Indigenous health.

This Baseline Health Profile is organized into five main sections:

- **Section 1.0 - Overview and Positionality:** provides an overview of the Baseline Health Profile content and acknowledges the positionality of the authors.
- **Section 2.0 - Methodology:** describes the key health data sources and information limitations applicable to the Baseline Health Profile.
- **Section 3.0 – Individual Profiles:** describes Indigenous historical conditions related to health, as well as a summary of available community-specific information related to the determinants of health.
- **Section 4.0 – First Nations Regional Data:** summarizes key findings and trends from publicly available resources published by the SLFNHA. In addition, this section summarizes information from the First Nations Food, Nutrition & Environment Study (FNFNES).
- **Section 5.0 – Baseline Public Health Data:** provides a summary of key health statistics (e.g., health perceptions, burden of disease, injuries and mental health) available from Public Health Ontario and the Public Health Unit catchment-level for the NWHU.
- **Section 6.0 – Great Bear Community Health Survey Results:** summarizes key findings and trends from the Great Bear Health and Wellbeing Survey, which includes Indigenous and non-Indigenous respondents from Red Lake and Ear Falls.

As applicable, health status information is sufficiently disaggregated and analyzed to support the analysis of potential effects to underrepresented groups and support Gender-Based Analysis Plus (GBA Plus).

1.2 POSITIONALITY STATEMENT

This attachment was prepared by non-Indigenous practitioners at WSP Canada Inc. (WSP) in Ontario, Canada. Although efforts were made to reduce potential biases, it is acknowledged that this positionality inherently places certain constraints on this work. While we acknowledge our overall framework, informed by the *Impact Assessment Act*, is largely shaped by Western ways of knowing, we intentionally work to interpret information through Indigenous viewpoints grounded in IK, where possible. We also acknowledge Indigenous people are not a single uniform group; rather, they are distinct sovereign nations and communities, each with their own unique cultures, priorities, and worldviews.

2 METHODOLOGY

Great Bear Resources Ltd. (Great Bear Resources), a wholly owned subsidiary of Kinross Gold Corporation has been exploring the Great Bear Property (Property) located east of Red Lake, Ontario with the objective of developing a gold mine and processing complex on the site. The Great Bear Gold Project (Project) is a proposed underground and open pit mine, and process plant with related facilities. The Project lies within Treaty #3 territory, on the traditional territories of Lac Seul First Nation (LSFN), Wabauskang First Nation (WFN), Asubpeeschoseewagong Netum Anishinabek (ANA), the Northwestern Ontario Métis Community (NWOMC) and in the District of Kenora. Nearby municipalities include the Municipality of Red Lake and the Township of Ear Falls and as such, Indigenous people in Red Lake and Ear Falls (RLEF) were also identified within the Tailored Impact Statement Guidelines (TISG) for the Project as issued by the Impact Assessment Agency of Canada (IAAC). Therefore, the Baseline Health Profile will focus on health data for LSFN, WFN, ANA, NWOMC, and RLEF (hereafter collectively referred to as the local Indigenous communities, where applicable).

The sections below describe the spatial and temporal boundaries associated with the baseline health data, as well as the data and information sources and limitations. This section also discusses the incorporation of IK into the baseline information (i.e., existing conditions) and within the HIA.

2.1 DATA AND INFORMATION SOURCES AND LIMITATIONS

The baseline conditions presented in this attachment were informed by primary (data collection) and secondary (desktop) research using a broad range of information sources, including:

- Data collected from local community members, including Indigenous members, via a Great Bear Project Community Health Survey administered in 2024 (details provided below in Section 6)
- Interviews with organizations within some of the local communities to investigate the tangible and intangible impacts that may occur during the development phases of the Project (records of contact from community engagement interviews completed for the Socio-economic Baseline Study)
- Municipal, provincial and federal government publications (e.g. policy and planning materials, government reports, municipal websites and plans)
- Statistical publications (e.g., Statistics Canada Community Profiles from both 2016 and any available 2021 data, and the results of the National Household Survey)
- Relevant publicly available information (e.g., community organization websites, business websites, primary and grey literature, letters from Indigenous communities to government agencies)
- Media articles, including websites.

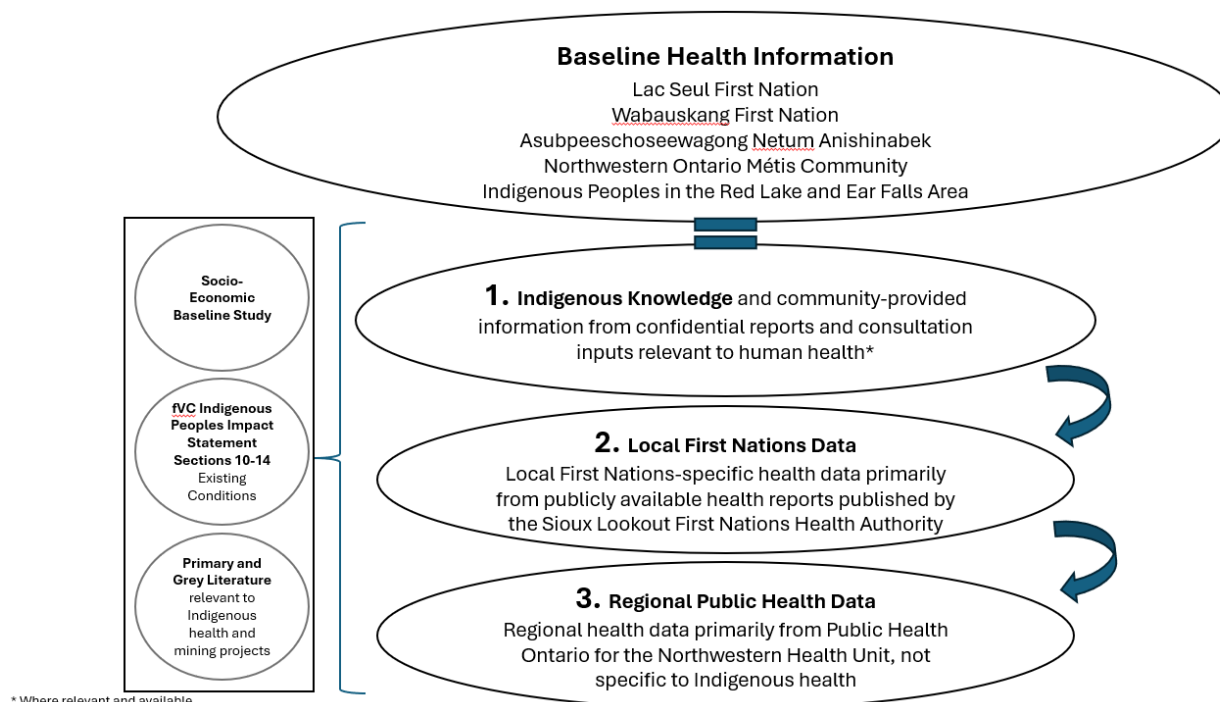
Key sources of information and data for this Baseline Health Profile include the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024); data from public reports published by the SLFNHA; public data from the Statistics Canada 2021 Census; data from the NWHU reports, publications and statistics; Public Health Ontario (PHO) databases, and other reputable sources of relevant health data.

If available, registered population numbers (both on- and off-reserve) of some of the Indigenous communities were obtained from the Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), to supplement Statistics Canada 2021 Census data, as census data does not always reflect total registered membership. These data, where available, are presented in Section 3.

Where data and information were unavailable at the community-level but were available for a relevant district or region or province, they were included. As the Municipality of Red Lake is part of Kenora District, which is located within northwestern Ontario, information for Kenora District, Northwestern Ontario (including the NWHU) and the province of Ontario were also considered if available.

Specifically, the baseline health conditions for the Project were characterized using the tiered hierarchy of information sources that is presented in Figure 2-1 and summarized in the text below.

Figure 2-1: Hierarchy of Sources and Inputs Used to Characterize Baseline Indigenous Health Information



- 1 IK studies, community-provided information, and consultation inputs were prioritized, as these sources offered the most direct reflection of local Indigenous community experiences, wellness perspectives, and land-based health relationships. This information was considered in Section 3.
- 2 Second, local health data published by the SLFNHA was incorporated, given its focus on Indigenous populations within the region. SLFNHA is an Indigenous health organization that serves 33 First Nation communities in the Sioux Lookout region in Ontario, Canada, including LSFN and WFN. This information is presented in Section 4.
- 3 Third, publicly available regional health data at the public health unit–catchment level, primarily from the NWHU and PHO, were used where community-specific health information was unavailable. Health characteristics are largely drawn from the database of statistics available through Statistics Canada and PHO, which in turn have been sourced from the following: National Ambulatory Care Reporting System; the Ministry of Health and Long-Term Care; IntelliHealth, Discharge Abstract Database; Vital Statistics Mortality; Healthy Babies Healthy Children Integrated Services for Children Information System (HBHC-ISCIS) Reporting Sub-System; the Ministry of Children, Community and Social Services; Statistics Canada; and the Canadian Community Health Survey (CCHS). Age-standardized rates have been adjusted by PHO to the 2011 Canadian population. This information is presented in Section 5 of this Attachment.
 However, it is recognized that public health datasets often do not fully capture people living on First Nations reserves or in small, remote communities, and are constrained by sampling limitations. As a result, some indicators presented in this section may underrepresent true health conditions within the Indigenous communities and should be interpreted with this limitation in mind.

In addition to compiling information from publicly available resources and databases, a Great Bear Project Community Health Survey was administered to collect primary data in order to better understand specifics aspects of community health and wellness, including: community demographics; priority issues of importance; perceptions of health and wellbeing status; and to gather some information related to ways

the land is used in the areas surrounding the Project site. This survey was administered online and designed to collect information from local residents, including residents who identify as Indigenous. It is important to note however that this was not designed as an Indigenous survey and was not administered to collect IK. This information is most relevant to RLEF and is presented in Section 6 of this Attachment.

The spatial boundaries of the Baseline Health Profile are source-specific, as each report and data source has its own geographic extent. Accordingly, the spatial boundaries of the Baseline Health Profile reflects the collective geographic boundaries of the individual data sources rather than a single standardized area. Temporal boundaries for the Baseline Health Profile include existing and historical conditions. The existing and historical conditions for health in the region are characterized in this Attachment to help inform the assessment of potential changes associated with the Project.

Relevant information on health and the upstream social and economic conditions that affect health, were summarized from the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024). Note that for certain health and demographic indicators (such as life expectancy) that rely on data from Statistics Canada, results were categorized by gender (i.e., men+ and women+) where applicable. The category of men+ and women+ includes cisgender and transgender persons, and non-binary persons are denoted by the + symbol. As a result of this change in the 2021 Census, careful consideration was required if comparing results from the 2021 Census to those from earlier censuses (Statistics Canada 2022a).

As applicable, health status information is sufficiently disaggregated and analyzed to support the analysis of potential effects to underrepresented groups and support GBA Plus. In addition, a summary of historical and current conditions related to Indigenous health is provided.

2.1.1 INCORPORATION OF INDIGENOUS KNOWLEDGE

As part of the Project, local Indigenous communities (i.e., LSFN, WFN, ANA, NWOMC, and RLEF), were engaged by Great Bear Resources to participate in the Impact Assessment process and were invited to provide IK and information from Traditional Knowledge and Land Use Study (TKLUS) reports. It is understood that the IK / TKLUS reports received are confidential. While maintaining confidentiality, IK considerations and information have been reviewed and considered throughout the Impact Statement. Each TKLUS report provided by Indigenous communities was systematically reviewed to identify information relevant to the assessment of Indigenous health. This includes land use and community-specific information to inform both the HIA, and the Human Health and Environmental Risk Assessment (HHERA; WSP 2026a). Information relied on in the assessments included identification of areas of cultural importance, traditional land use activities occurring within the LSA and RSA and identifying species of cultural importance and those commonly consumed as part of traditional food diets.

The description of existing conditions and baseline health information in the HIA was informed by the following confidential reports prepared by or for specific Indigenous communities, as applicable:

- What We Heard Report (Extract), prepared for Lac Seul First Nation and Wabauskang First Nation.
- A report titled Northwestern Ontario Métis Community Traditional Knowledge and Land Use Study for the Great Bear Gold Mine.
- A report titled Wabauskang First Nation Traditional Knowledge Mapping Study Using GIS Project 2021-2022, prepared for Wabauskang First Nation.
- A report titled Wabauskang First Nation Traditional Knowledge and Land Use Study, prepared for Wabauskang First Nation.
- A report titled The Centre of The Universe: Stories of Obishikokaang, Lac Seul First Nation Traditional Knowledge & Land Use Study, prepared for Lac Seul First Nation.
- A report titled Response Memo to Impact Statement – Indigenous Knowledge – Typical Requirements from SLR, Lac Seul First Nation Traditional Knowledge Studies, prepared for Lac Seul First Nation.

The information contained in these reports is considered proprietary to the respective Indigenous communities; they are not to be quoted, cited, or referenced directly. Therefore, they are thus broadly identified as confidential reports in this section. Information from confidential reports prepared by or for LSFN, WFN, and NWMOC, informed Section 3 of this Attachment. This section aligns its use of IK shared by Indigenous Nations with established digital data governance principles for Indigenous data sovereignty, such as the OCAP® Principles (Ownership, Control, Access, and Possession) developed by the First Nations Information Governance Centre (FNIGC) (FNIGC 1998).

ANA is currently undertaking a Land Use and Occupancy Study. It is noted that at the time of producing this Attachment, the results of the ANA Land Use and Occupancy Study were not available.

Therefore, it is acknowledged that the information pertaining to ANA in this Attachment was not provided by the community but rather was assumed to be applicable to ANA community members based on publicly available secondary sources, for the purposes of developing the Baseline Health Profile. The secondary sources used to inform baseline health conditions for ANA are as follows:

- Asubpeeschoseewagong Netum Anishinabek. 2024. The Great Bear Gold Mine Project. Grassy Narrows: Grassy Narrows First Nation. Retrieved from https://registrydocumentsprd.blob.core.windows.net/commentsblob/project-85832/comment-61892/2024%2003%2006%20ANA%20Letter%20to%20Kinross,%20MINES,%20IAAC%20Signed%2004870-3547-9979__%204.pdf.
- Chan, L., Receveur, O., Batal, M., David, W., Schwartz, H., Ing, A., Fediuk, K., Black, A., & Tikhonov, C. 2014. First Nations Food, Nutrition and Environment Study (FNFNES): Results from Ontario (2011/2012). Ottawa: University of Ottawa. https://www.fnfnes.ca/docs/FNFNES_Ontario_Regional_Report_ENGLISH_2019-10-16.pdf
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Consultation with ANA regarding the Project began on October 1, 2022, and is ongoing in relation to the various permits related to the Project, including during the exploration phase. The consultation has included emails, letters and virtual meetings. Section 2.5 of the HIA provides more detail on the nature of the comments provided by Indigenous communities, during the development of the Impact Statement. Where applicable and relevant, community feedback from ANA from consultation and engagement activities was used to inform this Baseline Health Profile and is indicated as such.

Similarly, there was no TKLUS report available explicitly for the Indigenous people in RLEF. For the purposes of characterizing baseline health conditions, the health-related information identified from TKLUS report by LSFN, WFN and NWOMC were considered applicable to RLEF.

As such, the interpretations presented for ANA and RLEF should be viewed as informed assumptions, rather than definitive community-specific conclusions.

2.2 RISK OF DIFFERENTIAL EFFECTS

Conventional approaches to demographics, which focus on single factors like gender or socio-economic status is increasingly scrutinized. Attributing “*lived experiences*” to single categories such as age or gender overlooks the complexity of identity factors and the increasing diversity within the Canadian population. In response, intersectional analysis aims to “*examine the consequences of interacting inequalities on people occupying different social locations as well as addresses the way that specific acts and policies address the inequalities experienced by various groups*” (Bishwakarma et al. 2007). This approach “*acknowledges that identities are intertwined with systems of power and privilege, including*

ATTACHMENT A: Baseline Health Profile

racism, colonialism, and discrimination" (Impact Assessment Agency of Canada 2022). This approach also recognizes that certain populations face disproportionate challenges, including health and food insecurity, limited education, precarious low-wage jobs, increased involvement in the criminal justice system, heightened risk of homelessness, and overall social and economic disparities (Ontario Human Rights Commission 2021).

As applicable, health status information in this Attachment was disaggregated by age, gender, and Indigenous identity (i.e., Indigeneity) to support the analysis of potential effects to underrepresented groups and support GBA Plus. Collectively, the information contained within this Baseline Health Profile was therefore used to inform the assessment of Indigenous health within the HIA, including the GBA Plus approach.

3 INDIVIDUAL PROFILES

This section provides a summary of information for each of the local Indigenous communities that is relevant to health, including historical information. As described in Section 2.2, this section incorporates information from confidential reports prepared by or for LSFN, WFN, and NWMOC, as well as information from publicly available sources.

It is acknowledged that the process of summarizing the histories of the identified Indigenous communities required a considerable amount of simplification of many complex historical movements, land use and settlement patterns and social interactions experienced by the Indigenous groups in the region. The community histories that are described below represent only a snapshot of information in part, from publicly available online sources, and therefore may not represent Indigenous people's experiences of the recorded events and may only tell a partial story. An effort was made to prioritize sources by Indigenous authors and organizations. It is acknowledged however, that many publicly available sources may reflect inherent biases, particularly those shaped by colonial narratives or non-Indigenous interpretations. This limitation is recognized, and the content presented in this section and in this Attachment as a whole should be understood within this context.

Colonialism in Canada has operated as an interconnected system of laws, institutions, and policies, including the residential school system, that displaced First Nations, Inuit, and Métis peoples from their lands, suppressed their cultures and governance systems, and undermined self-determination, with lasting impacts on health and wellness (PHAC 2024). Many current health disparities observed in Indigenous populations are a result of colonialism in Canada (PHAC 2024; SLFNHA 2024a). While these harms and forms of oppression share common themes, such as land dispossession, forced assimilation, and intergenerational trauma, they also took distinct forms for each Indigenous group, including but not limited to, treaties and the *Indian Act* for First Nations, forced relocations and epidemics for Inuit, and land scrip and exclusion from treaties for Métis (PHAC 2024).

In a confidential report prepared for LSFN, some members described the impacts of colonialism on their community. For example, community members shared how even the creation of the reserve boundaries had an impact, as the creation of these boundaries restricted their way of life and their culture to exist within artificial or colonial lines. They discuss how these impacts and the impacts of language loss and the residential school system are felt through generations. For ANA, colonial policies have "*led to intergenerational trauma and the loss of language, cultural teachings, and self-sufficiency*" (GNFN ANA 2025). For Métis populations in Canada, "*the root cause of poorer health outcomes suffered by the Métis lies in inter-generational family and individual experiences of trauma caused by colonial policies and adversity in their childhood,*" (Métis National Council 2025). Perspectives on colonization from confidential reports prepared for WFN or community websites was not available. These examples are not intended to fully capture the complex history of colonial impacts on Indigenous people, but instead to highlight some of the distinct ways colonialism has shaped and continues to shape their experiences.

The term Anishinaabe describes a group of First Nations peoples who share cultural and linguistic relations and who are primarily located around the Great Lakes region. This group includes the Ojibwe, Chippewa, Odawa, Potawatomi, Algonquin, Saulteaux, Nipissing, and Mississauga First Nations, collectively referred to as Anishinaabeg, which is the plural form of Anishinaabe. It is noted that some other communities and Métis individuals may also identify with this broader cultural-linguistic group. Although the term Anishinaabe is often used to refer specifically to the Ojibwe, it actually encompasses several other First Nations, and it is important to not to equate the term solely with Ojibwe (Hele 2025).

Several Anishinaabe communities are now present throughout northern Ontario where they settled during their migration, including the communities of ANA, LSFN, and WFN (Grand Council Treaty #3 n.d.; Hele 2025). In addition, historical contexts and individual profiles for the NWOMC and RLEF are also described below. Communities are listed in the order they are presented in the Impact Statement Sections, for consistency. Additional information on existing conditions for each Indigenous community is also provided in the following federal valued component (fVC) sections:

- fVC Indigenous Peoples – Lac Seul First Nation (Impact Statement Section 10)

- fVC Indigenous Peoples – Wabauskang First Nation (Impact Statement Section 11)
 - fVC Indigenous Peoples - Asubpeeschoseewagong Netum Anishinabek (Impact Statement Section 12)
 - fVC Indigenous Peoples – Northwestern Ontario Métis Community (Impact Statement Section 13)
 - fVC Indigenous Peoples - Indigenous people living in the Red Lake and Ear Falls area (Impact Statement Section 14).
-

3.1 LAC SEUL FIRST NATION

3.1.1 HISTORICAL CONTEXT

Anishinaabeg families and communities ancestral to LSFN travelled throughout their traditional territory to harvest subsistence and other resources as they became available. Travel relied on a system of terrestrial trails and water-based travelways; portages were prominent links in this system, providing efficient terrestrial linkages between the region's many waterbodies and watercourses (Taylor-Hollings 2017). The pattern of seasonal harvesting activities also integrated and supported an array of social, economic, ceremonial, spiritual and other cultural activities, as well as the associated passing of Anishinaabe knowledge, beliefs, values and practices between generations.

The addition of European trade goods to Anishinaabe life in this region was initially through exchange with Indigenous groups such as the Cree and Nakota, who, acting as intermediaries, moved these goods inland from trade posts along Hudson's Bay and Lake Winnipeg in exchange for furs. However, direct European trade was established in the 1700s, when the Hudson's Bay Company (HBC), the Northwest Company (NWC) and others established trade posts at locations including Red Lake, Lac Seul and the confluence of the Chukuni and English rivers (Hinshilwood 2023; Taylor-Hollings 2017). Sustained contact with fur traders and other newcomers entering the region exposed the region's Anishinaabeg to a series of epidemics. The associated population loss and social disruption were compounded by depletion of fur and game species in some areas (Taylor-Hollings 2017).

By the late nineteenth century, the Government of Canada wished to establish transportation routes connecting more easterly parts of Ontario to the Red River region; in response, the Anishinaabeg indicated their expectation of compensation for this use of their lands, as well as their interest in a treaty. Negotiations were initiated in 1871 and concluded with the signing of Treaty 3 in 1873, with the subsequent establishment of reserves. Chief Sahkatcheway of the Lac Seul and English River bands was a signatory at this time; further adhesions of Anishinaabeg in the Lac Seul area occurred in 1874 (Filice 2025).

Moving into the early twentieth century, Anishinaabeg in the region saw increasing forestry and tourism, creating additional wage economy activities and roles, but also placing pressure on lands and resources that they traditionally used. External presence in the region was increased in the 1920s, when the discovery of gold at Red Lake prompted a gold rush in 1926, followed by ongoing mining to present (Red Lake Regional Heritage Centre n.d.; Russell 1987).

The establishment of missions, followed by residential schools, also exerted pressure, as did restrictions under the Indian Act on Anishinaabe sacred, spiritual and ceremonial practices. The removal of Anishinaabe children to residential schools created ruptures in Anishinaabe culture, along with attendant social issues, which some Lac Seul families worked to avoid by hiding and raising children on the land (Taylor-Hollings 2017).

LSFN was also affected by the 1929 construction of a dam to produce hydroelectric power at Ear Falls. Associated changes in the water levels of Lac Seul and linked waterbodies flooded reserve lands and traditional use areas, substantially altering LSFN settlements, activities and livelihoods around the lake (Allan 2024; LSFN 2023). LSFN members also highlight that places of heritage importance, including burials, were submerged under the lake's water or eroded out of its changed shorelines (Allan 2024).

Kejick Bay, an LSFN settlement formerly on the lakeshore, became an island separated from land access to the nearby LSFN community of Whitefish Bay. It has since been connected to adjacent road networks via a causeway. A third LSFN community, Frenchman’s Head, is located on Lost Lake to the south (LSFN 2023). Use of Lac Seul as a reservoir with seasonally controlled levels continues to have implications for LSFN traditional use sites and activities today. LSFN only saw the settlement of their compensation claim for the effects of the flooding in 2024 (Allan 2024).

LSFN community members were also subject to the introduction of the trapline registry in the 1940s. Although the government “meat bosses” and “meat men” conferred with Anishinaabeg families to define and assign traplines based on their traditional use areas, they were not always apportioned and assigned accurately, and boundaries were sometimes altered to create free areas for assignment to non-Indigenous trapline holders (Chapeskie 1994). Also, the single person designated as the trapline holder was sometimes able to sell the family trapline even though the associated areas were traditionally communally held, used and stewarded (Chapeskie 1994; Taylor-Hollings 2017).

Similarly, with the recognition of the commercial value of manoomin (wild rice), the province began licensing of manoomin harvesting to non-Anishinaabe individuals from outside the region.

Starting in the 1970s, LSFN members saw these licensees assume control of manoomin lakes previously harvested and reseeded by generations of their families, a situation which separated them from an important food and income source, while also denying their familial connection to manoomin lakes.

This history has served to create the physical and cultural heritage places and practices of LSFN and its members (e.g., formation of archaeological sites, continuation of traditional harvesting practices). At the same time, it has eroded elements of Indigenous physical and cultural heritage (e.g., disruption of intergenerational knowledge transfer due to the *Indian Act*, residential schools and industrial development).

3.1.2 COMMUNITY DATA AND INFORMATION

This section highlights some of the health-relevant data that are available for each of the Indigenous communities. Given the complexity of health and the multitude of upstream factors that influence health and wellness, this summary should be considered a highlight and not a complete account. Rather, this Attachment should be considered collectively with the baseline information provided in the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024) and existing conditions sections of the Indigenous Peoples Sections (Impact Statement Section 10; fVC Indigenous Peoples: LSFN).

Detailed population characteristics for LSFN including demographics (e.g., age, gender, language, ethnicity), labour, education, and income for the Indigenous communities are presented in the Project’s Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024). Information on community resources, including health and social services and programs in LSFN is also included in the Project’s Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024) and is summarized below. Demographic factors, including age, gender, and education, influence community health by shaping health risks, access to care, and overall wellbeing (WHO 2017). A summary is provided in Table 3-1 and in the text below.

Table 3-1: Population Snapshot of Lac Seul First Nation

Characteristic	Details
Reserve Name	Lac Seul No. 28
Approximate Distance from Project	120 km
Census Data (Statistics Canada) ⁽¹⁾	
2021 Census Population	1022
Men+	535
Women +	490
Median Age (on-reserve)	25.6 years
CIRNAC Data ⁽²⁾	
Registered Population	3926
On-reserve	924

ATTACHMENT A: Baseline Health Profile

Off-reserve	3002
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Notes:

1 (Statistics Canada 2023a).

2 (CIRNAC 2025a).

LSFN community resources include the Lac Seul Events Centre, along with social services such as the Sakhatcheway Access Centre for elder and disability assistance, and Ontario Works for financial and employment support. Health care is delivered through clinics in Frenchman's Head, Kejick Bay, and Whitefish Bay, offering visiting physicians, dental and vision services, home-care programs, prenatal care, health education, telemedicine, medical transportation, and addiction support including a Suboxone program. These services are largely overseen by the Lac Seul First Nation Health Department. The community operates three schools (one within each settlement) with cultural and language programming, access to local daycare options, and connections to off-reserve post-secondary institutions. Housing is supported by the Ke-nawind Housing Development Authority, which manages rental units and homeownership programs. Emergency services include volunteer fire crews and the Lac Seul Police Service, and LSFN has access to community-wide internet support as well as several local churches and retreat centres providing spiritual and wellbeing resources (Impact Statement Appendix O-1; WSP 2024).

In addition, LSFN is served by the Sioux Lookout Meno Ya Win Health Centre (SLMHC). SLMHC is a care facility serves the Municipality of Sioux Lookout and 28 First Nation communities, including LSFN, in the Sioux Lookout region (SLMHC n.d.).

As described on the SLMHC website, "*MenoYaWin, in the Anishinaabe language means health, wellness, well-being. It refers to holistic healing and wellness, the whole self being in a state of complete wellness. Our care recognizes the relationship of the physical, emotional, mental and spiritual aspects of the person. We embrace a holistic approach to healthcare. Patients and families have the option of integrating traditional and modern medicines and practices. We recognize and respect the cultural and linguistic significance of the people whose health care is entrusted to us. Here at SLMHC, we provide a broad range of basic and specialized services along the continuum of primary health care. These include diabetes care, stroke prevention, mental health counselling and addiction services, and acute and outpatient programs,*" (SLMHC n.d.).

SLMHC is a hospital and care facility that also offers virtual care and provides health services including:

- Ambulatory Care
- Assault Care and Treatment
- Cancer Care
- Diabetes Care
- Diagnostic Imaging
- Dialysis and Renal Services
- Emergency Department
- Heart and Stroke
- Laboratory
- Mental Health and Addictions Counselling
- Prenatal and Maternity
- Rapid Access Addictions Medicine Clinic (RAAM)
- Rehabilitation
- Specialty Clinic
- Surgical Services
- Telemedicine

- Traditional Program.

Quantitative data for health indicators and community-level health status for LSFN were not available. Health data at the regional level are available from SLFNHA, which includes LSFN. The SLFNHA publishes data on chronic conditions, communicable diseases, mental health, maternal health, cancer, hospitalizations, and food and drinking water access; this information is presented in Section 4.

3.1.3 TRADITIONAL FOODS AND LAND-BASED HEALTH

Access to and consumption of traditional foods by Indigenous people is not only important culturally but is also a health-related behaviour. The paragraphs below describe the pathways through which access to, availability, and consumption of traditional foods, as well as relationship to the land are linked to health and wellness. The information in this section is based on confidential reports prepared for LSFN, as described in Section 2.2.1, unless otherwise indicated.

Hunting and trapping have traditionally been integral to LSFN community and culture, providing them with food, connection to family and acting as a way of connecting them with the lands and waters. Some LSFN community members have noted that hunting patterns have changed, with less hunting happening for some in recent years. Similarly, LSFN has noted the importance of trapping to connecting with and learning from family, and how trapping techniques have evolved over time.

Fishing is a key aspect of LSFN identity and maintaining their way of life while stewarding the natural resources in the territory. Fishing is an important source of food and economic livelihood for LSFN and plays a central role in LSFN's culture, traditions, and relationship to the land. Traditionally, LSFN members participated in commercial fishing operations for income, although LSFN community members have noted how this has changed. Fishing is also associated with cultural teaching across generations, for example, the techniques of processing and cooking the fish, as indicated by one LSFN member.

Overall, access to traditional foods and the ability to participate in land-based activities is a determinant of health for LSFN including its contributions to connection to family and community.

Potential receptors that could be affected by changes in air, water, traditional food quality, and noise and light levels, including the gathering, hunting, trapping and fishing areas used by Indigenous people, as well as permanent and temporary residences of Indigenous people (e.g. cottages and camps) were identified and assessed as part of the Human Health and Environmental Risk Assessment (HHERA; WSP 2026a) and summarized in the HIA. The approximate locations of these receptors and the process of receptor selection, including consideration of IK, is detailed in the HHERA (Impact Statement Appendix N-1; WSP 2026a). Baseline concentrations of parameters in ambient air, drinking water, and tissues of traditional foods (fish, wild game and plants) consumed by Indigenous people are provided in the HHERA (WSP 2026a) and summarized in the HIA.

3.2 WABAUSKANG FIRST NATION

3.2.1 HISTORICAL CONTEXT

Anishinaabeg families and communities ancestral to WFN travelled throughout their traditional territory to harvest food and other resources as they came into season. Travel in WFN's traditional territory was conducted using overland pedestrian routes and water-based travelways that linked the region's abundant lakes and rivers. Portages served an important role as terrestrial linkages between waterbodies and watercourses. Harvesting activities, conducted during travel and at camp and habitation sites, supported subsistence, alongside cultural practices and the transfer of related knowledge between generations. Prior to European contact, Indigenous trade networks exchanged local resources like manoomin (wild rice) for items from outside the region, including high-quality workable stone for tool making, copper and shell from Wisconsin, North Dakota, South Dakota, Wyoming, and the Atlantic coast (Domtar 2021; Miisun Integrated Resource Management Company 2024; Red Lake Forest Management Company 2020).

Regional dynamics shifted as European traders established exchange networks with Indigenous groups such as the Cree and Nakota, who carried European goods from trade posts along Hudson's Bay and Lake Winnipeg into the region to trade for Anishinaabe furs. During the 1700s, direct trade with Europeans was established, as the Hudson's Bay Company (HBC), the Northwest Company (NWC), and others established posts at locations such as Red Lake, Lac Seul, and the confluence of the Chukuni and English rivers (Hinshilwood 2023; Taylor-Hollings 2017). Anishinaabeg of the region increasingly had to manage the growing presence of fur traders, along with the associated pressure on the region's fur and game species (Shkilnyk 1985). There was substantial population loss and social disruption due to the introduction of multiple epidemic diseases (Taylor-Hollings 2017).

During the latter half of the nineteenth century, the Government of Canada began to establish transportation routes linking more easterly parts of Ontario to the Red River region. The region's Anishinaabeg sought compensation for this use of their lands, along with a treaty, which was negotiated between 1871 and 1873, concluding with the signing of Treaty 3 (Filice 2025). Chief Sahkatcheway of the Lac Seul and English River bands was among the signatories, and Anishinaabeg families whom he led were eventually split between reserves Grassy Narrows and Wabauskang Lake (NationTalk 2008; Obaushkong Aki Resource Office 2020; Shkilnyk 1985).

The Wabauskang families continued to pursue land- and water-based activities on a mobile basis over much of the year, travelling to locations including Red Lake, Pakwash Lake, Wabauskang Lake and Cedar Lake to harvest, and visiting trading posts at locations including Grassy Narrows, Oak Lake, Wilcox Lake, Ball Lake and Wegg Lake (Shkilnyk 1985). Some individuals were recorded as also having visited more widely distributed posts, including those at Trout Lake, Fly Lake and Cat Lake (Red Lake Forest Management Company 2020). In summer, people gathered at Wabauskang Lake to participate in ceremonial life, engage in trade, and observe their annual Treaty Day (NationTalk 2008).

In 1918 and 1919, the Wabauskang reserve experienced an epidemic, and its families dispersed. Some relocated to their traditional harvesting areas or moved to Eagle Lake or Lac Seul, while others resettled at the Grassy Narrows reserve or in the community of Quibell along the Canadian National Railway main line (Domtar 2021; Miisun Integrated Resource Management Company 2024; NationTalk 2008; Obaushkong Aki Resource Office 2020; Shkilnyk 1985). In 1925, the Department of Indian Affairs amalgamated the families from Wabauskang Lake with those at Grassy Lake for administrative purposes, but the Wabauskang Lake families retained their distinct identity, resuming the election of their own chief and council in the 1930s.

Moving into the twentieth century, the region saw increasing pressure on its lands and resources from forestry, as well as the establishment of pulp and paper operations in Dryden (Johnston 2014). Multiple gold mines were also established in the vicinity of Kenora during the late 1800s (Shkilnyk 1985). The establishment of missions, followed by residential schools, created social and cultural pressures for Anishinaabe communities, while enforcement of restrictions under the Indian Act also attempted to end traditional Anishinaabe sacred, spiritual and ceremonial practices (Taylor-Hollings 2017).

Traditional Anishinaabe harvesting practices in the region were also impacted by the introduction of the trapline registry in the 1940s. Previously, Anishinaabe families used and stewarded the same areas over multiple generations.

A government system for assigning trapping rights to areas sometimes aligned with traditional use rights and practices, but there were many instances in which traplines were assigned to non-Indigenous owners (Chapeskie 1994; Taylor-Hollings 2017). With increasing recognition of the commercial value of manoomin, the province began licensing manoomin lakes to non-Anishinaabe individuals from outside the region, disrupting traditional Anishinaabe systems for harvesting and maintaining these lakes and their manoomin stands (Chapeskie 1993, 1994).

As of the late 1960s, members of Wabauskang families living in Quibell and at Grassy Narrows started returning to the Wabauskang reserve, with the Department of Indian Affairs providing support in the form of housing construction and repairs (Obaushkong Aki Resource Office 2020). They were partly motivated by environmental deterioration at Grassy Narrows' location downstream of the pulp and paper operations in Dryden (Miisun Integrated Resource Management Company 2024).

As indicated in the confidential Project-specific study provided by WFN, by the 1970s, Wabauskang families resided year-round at their original reserve. It was subsequently determined that mercury dumped by pulp and paper operations into the Wabigoon-English River between 1962 and 1970 contaminated its waters, causing health effects to WFN members resident in Quibell and at Grassy Narrows during this period (Ecojustice 2017; NationTalk 2008; Shkilnyk 1985, Simpson et al. 2009).

This history has served to create the physical and cultural heritage places and practices of WFN and its members (e.g., formation of archaeological sites, continuation of traditional harvesting practices). At the same time, it has eroded elements of Indigenous physical and cultural heritage (e.g., disruption of intergenerational knowledge transfer due to the *Indian Act*, residential schools and industrial development).

3.2.2 COMMUNITY DATA AND INFORMATION

This section highlights some of the health-relevant data that are available for each of the Indigenous communities. Given the complexity of health and the multitude of upstream factors that influence health and wellness, this summary should be considered a highlight and not a complete account. Rather, this Attachment should be considered collectively with the baseline information provided in the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024) and existing conditions sections of the Indigenous Peoples Sections (Impact Statement Section 11; fVC Indigenous Peoples: WFN).

Detailed population characteristics for WFN including demographics (e.g., age, gender, language, ethnicity), labour, education, and income for the Indigenous communities are presented in the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024). Information on community resources, including health and social services and programs in WFN is also included in the Project’s Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024) and is summarized below. Demographic factors, including age, gender, and education, influence community health by shaping health risks, access to care, and overall wellbeing (WHO 2017). A summary is provided in Table 3-2 and in the text below.

Table 3-2: Population Snapshot of Wabauskang First Nation

Characteristic	Details
Reserve Name	Wabauskang Reserve No. 21
Approximate Distance from Project	57 km
Census Data (Statistics Canada) ⁽¹⁾	
2021 Census Population	55
Men+	30
Women +	30
Median Age (on-reserve)	30.0 years
CIRNAC Data ⁽²⁾	
Registered Population	396
On-reserve	142
Off-reserve	251

Notes:
 (Statistics Canada 2023b).
 (CIRNAC 2025b).

The WFN Band Office functions as the governing office for the community and oversees all community programs, services and facilities which include but are not limited to:

- Hospital services available at Dryden Regional Health Centre in Dryden
- Ontario First Nation Policing arrangements through Treaty Three Police Services, Kenora East Region
- Child & Family Services provided by Anishinaabe Abinoojii Family Services
- Offers a Day Care Centre for child care

- Administers education services under Bimose Tribal Council for students attending school outside of the community
- Supports a Public Library for community members
- Operates a Volunteer Fire Department
- Health care and health programs at Wabauskang Health Office (NorthWest Health Line 2024).

A range of community resources including health and social services is available for WFN members, including a community hall and annual gatherings, a licensed daycare, a youth centre with Indigenous-focused library resources, and Ontario Works services for employment and financial support. Health services are provided through the Wabauskang Health Office, which coordinates visiting clinicians, runs wellness, mental health, diabetes, prenatal, home-care, and medical transportation programs, and supports individuals through advocacy and referrals. Education supports include off-reserve school arrangements through the Wabauskang First Nation Education Authority which receives support from the BTC Education Authority and on-reserve education is available for individuals 14 years or older through the Seven Generations Education Institute. The community also maintains local housing and fire services, receives policing from Treaty Three Police, and is part of an on-going initiative supporting regional high-speed internet upgrades. Several churches and wellness programs contribute additional spiritual and well-being support (Impact Statement Appendix O-1; WSP 2024).

Quantitative data for health indicators or describing community-level health status for WFN were not readily available. Health data at the regional level are available from SLFNHA, which includes WFN. The SLFNHA publishes data on chronic conditions, communicable diseases, mental health, maternal health, cancer, hospitalizations, and food and drinking water access; this information is presented in Section 4.

3.2.3 *TRADITIONAL FOODS AND LAND-BASED HEALTH*

Access to and consumption of traditional foods by Indigenous people is not only important culturally but is also a health-related behaviour. Community-specific information and perspectives for WFN regarding the pathways in which access to, and availability of, traditional foods functions as a health-related behavior are limited. However, this section uses information from a confidential report prepared for WFN, supplemented with secondary literature sources to help contextualize potential pathways of influence on health.

A confidential report prepared for WFN describes that for WFN members, the ability to engage in land-based practices, such as hunting, fishing, and plant harvesting, is linked to their ability to maintain land-based knowledge, food practices, and seasonal routines. Harvesting is central to WFN's food, medicine, and ceremonial systems.

Although not often considered health endpoints in western science per se, these cultural determinants are closely tied to Indigenous health (Earle 2011; NCCIH 2016). Overall, access to traditional foods and the ability to participate in land-based activities is a determinant of health for WFN including through its contributions to cultural continuity.

Potential receptors that could be affected by changes in air, water, traditional food quality, and noise and light levels, including the gathering, hunting, trapping and fishing areas used by Indigenous people, as well as permanent and temporary residences of Indigenous people (e.g. cottages and camps) were identified and assessed as part of the HHERA (Impact Statement Appendix N-1; WSP 2026a) and summarized in the HIA.

The approximate locations of these receptors and the process of receptor selection, including consideration of IK, is detailed in the HHERA (Impact Statement Appendix N-1; WSP 2026a). Baseline concentrations of parameters in ambient air, drinking water, and tissues of traditional foods (fish, wild game and plants) consumed by Indigenous people is provided in the HHERA (Impact Statement Appendix N-1; WSP 2026a) and summarized in the HIA.

3.3 ASUBPEESCHOSEEWAGONG NETUM ANISHINABEK

3.3.1 HISTORICAL CONTEXT

For countless generations, the families and communities that gave rise to ANA followed a mobile lifeway, accessing key resources, including large and small game, fish and plants, as they came into season (Free Grassy Narrows n.d.). The fall harvest of wild rice, or manoomin, provided a food source that could be stored over the winter and beyond. Travel relied on land-based trails and water-based travelways, and portages were key terrestrial linkages between water-based travel on lakes and rivers. The pattern of seasonal harvesting activities also integrated and supported an array of social, economic, ceremonial, spiritual and other cultural activities, as well as the associated passing of Anishinaabe knowledge, beliefs, values and practices between generations. Indigenous trade between Anishinaabeg, as well as with neighbouring Indigenous groups, built and maintained regional relationships (Simpson et al. 2009).

Prior to the eighteenth century, European trade goods entered the region from Hudson's Bay Company (HBC) posts on Lake Winnipeg and the coast of Hudson's Bay via intermediaries like the Cree and Nakota. Direct trade was established when the HBC, the Northwest Company (NWC) and other fur trade enterprises established posts in the region, including at Red Lake, Lac Seul and the confluence of the Chukuni and English rivers (Hinshilwood 2023; Taylor-Hollings 2017). The region's Anishinaabe families and communities supplied these posts by focusing their winter and spring activities to varying degrees on trapping, managing attendant changes including nineteenth century overexploitation of the region's fur and game species, and the twentieth century decline in fur prices (Shkilnyk 1985). These pressures were compounded by substantial population loss and social disruption associated with the introduction of multiple epidemic diseases (Taylor-Hollings 2017).

In the late nineteenth century, the Government of Canada began efforts to establish regularized transportation routes across this region to the Red River colony. The region's Anishinaabeg sought compensation for this use of their lands, signing Treaty #3 in 1873 (Filice 2025).

Chief Sahkatcheway of the Lac Seul and English River bands was among the signatories (Filice 2025). The Anishinaabe families whom he led were eventually split between reserves at Grassy Narrows and Wabauskang Lake (NationTalk 2008; Shkilnyk 1985; Vecsey 1987).

The Anishinaabeg of the Grassy Narrows reserve continued a land- and water-oriented lifeway that included trapping and trading furs at HBC posts at Oak Lake, Wilcox Lake and Ball Lake, until, in 1911, the HBC established a post at Grassy Narrows (Shkilnyk 1985; Vecsey 1987).

Non-Indigenous settlers continued to arrive, facilitated by completion of the Canadian Pacific Railway, along with its station at Kenora, in the late 1800s, and the more northerly Canadian National Railway, with stops in Quibell and McIntosh, in the early 1900s (Anderson 2020; NationTalk 2008; Shkilnyk 1985). Logging and mining in the region continued to expand, and the first pulp mill was operating in Dryden by 1913 (Johnston 2014; Shkilnyk 1985).

With the establishment of nearby residential schools in the early 1900s, many children from Grassy Narrows were taken to schools in McIntosh or Kenora (Shkilnyk 1985). Separation from their families created deep cultural ruptures. Anishinaabe cultural continuity was also challenged by the Indian Act, which banned traditional ceremonial gatherings and activities (Taylor-Hollings 2017). Construction of the first hydroelectric generating station on the

English-Wabigoon River system in 1929, along with further hydroelectric development in the 1950s, dammed and flooded areas traditionally used for wild rice harvesting and trapping (Brophy 2005; Free Grassy Narrows n.d.; Vecsey 1987).

After World War II, families at Grassy Narrows continued to pursue a land- and water-oriented economy along with employment at recreational fishing lodges and in commercial fisheries along the English-Wabigoon River system (Vecsey 1987). However, establishment of a provincial government trapline registry, along with licensing of non-Indigenous commercial wild rice harvesting, disrupted Anishinaabe

use and stewardship of traditional use areas (Chapeskie 1994; Shkilnyk 1985; Taylor-Hollings 2017; Vecsey 1987).

In the early 1960s, the federal government relocated the people on the Grassy Narrows reserve to a site with road access that would facilitate the delivery of health, education and other services (Free Grassy Narrows n.d.; Shkilnyk 1985; Vecsey 1987). However, this move moved families away from traditionally used trapline areas, as well as valued wild rice lakes, garden plots, and commercial fishing locations (Free Grassy Narrows n.d.; Vecsey 1987).

These issues were compounded in 1970 when residents of Grassy Narrows learned that, from 1962 to 1970, untreated mercury from the Dryden Chemicals Ltd. plant had been dumped into the English-Wabigoon River system upstream from Grassy Narrows (Free Grassy Narrows n.d.; Shkilnyk 1985; Vecsey 1987). Commercial and recreational fishing were impacted, though, due to the importance of fish in Anishinaabe diet, some individuals continued to fish for subsistence, and many community members suffered from the effects of mercury poisoning. As well as loss of fishing-related employment (Free Grassy Narrows n.d.; Shkilnyk 1985; Vecsey 1987).

This history underpins the physical and cultural heritage places and practices of Indigenous communities in the region (e.g., formation of archaeological sites, continuation of deeply rooted traditional harvesting practices). At the same time, it has eroded both the tangible and intangible elements of Indigenous physical and cultural heritage (e.g., flooding of wild rice lakes by hydroelectric facilities, disruption of intergenerational knowledge transfer by residential schools).

Historical industrial activity in the region may have influenced existing (baseline conditions) in the region, particularly for ANA. For further details, please refer to the HHERA (Impact Statement Appendix N-1; WSP 2026a) and Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies (Impact Statement Appendix T; WSP 2026b).

3.3.2 COMMUNITY DATA AND INFORMATION

This section highlights some of the health-relevant data that are available for each of the Indigenous communities. Given the complexity of health and the multitude of upstream factors that influence health and wellness, this summary should be considered a highlight and not a complete account. Rather, this Attachment should be considered collectively with the baseline information provided in the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024) and existing conditions sections of the Indigenous Peoples Sections (Impact Statement Section 12; fVC Indigenous Peoples: ANA).

Detailed population characteristics for ANA including demographics (e.g., age, gender, language, ethnicity), labour, education, and income for the Indigenous communities are presented in the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024). Information on community resources, including health and social services and programs in ANA is also included in the Project's Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024) and is also summarized below. Demographic factors, including age, gender, and education, influence community health by shaping health risks, access to care, and overall wellbeing (WHO 2017). A summary is provided in Table 3-3 and in the text below.

Table 3-3: Population Snapshot of Asubpeeschoseewagong Netum Anishinabek

Characteristic	Details
Reserve Name	English River No. 21
Approximate Distance from Project	80 km
Census Data (Statistics Canada) ⁽¹⁾	
2021 Census Population	585
Men+	295
Women +	285
Median Age (on-reserve)	27.6 years

ATTACHMENT A: Baseline Health Profile

Characteristic	Details
CIRNAC Data ⁽²⁾	
Registered Population	1627
On-reserve	967
Off-reserve	660

Notes:

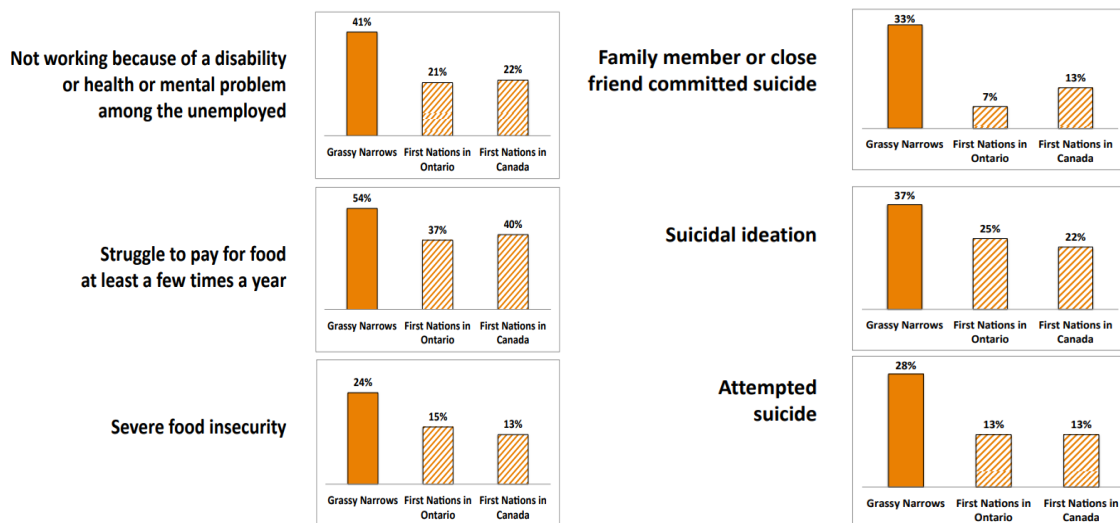
(Statistics Canada 2023c).

(CIRNAC 2025c).

A range of community services and resources, including health and social services, are available for ANA. Health services are delivered through the community medical centre, which coordinates visiting clinicians, runs health education workshops, provides chronic disease, communicable disease, and prenatal care, offers home visits, and supports addiction services through the National Native Alcohol and Drug Abuse Program. The community also relies on hospital care in Kenora and is in the process of developing a specialized Mercury Care Home for long-term treatment related to mercury poisoning. Social services include family support and child welfare programs through Kitapinoonjiiminaanik Family Services, the Migizi Wazason Child Care Centre which provide early childhood programs grounded in Indigenous culture, as well as an Ontario Works building that operates out of ANA for financial and employment assistance. In terms of education, ANA has one school, Sakatcheway Anishinabe School, which hosts students in kindergarten to grade 12. ANA also has a housing department that manages maintenance and repairs, volunteer fire services, policing through Treaty Three Police and other regional forces, high-speed internet access via Starlink, and local churches that provide spiritual and wellbeing support (Impact Statement Appendix O-1; WSP 2024).

A community-based health assessment was conducted with ANA between 2015 and 2018 using a community-driven survey with a questionnaire adapted from the First Nations Regional Health Survey, including new questions (Mergler et al. 2019). Results of the survey provide insight into the health status of ANA community members. The participation rate of the survey was 78% with 424 adults and 353 children (Mergler et al. 2019). Based on the results of the community-based health assessment, ANA had “poorer physical and mental health, and more socio-economic difficulties compared to other First Nation communities in Ontario and in Canada” (Mergler et al. 2019). In addition, 52% of children less than 12 years of age with ANA reported having a mental health status as very good or excellent, compared to 65% of First Nations in Canada (Mergler et al. 2019). A snapshot of some of the findings from this survey are presented in Figure 3-1.

Figure 3-1: Comparison of Grassy Narrows (ANA) Health Indicators with Other First Nation Communities



(Figure Source: Mergler et al., 2019).

Results of multiple regression models indicated that “fish consumption, particularly during childhood, significantly contributes to poor health and well-being of individuals and the community” of ANA (Mergler

et al. 2019). Finally, recent studies have shown that prolonged historical mercury exposure in the ANA community was associated with a higher prevalence of symptoms of nervous system dysfunction (Philibert et al. 2022), and premature mortality (Mergler et al. 2025; Philibert et al. 2020).

Prior to the mercury incident in the 1970s, ANA primarily consisted of a cash economy predominantly based on commercial fishing, sports fishing, and trapping (Mergler et al. 2025). In the 1970s, the traditional fishing practices of the ANA were disrupted, as the levels of mercury contamination in the local rivers and lakes “forced the community to stop commercial and tourist fishing”, one of the last avenues for sustaining the community’s traditional economic practices (Ilyniak 2014). The people of ANA began experiencing health, economic, and social effects resulting from “the loss of [...] income, culture, traditions, and a highly nutritious food source” (Mergler et al. 2025).

Results of a 2018 community-based assessment conducted by Mergler et al. (2019) in ANA revealed that childhood fish consumption was associated with symptoms such as motor difficulties, loss of memory, anxiety, depression. For persons aged 18 to 49 years, childhood fish consumption was also associated with income less than \$20,000 per year, struggling to pay for food, and having done fairly or poorly in school (Mergler et al. 2019). It is noted that this assessment considered different contextual variables in their regression analysis, including age, sex, chronic health conditions (including obesity), smoking, nutrition, and whether the participant had a parent in residential school (Mergler et al. 2019). In addition, results of the assessment revealed that 54% of ANA respondents reported that they struggle to pay for food at least a few times a year, compared to 37% of First Nations in Ontario and 40% of First Nations in Canada (Mergler et al. 2019).

Historical industrial activity in the region has influenced existing (baseline conditions) in the region, particularly for ANA. For further details, please refer to the HHERA (Impact Statement Appendix N-1; WSP 2026a) and Mercury Bioaccumulation Study for Downstream English River to Wabigoon System Waterbodies (Impact Statement Appendix T; WSP 2026b).

3.3.3 TRADITIONAL FOODS AND LAND-BASED HEALTH

Access to and consumption of traditional foods by Indigenous people is not only important culturally but is also a health-related behaviour. The sections below describe the pathways through which access to, availability, and consumption of traditional foods, as well as relationship to the land are linked to health and wellness. The information in this section is based on publicly available sources for ANA, as well as information collected from consultation and engagement activities with ANA as described in Section 2.3 of the HIA.

For ANA, land-based practices are central to their health as they have indicated: “*This is an area where our ancestors have practiced, and we currently practice our Anishinaabe way of life; a way of life that relies on a healthy environment and is central to our identity, health, wellness, and livelihood*” (ANA 2024).

An organization called Grassy Narrows Mental Health Services states that: “*The health of the land is deeply connected to the health of the people. In Grassy Narrows, this connection is particularly profound. For generations, our community has relied on the forests, rivers, and wildlife of our traditional territory not only for sustenance but for spiritual and cultural well-being,*” (Grassy Narrows Mental Health Services 2026).

As described in Impact Statement Section 12 (fVC Indigenous Peoples: ANA) during consultation and engagement activities with ANA, it was indicated that ANA understands their relationship with the landscape as holistic, rather than restricted to a finite set of sites and areas. Culturally and spiritually important areas were identified as a concern, noting that if these spiritual landscapes are not intact, spiritual sites may become desecrated and lose their function for ANA community members. ANA points to this in direct relation to community well-being and cohesion, as inability to fulfill cultural and spiritual purposes on the landscape translates to disruptions of health (including mental health issues, conflicts, and reduced ability to hunt and harvest traditional foods).

Overall, access and availability of traditional foods and the ability to participate in land-based activities is a determinant of health for ANA, including its relationship to community well-being and cohesion.

Potential receptors that could be affected by changes in air, water, traditional food quality, and noise and light levels, including the gathering, hunting, trapping and fishing areas used by Indigenous people, as well as permanent and temporary residences of Indigenous people (e.g. cottages and camps) were identified and assessed as part of the HHERA (Impact Statement Appendix N-1; WSP 2026a) and summarized in the HIA.

However, it is noted that at the time of producing this report, results from the ANA Land Use and Occupancy Study were not available.

Baseline contaminant concentrations in ambient air, drinking water, and tissues of traditional foods (fish, wild game and plants) consumed by Indigenous people is provided in the HHERA (Impact Statement Appendix N-1; WSP 2026a) and summarized in the HIA.

3.4 NORTHWESTERN ONTARIO MÉTIS COMMUNITY

3.4.1 HISTORICAL CONTEXT

The emergence of Métis identity is rooted in the expansion of the fur trade across Canada. As individuals of European descent established trade posts and relationships, they also established partnerships and families with women of Indigenous descent. These families became crucial to fur trade activities, using their geographic and linguistic knowledge, as well as their cultural fluency, to facilitate relations between Indigenous and non-Indigenous participants in the fur trade and to support the trading companies as interpreters, provisioners, guides and post staff (MNO and Ontario 2017; Praxis 2002; Reimer and Chartrand 1999; Van Kirk 1980).

Research based on fur trade records, early census data and historic accounts indicate that, in the RSA, Métis individuals and families played a prominent role starting in the eighteenth century, when the North West Company (NWC) and other fur traders based out of Quebec expanded westward from Lake Superior, while the competing Hudson's Bay Company (HBC) extended its reach from posts along Hudson's Bay (Praxis 2002; Reimer and Chartrand 1999). Records are more substantial following the amalgamation of the NWC with the HBC in 1821, particularly for posts around Rainy Lake, Rainy River and Lake of the Woods; limited information is also available for posts in the area of Kenora and Dryden (MNO and Ontario 2017; Praxis 2002; Reimer and Chartrand 1999).

Historic documents chronicling the negotiation of Treaty 3 between 1871 and 1873 emphasize the importance of Métis as interpreters and facilitators (Praxis 2002; Reimer and Chartrand 1999). Negotiations began when the region's Anishinaabeg residents observed the efforts of the federal government to develop transportation routes through the region to the Red River colony, and Indigenous communities sought compensation and a formal agreement with the Government of Canada. The treaty involved multiple rounds of negotiation, and the Métis who assisted were given considerable credit for its conclusion (Filice 2025).

Nicolas Chatelain, a respected Métis resident of the region and trade post manager, was one of these intermediaries, serving as a federal government interpreter during the negotiation of Treaty 3 (Barkwell n.d.; Praxis 2002; Reimer and Chartrand 1999). He also signed an 1875 adhesion to Treaty 3 on behalf of a group of Métis families living among the Anishinaabeg of the Rainy Lake area (Barkwell n.d.; MNO 2020). The adhesion of Métis to a treaty was unusual, as federal government policy was to create treaties with Indigenous Nations and to offer land in the form of scrip to Métis (MNO 2020). In this instance, Chief Mawedopenais of Fort Frances advocated during the Treaty 3 negotiations for the indication that, in addition to the Métis families at the Couchiching reserve, Métis people resided in McIrvine, a community also near Fort Frances (Praxis 2002), as well as in and around Kenora (Reimer and Chartrand 1999). Moving into the twentieth century, information on the economic pursuits of Métis in the region suggests involvement with the development of mining, forestry, fishing and tourism industries. Oral history from descendant communities confirms this pattern, noting an ongoing relationship with occupations linked to the area's natural resources (Praxis 2002; Reimer and Chartrand 1999). A confidential Project-specific report on NWOMC traditional land use highlights that, during this timeframe, Métis individuals and families

engaged in harvesting activity were not recognized as Indigenous, excluding them from measures like exemptions from licensing for Indigenous fishers; moving into the twentieth century, it resulted in Métis trappers being categorized as non-Indigenous and not qualifying for current Ontario government policies that favour allocation of traplines to Indigenous owners.

This history underpins the physical and cultural heritage places and practices of the region’s Métis people (e.g., creation of fur trade archaeological sites, continuation of traditional harvesting practices). At the same time, it has eroded both the tangible and intangible elements of Indigenous physical and cultural heritage (e.g., disruption of intergenerational knowledge transfer due to industrial development and challenges to Métis harvesting rights).

3.4.2 COMMUNITY DATA AND INFORMATION

This section highlights some of the health-relevant data that are available for each of the Indigenous communities. Given the complexity of health and the multitude of upstream factors that influence health and wellness, this summary should be considered a highlight and not a complete account. Rather, this Attachment should be considered collectively with the baseline information provided in the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024) and existing conditions sections of the Indigenous Peoples Sections (Impact Statement Section 13; fVC Indigenous Peoples: NWOMC).

Detailed population characteristics for NWOMC including demographics (e.g., age, gender, language, ethnicity), labour, education, and income for the Indigenous communities are presented in the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024). Information on community resources, including health and social services and programs in NWOMC is also included in the Project’s Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024) and is summarized below. Demographic factors, including age, gender, and education, influence community health by shaping health risks, access to care, and overall well-being (WHO 2017). A summary is provided in Table 3-4 and the text below.

Table 3-4: Population Snapshot of NWOMC in Kenora District, Red Lake, and Ear Falls

Age Characteristic	Total	Men+	Women+
Census Data (Statistics Canada) ⁽¹⁾			
Kenora District (Métis identity)			
Total Population	4,075	2,060	2,015
Median Age	37.6	37.6	37.6
Red Lake (Métis identity)			
Total Population	350	170	175
Median Age	31.4	27.8	32.8
Ear Falls (Métis identity)			
Total Population	90	45	40
Median Age	54	53.6	54

Notes:

1 (Statistics Canada 2023d, 2023e, 2023f).

NWOMC members have access to a range of culturally grounded programs through services and programs associated with the MNO, including an Extra-Curricular Reimbursement Program that supports children’s participation in camps, sports, and community activities, as well as early learning science, technology, engineering and math (STEM) and arts programs and courses. Social services include supports for elderly or chronically ill individuals (e.g., Community Support Services Program, Meals on Wheels), MNO Justice Program (assists MNO citizens with alternatives to the justice system and legal information), family wellbeing programs, diversion programs, anti-human trafficking initiatives, and community development supports. Health services provide mental health and addictions counselling for all ages, as well as prenatal and early childhood wellness programs, in addition to those available in the municipalities in which they live. Educational services include advocacy within schools, post-secondary programs, early learning initiatives, and employment and training programs tailored to Métis learners and job-seekers (e.g., Summer Career Placement Program, Métis Employability Program, Métis Wage Subsidy Program, Métis Youth Program, Métis Apprenticeship Program). Housing services are available

through the Métis Nation of Ontario's Housing and Infrastructure Branch and help with stabilization, emergency repairs, homebuyer support, and financial literacy. Additional services for NWOMC members include access to municipal emergency services, community technology assistance, and holistic healing and wellness programming delivered through the MNO's Healing and Wellness branch (Impact Statement Appendix O-1; WSP 2024).

3.4.3 TRADITIONAL FOODS AND LAND-BASED HEALTH

Access to and consumption of traditional foods by Indigenous people is not only important culturally but is also a health-related behaviour. The paragraphs below describe the pathways through which access to, availability, and consumption of traditional foods, as well as relationship to the land are linked to health and wellness.

A confidential report prepared for the NWOMC indicates that the relationship between the health of their community and their traditional territories is a symbiotic one, and that one cannot be healthy without the other being healthy. For NWOMC members, the ability to engage in land-based practices, such as hunting, fishing, and plant harvesting, is linked to their ability to maintain land-based knowledge, their sense of place, governance, and their ability to manage their traditional territories.

Although not often considered health endpoints in western science per se, these cultural determinants, such as relationship to animals, land and waters are closely tied to Indigenous health (Earle 2011; Métis National Council 2025; NCCIH 2016). Overall, access to traditional foods and the ability to participate in land-based activities is a determinant of health for the NWOMC through its contributions to cultural continuity.

Potential receptors that could be affected by changes in air, water, traditional food quality, and noise and light levels, including the gathering, hunting, trapping and fishing areas used by Indigenous people, as well as permanent and temporary residences of Indigenous people (e.g. cottages and camps) were identified and assessed as part of the HHERA (Impact Statement Appendix N-1; WSP 2026a) and summarized in the HIA.

The approximate locations of these receptors and the process of receptor selection, including consideration of IK, is detailed in the HHERA (Impact Statement Appendix N-1; WSP 2026a). Baseline concentrations of parameters in ambient air, drinking water, and tissues of traditional foods (fish, wild game and plants) consumed by Indigenous people is provided in the HHERA (Impact Statement Appendix N-1; WSP 2026a) and summarized in the HIA.

3.5 INDIGENOUS PEOPLES OF RED LAKE AND EAR FALLS

3.5.1 HISTORICAL CONTEXT

Historic use of the land for industrial and commercial purposes includes the regional increase in forestry and tourism that created additional commercial and wage economic roles for Indigenous Peoples living in the Red Lake and Ear Falls area. However, LSFN, WFN, and ANA have identified that these activities put increased pressure on lands and resources that it required, shifting subsistence activities for Indigenous Peoples.

Historic use of the Treaty 3 territory by Anishinaabeg and by the historic Métis community (defined based on the group of Métis families identified in the Métis adhesion in 1875) navigated a large system of terrestrial and water-based trails and travelways. For both Anishinaabeg and the historic Métis community, portages were important travel links across terrestrial landscapes, waterways, and waterbodies (Taylor-Hollings 2017). Seasonal rounds of harvesting were integrated into cultural, social, and spiritual practices that were shared on the land and water intergenerationally.

Exchanges between Europeans and Anishinaabeg in the region moved goods across Treaty 3 territories through trading posts that ran between Hudson's Bay and Lake Winnipeg. These trading posts and sites

maintain cultural heritage value for Indigenous Peoples living in the Red Lake and Ear Falls area, as they mark cultural, social, and political histories on the landscape. The historic Métis community in the region became crucial to the success of fur trading activities, due to their geography and linguistic knowledges, and ability to facilitate between Indigenous and non-Indigenous fur traders. Métis worked as interpreters, provisioners, guides, and staff from the 18th century onward (The Métis Nation of Ontario 2024).

Direct trade with the Hudson's Bay Company was established in the 1700s, with more substantial records of trading posts established at locations in the region by 1821. These include at Rainy Lake, Rainy River, and Lake of the Woods (The Métis Nation of Ontario 2024). While limited information is available for the area of Kenora and Dryden, trading posts have been identified in the RSA at Red Lake, Lac Seul, and the confluence of the Chukuni and English rivers (Hinshilwood 2023; Taylor-Hollings 2017). The Anishinaabeg of the Grassy Narrows reserve continued a land- and water-oriented lifeway that included trapping in winter and spring, and trading at HBC posts at Oak Lake, Wilcox Lake and Ball Lake, until, in 1911, the HBC established a post at Grassy Narrows (Shkilnyk 1985; Vecsey 1987).

The construction of a hydro-electric dam in 1929 at Ear Falls changed the water levels of Lac Seul as well as other waterbodies in the region, flooding reserve lands and altering Anishinaabe settlements, activities, and livelihoods. LSFN identified that places of cultural heritage importance, such as burials, were submerged with these floods, or eroded as shorelines changed. In the early 1960s, the federal government relocated the people on the Grassy Narrows reserve to a site with road access that would facilitate the delivery of health, education and other services (Free Grassy Narrows n.d.; Shkilnyk 1985; Vecsey 1987).

However, this move placed families further from their traditionally used trapline areas, as well as valued wild rice lakes, established garden plots, and commercial fishing locations (Free Grassy Narrows n.d.; Vecsey 1987). These continue to have seasonal implications for Indigenous Peoples living in the Red Lake and Ear Falls area on their traditional use sites.

Commercial interest in traditional harvesting practices, including trapping and wild ricing, shifted the harvesting areas available for Indigenous Peoples living in the Red Lake and Ear Falls area. LSFN has identified that the introduction of the trapline registry in the 1930s and 1940s assigned traplines based on Anishinaabe traditional use areas, though these were not always assigned in ways that reflected historic use of traplines. LSFN has identified that while they traditionally had a seasonal approach to land use and harvesting, the trapline regulations restricted this while providing non-Indigenous trappers some of the traditional Indigenous traplines in the region.

Similarly, LSFN and WFN noted that licensing of wild rice (manoomin) harvesting in the 1970s onward meant that non-Indigenous individuals from outside the RSA and region controlled the wild rice waterbodies and waterways that had been previously harvested by Indigenous Peoples. With these commercial and industrial changes, traditional use sites shifted in their availability and use, while separating Indigenous families from important food and income sources.

Issues relating to traditional economy and foodways were compounded for ANA and WFN during the 1970s upon learning that untreated mercury from the Dryden Chemicals Ltd. Plant had been dumped into the English-Wabigoon River System, upstream from the historic Grassy Narrows reserve (Free Grassy Narrows n.d.; Shkilnyk 1985; Vecsey 1987). Commercial fishing in the system was immediately banned, and recreational fishing at fishing lodges was also impacted, though, due to the importance of fish in Anishinaabe diet, some individuals continued to harvest and eat fish from contaminated waters (Shkilnyk 1985; Vecsey 1987).

The effects to commercial and recreational fishing changed a largely employed community to a largely unemployed one, and 90% of Grassy Narrows residents have since been found to suffer from ongoing mercury poisoning (Brophy 2005; CBC News 2021; Free Grassy Narrows n.d.; Shkilnyk 1985; Vecsey 1987).

The historic use of these sites, areas, and landscapes creates the physical and cultural heritage places and practices of importance to Indigenous Peoples living in the Red Lake and Ear Falls area. This includes the formation of archaeological sites, continuation of traditional harvesting practices, or living memory of important hunting, trapping, gathering, fishing, or other resource harvesting areas as places of cultural teaching. At the same time, these industrial and commercial changes to the land have eroded

elements of Indigenous physical and cultural heritage in the region, such as the disruption of Indigenous intergenerational knowledge transfer through the Indian Act, residential schools, and industrial development on traditional lands and waters in Treaty 3 territory.

3.5.2 COMMUNITY DATA AND INFORMATION

This section highlights some of the health-relevant data that are available for each of the Indigenous communities. Given the complexity of health and the multitude of upstream factors that influence health and wellness, this summary should be considered a highlight and not a complete account. Rather, this Attachment should be considered collectively with the baseline information provided in the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024) and existing conditions sections of the Indigenous Peoples Sections (Impact Statement Section 14; fVC Indigenous Peoples: RLEF).

Of the Indigenous communities in the RSA, LSFN has the highest off-reserve population in the region including Red Lake and Ear Falls, totalling 3,002 members living off-reserve, followed by ANA with 660 members living off-reserve, and 251 WFN members residing off-reserve (CIRNAC 2025a, 2025b, 2025c). Although, CIRNAC data does not specify the distribution of where off-reserve members reside. There is a population of 440 Métis in Red Lake and Ear Falls (Impact Statement Appendix O-1; WSP 2024).

Detailed population characteristics for Red Lake and Ear Falls including demographics (e.g., age, gender, language, ethnicity), labour, education, and income for the Indigenous communities are presented in the Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024). Information on community resources, including health and social services and programs in Red Lake and Ear Falls is also included in the Project’s Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024) and is summarized below. Demographic factors, including age, gender, and education, influence community health by shaping health risks, access to care, and overall well-being (WHO 2017). A summary is provided in Table 3-5 and in the text below.

Table 3-5: Population Snapshot of Indigenous people in Red Lake and Ear Falls, 2021 ⁽¹⁾

Age Characteristic	Total	Men+	Women+
Red Lake (Indigenous identity)			
Total Population	950	470	480
Median Age	27.8	22.6	29.8
Ear Falls (Indigenous identity)			
Total Population	190	100	95
Median Age	45.6	46.8	44

Notes:

1 (Statistics Canada 2023d, 2023f).

Municipality of Red Lake

There are six health clinics, hospitals and medical centres in Red Lake. According to the Socio-economic Baseline Study, in 2024, the Municipality of Red Lake identified a physician and nursing shortage in the community, with personnel gaps currently being filled with agency nurses and locums. The closest mental health facility is in the City of Kenora. Within Red Lake, health care is largely centered around the Red Lake Margaret Cochenour Memorial Hospital, supported by other clinics and services such as Goldcorp Red Lake Regional Medical Centre, the Northwestern Health Unit, Northwood Lodge long-term care, and children’s therapy services. Social services include childcare centres, Indigenous family programs, elder supports, mental health and addiction services, child welfare agencies, shelters and homelessness supports (e.g., New Starts for Women, Red Lake Emergency Shelter). However, the community faces gaps in local addictions treatment, mental health counselling capacity, and crisis stabilization services. Education includes multiple kindergarten to grade 12 schools, adult learning programs, Indigenous alternative schooling, and a Confederation College campus. Housing options include rentals and shelters, though affordability and availability remain significant challenges. Emergency services include volunteer fire services, OPP, paramedic services, and mine rescue operations. In terms of recreation opportunities, Red Lake community members have access to a large recreation centre, skating rinks, trails, beaches, parks, and numerous clubs for arts, sports, and cultural activities. The Red Lake Regional Heritage

Centre and the Red Lake Indian Friendship Centre provide cultural, educational, and community programming (Impact Statement Appendix O-1; WSP 2024).

Township of Ear Falls

Local health services in the Township of Ear Falls include the Ear Falls Community Health Centre with a physician and nurses, a dental clinic, pharmacy, and Northwestern Health Unit office. Residents rely on Red Lake for hospital and emergency inpatient care, and the regional women’s shelter serves both communities. Social services in Ear Falls are limited, with many residents accessing services provided in Red Lake. The township offers a local daycare run by Kenora District Services Board (KDSB) and has a social service organization called the Ear Falls Non-Profit Housing Corporation. Most child, youth, and family programs are delivered regionally rather than locally. Education consists of one elementary school, with secondary students travelling to Red Lake. Housing includes apartments, temporary accommodations, and seasonal campgrounds, although there is no long-term care facility and affordability remains a concern. Ear Falls community members have access to a recreation centre, gym, arena, parks, playgrounds, trails, golf course, community gardens, waterfront access, and various clubs and volunteer groups. The Whispering Pines Seniors Centre supports local older adults with recreational and educational programs. Emergency services include a volunteer fire department, local OPP office, and a municipal emergency plan supported by CodeRED alerts, which provides emergency notification by text (Impact Statement Appendix O-1; WSP 2024).

To help inform the Project, a community feedback survey was conducted from May 13 to June 19, 2024, focusing on residents of Red Lake, Ear Falls, and surrounding areas. In total, 186 responses were received, with 12.5% (23 out of 184) of participants self-identifying as Indigenous. The results of the survey are presented in Section 6.

In addition, a 2020 Community Safety and Well-Being (CSWB) Plan for the Municipality of Red Lake and the Township of Ear Falls was developed by MNP LLP (2020). Engagement from local governments, service providers, community organizations, and residents was conducted to capture the community’s safety and wellness needs. Through interviews, focus groups, a public workshop, and a survey of 141 responses (not all questions answered by all respondents), the process identified the priority areas for safety and well-being affecting community members, the gaps that limit service effectiveness, and opportunities for strengthened community well-being (MNP LLP 2020).

Survey participants were provided with a set of factors which influence community safety and wellbeing and were asked to rate each factor on a scale of 0 to 10 (0 was low, 10 was high) (MNP LLP, 2020). The key areas of priority for addressing in the CSWB Plan for Red Lake and Ear Falls, based on the results of the survey conducted by MNP LLP (2020) are presented in Figure 3-1.

Figure 3-2: Key Risks Identified in the Red Lake and Ear Falls 2020 Community Safety and Well-Being Plan. Source: (MNP LLP 2020).

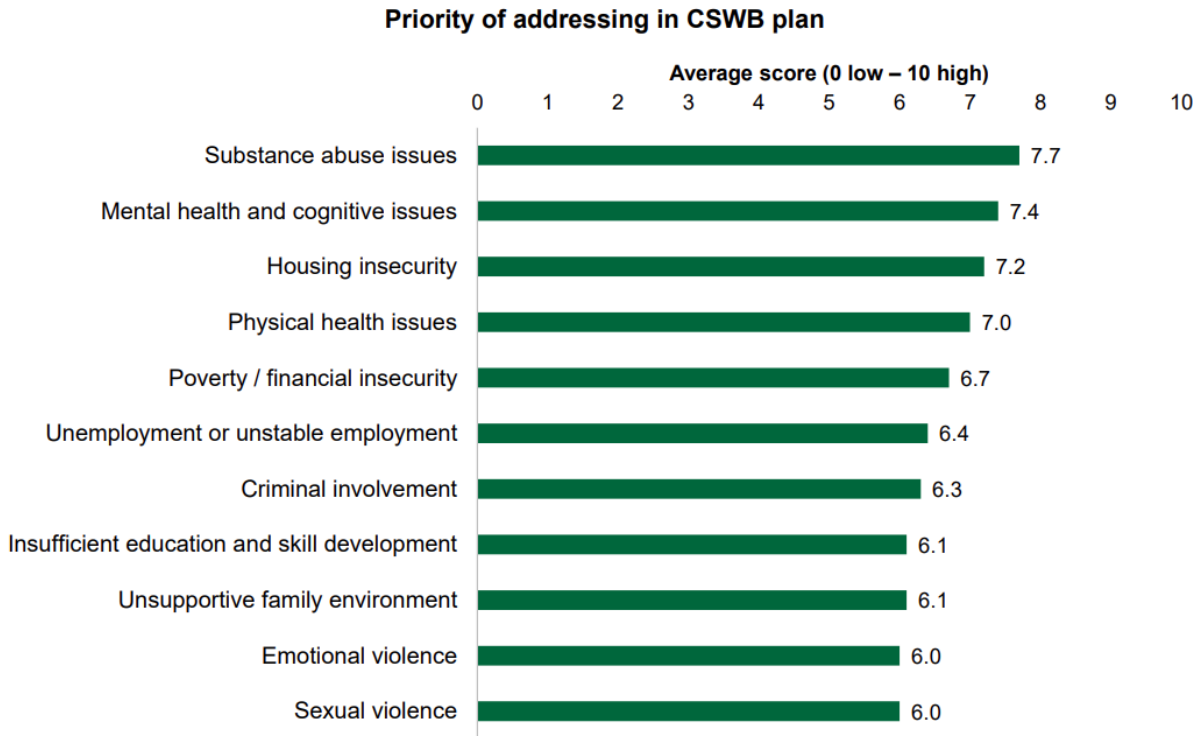


Figure 3-2 and Figure 3-3 present public health information on hospitalizations and emergency department visits related to mental health and substance use, respectively, in Red Lake and Ear Falls. Figure 3-4 presents crime and violence rates in Red Lake and Ear Falls. As presented in Figure 3-4, 73% of calls for police services in Red Lake and Ear Falls in 2019 were for assault.

Figure 3-3: Hospitalization statistics in Red Lake and Ears Falls. Source: (MNP LLP 2020).

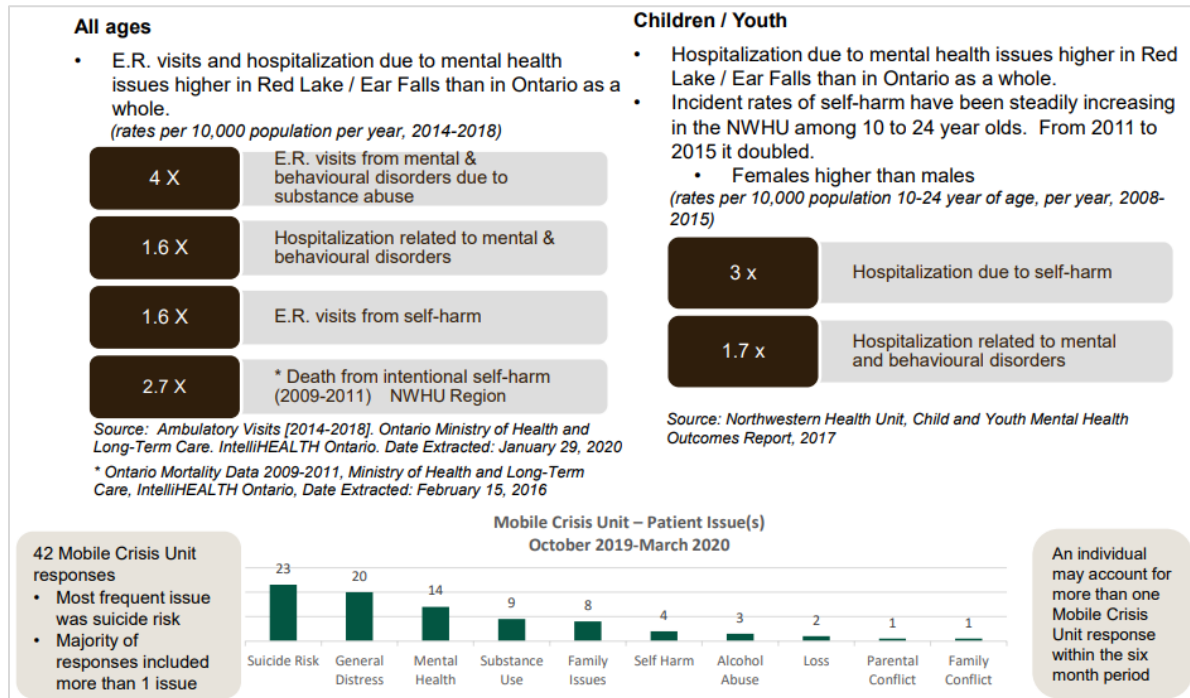
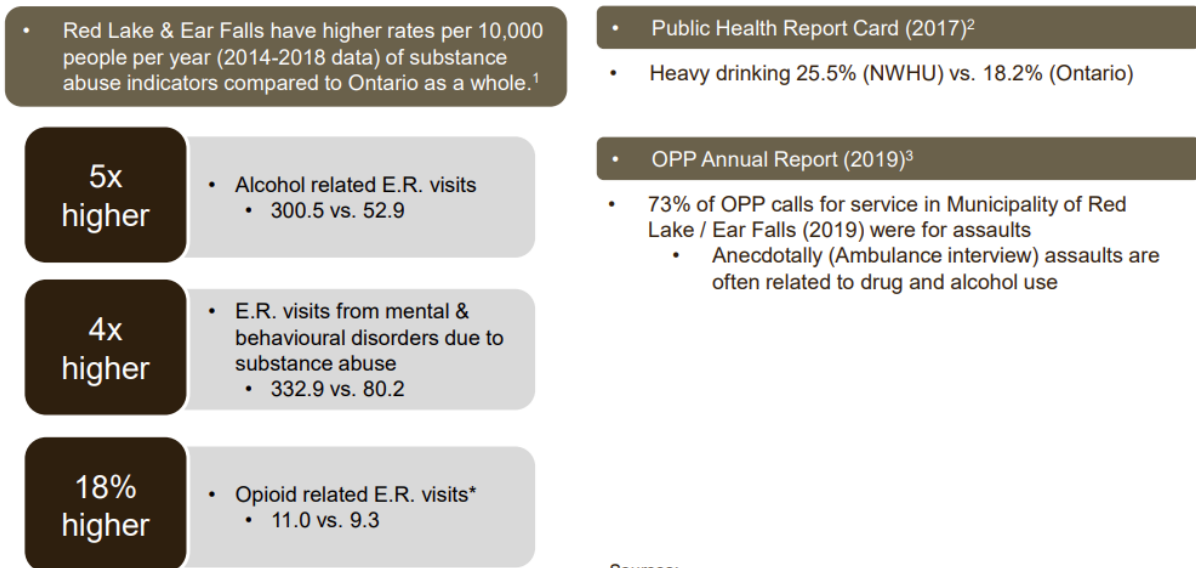


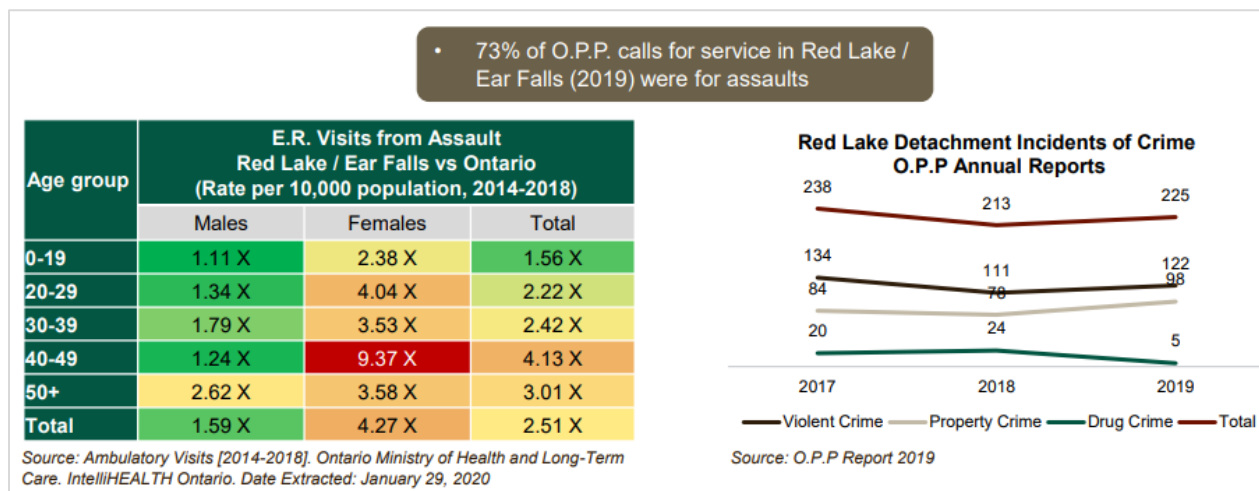
Figure 3-4: Substance use statistics in Red Lake and Ears Falls. Source: (MNP LLP 2020).



* Opioids are medications that relieve pain. When used properly, they can help. But problematic use can cause dependence, overdose and death. They include codeine, fentanyl, morphine, oxycodone, and heroin.

Sources:
¹ Ambulatory Visits [2014-2018]. Ontario Ministry of Health and Long-Term Care. IntelliHEALTH Ontario. Date Extracted: January 29, 2020
² Northwestern Health Unit Community Health Report Card, 2017
³ 2019 Year-End Report – Red Lake O.P.P.

Figure 3-5: Crime and Violence Statistics in Red Lake and Ear Falls. Source: (MNP LLP 2020).



Health data at the regional level are also available from SLFNHA, which may include RLEF. The SLFNHA publishes data on chronic conditions, communicable diseases, mental health, maternal health, cancer, hospitalizations, and food and drinking water access; this information is presented in Section 4.

3.5.3 TRADITIONAL FOODS AND LAND-BASED HEALTH

Access to and consumption of traditional foods by Indigenous people is not only important culturally but is also a health-related behaviour. Community-specific information and perspectives for RLEF regarding the ways in which access to, and availability of, traditional foods functions as a health-related behavior was not available. The role of land-based practices, such as hunting, fishing, and plant harvesting, in supporting the health and wellness of the Indigenous communities described above were considered applicable to RLEF. That is, that these practices are widely understood to contribute to cultural continuity, strengthen family and community connections, and sustain relationships with the land, which are ultimately linked to Indigenous health (Earle 2011; NCCIH 2016).

Potential receptors that could be affected by changes in air, water, traditional food quality, and noise and light levels, including the gathering, hunting, trapping and fishing areas used by Indigenous people, as well as permanent and temporary residences of Indigenous people (e.g. cottages and camps) were identified and assessed as part of the HHERA (Impact Statement Appendix N-1; WSP 2026a) and summarized in the HIA.

The approximate locations of these receptors and the process of receptor selection, including consideration of IK, is detailed in the HHERA (Impact Statement Appendix N-1; WSP 2026a). Baseline concentrations of parameters in ambient air, drinking water, and tissues of traditional foods (fish, wild game and plants) consumed by Indigenous people is provided are the HHERA (Impact Statement Appendix N-1; WSP 2026a) and summarized in the HIA.

4 INDIGENOUS REGIONAL DATA

This section primarily focuses on providing an overview of publicly available health data published by the Sioux Lookout First Nations Health Authority (SLFNHA), unless otherwise indicated. The SLFNHA serves 33 First Nation communities in the Sioux Lookout region in Ontario, Canada, including LSFN and WFN. It is important to note that the SLFNHA data are limited to regional-level reporting and does not provide community-level granularity. It is acknowledged that LSFN, WFN, and the Indigenous population of RLEF may represent only a subset of the population upon which most of the data presented are based. It is also acknowledged that ANA and NWOMC are not listed as communities that are served under the SLFNHA.

However, ANA, along with LSFN, were involved in a separate study on mortality in First Nations communities in northern Ontario published by the SLFNHA, along with 10 other First Nations organizations under the Mamow Ahyamowen Partnership. The details and results of this analysis are summarized in Section 4.10.

Figures included throughout this section were obtained directly from SLFNHA reports and are cited where applicable. The original source data were not available, and figures could not be independently recreated or enhanced and are therefore presented as is from the original documents. Due to this, some figures may be of low visual quality, as this was the resolution of the source documents.

In addition, Section 4.9.2 summarizes key findings from the First Nations Food Nutrition and Environment Study (FNFNES), which included ANA, from a report titled FNFNES Ontario Regional Report (2011–2012) (Chan et al. 2014).

It is noted that community-specific health data for the NWOMC are limited. Section 4.2 and 4.8 include general health data that was available for Métis people in Canada, published from the Métis National Council (Métis National Council 2022).

It is acknowledged that community-specific health and wellness data for Indigenous communities are lacking nation-wide. This lack of community-specific baseline health data is a contributing factor in the assessment of effects and confidence ratings identified in the HIA.

4.1 PERCEPTIONS OF HEALTH AND WELLNESS

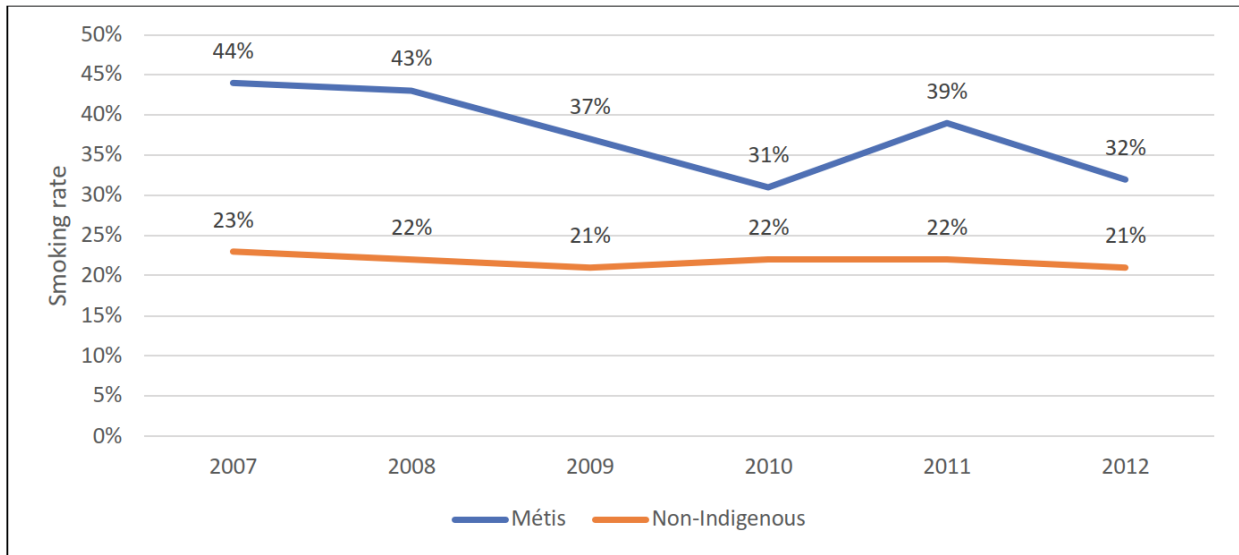
Data on perceptions of health and wellness in Sioux Lookout area First Nations in comparison to Ontario were not available. Please see Section 5 for data on perceptions of health in the NWHU.

4.2 LIFESTYLES AND BEHAVIOURS

Substance use is considered within the Mental Health sub-section in Section 4.6. Data were available for Métis people in Canada from a report titled Cancer and Tobacco Risk Factors for Métis People in Canada (Métis National Council 2022) and for the general public in the RSA health units' catchment areas (i.e., NWHU), in comparison to provincial averages. Please see Section 5 for data on lifestyles and behaviours in the NWHU.

A report titled Cancer and Tobacco Risk Factors for Métis People in Canada (Métis National Council 2022) summarizes current trends in cancer and tobacco-related risk factors for Métis populations in Canada. Figure 4-1 presents smoking rates for Ontario Métis adults in comparison to non-Indigenous adults in Ontario from the Cancer and Tobacco Risk Factors for Métis People in Canada report (Métis National Council 2022). As shown in Figure 4-1, smoking rates among Métis adults in Ontario declined between 2007 and 2014, whereas the smoking rate among non-Indigenous adults remained relatively constant (Métis National Council 2022). Although the Métis National Council (2022) reports that there appear to be similar declines in smoking rates among First Nations people, and that these trends may be attributable to a broader decline in smoking across Canada.

Figure 4-1: Smoking Rates (%) for Ontario Métis Adults from the CCHS Surveys, 2007-2012



4.3 HOSPITALIZATIONS AND SAFETY

This section provides an overview of hospitalizations chronic disease statistics in Sioux Lookout area First Nations. Figure 4-2 presents the leading causes of hospital admissions for adults 20 years of age and older, among Sioux Lookout area First Nations, which includes LSFN and WFN. Leading causes included injuries (15% of hospital admissions) and digestive system issues (14%).

Figure 4-2: Leading Causes of Hospital Admissions for Adults 20+, Sioux Lookout Area First Nations, 2012-2016. Source: (SLFNHA 2019)

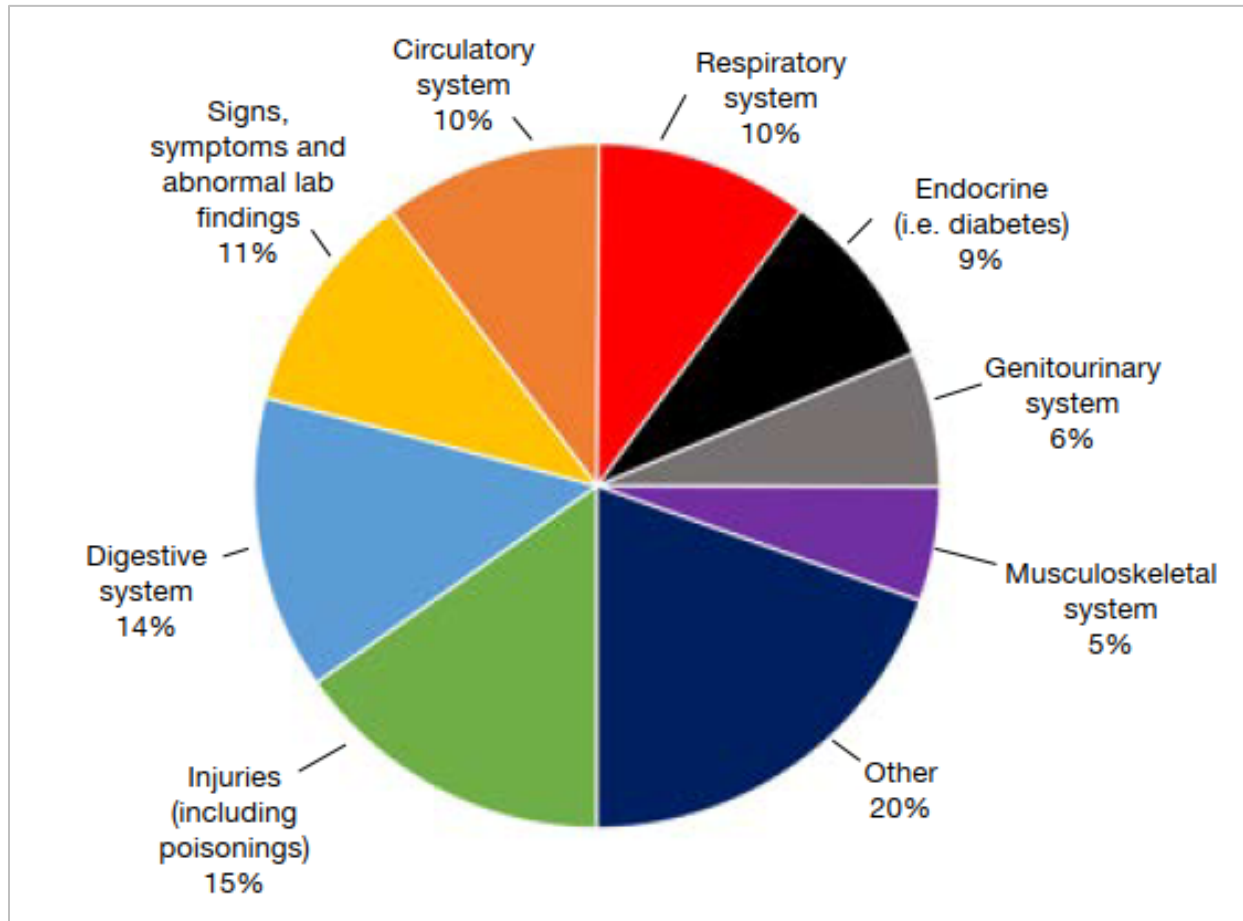


Figure 4-3 presents a summary of nursing station visits for Sioux Lookout Area First Nations, which includes LSFN and WFN. The top five reasons for visits to the 17 nursing stations in the area included skin; eyes, nose, mouth, and ear; musculoskeletal; mental health and substance use; and respiratory conditions.

Figure 4-3: Summary of Nursing Station Visits for Mental Health and Substance Use, Sioux Lookout Area First Nations, 2015-2020. Source: (SLFNHA 2024a)

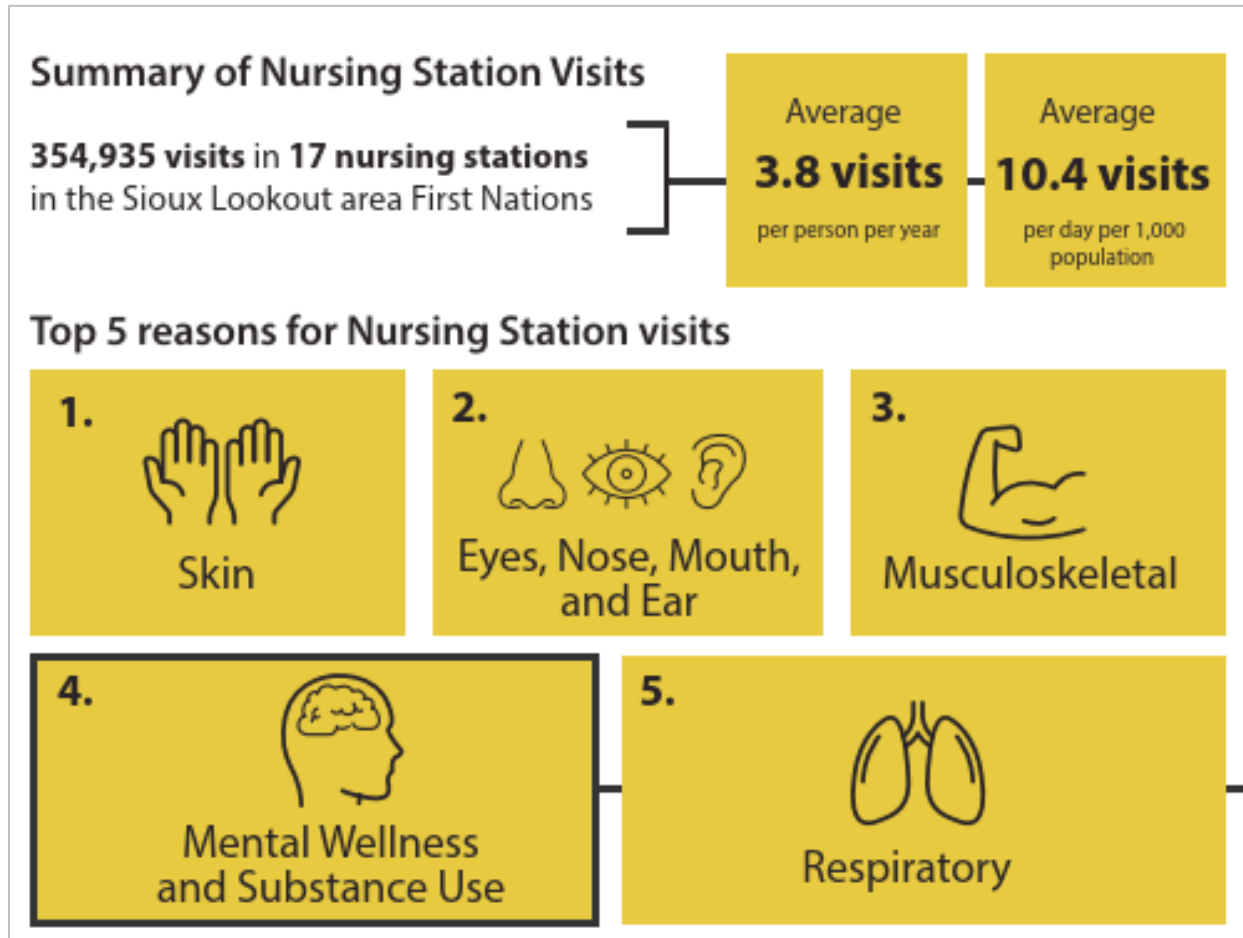


Figure 4-4 presents the most common diagnoses for Sioux Lookout Area First Nations nursing station visits related to mental health and substance use. Slightly over one third of diagnoses were substance related or for addictive disorders (33.5%).

Figure 4-4: Most Common Diagnosis Categories, Nursing Station Visits for Mental Health and Substance Use, Sioux Lookout Area First Nations, 2015-2020. Source: (SLFNHA 2024a)

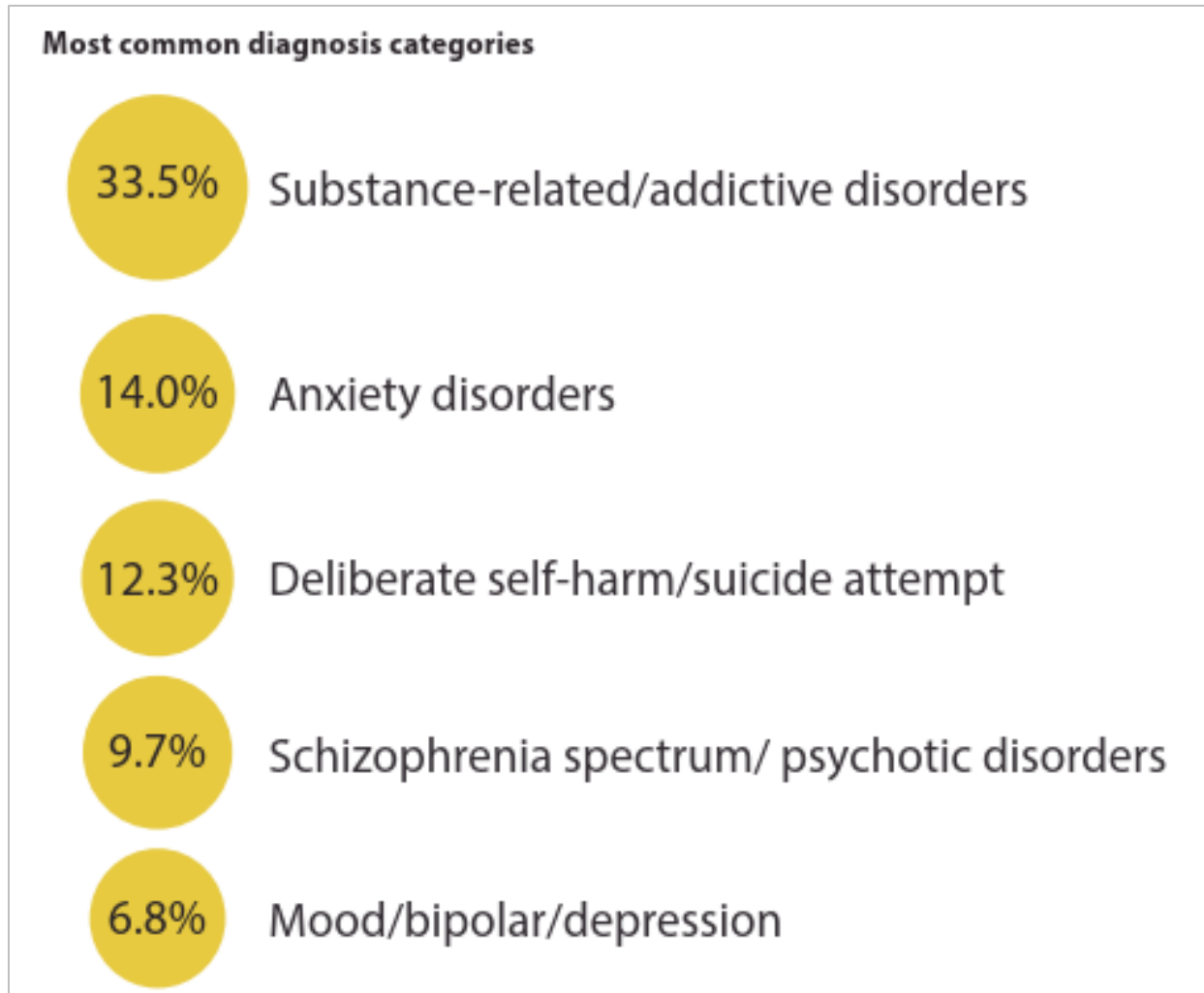


Figure 4-5 presents the proportion of unintentional and intentional injury, among Sioux Lookout Area First Nations hospital visits associated with injury. A majority of injuries (57%) were unintentional.

Figure 4-5: Hospital Visits Associated with Injury, Proportion of Unintentional and Intentional Injury, Sioux Lookout Area First Nations, 2012-2016. Source: (SLFNHA 2019)

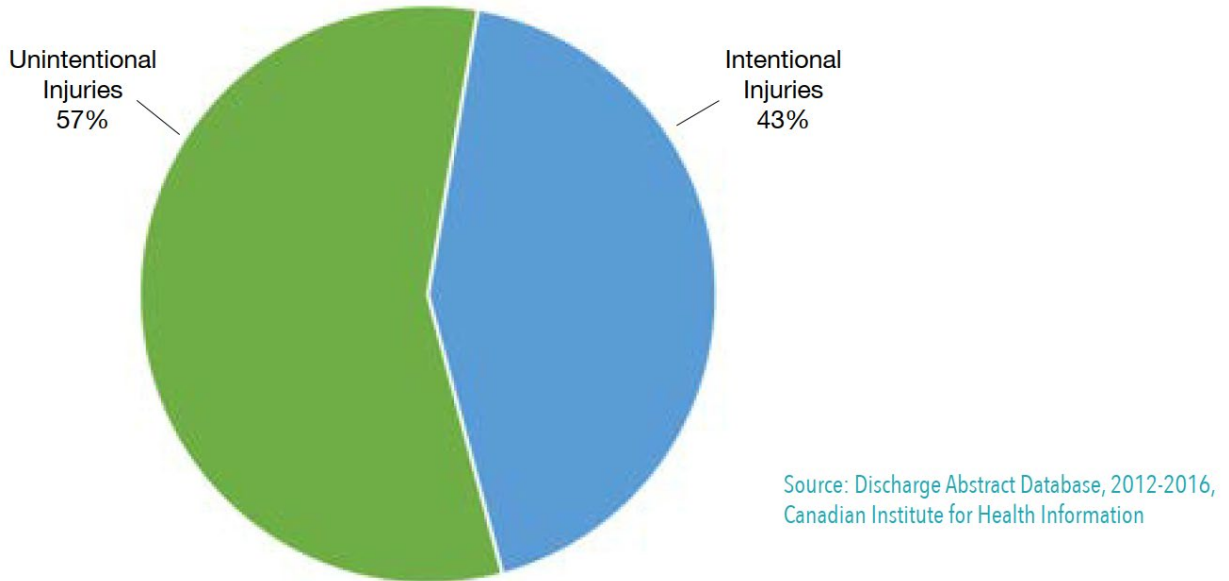
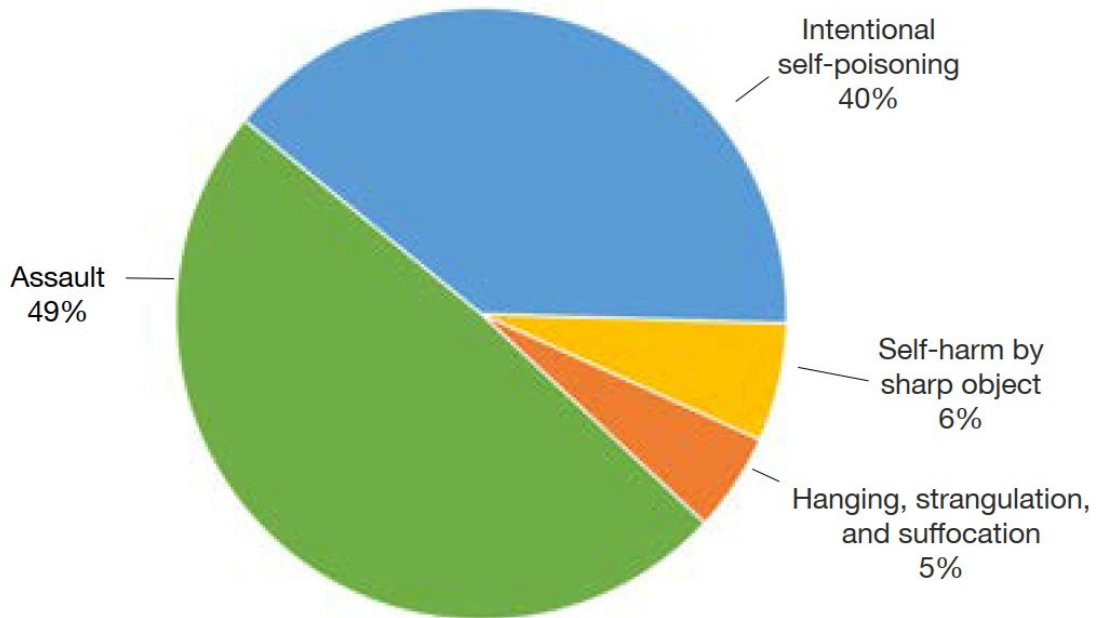


Figure 4-6 presents the causes of intentional injuries resulting in Sioux Lookout Area First Nations hospital admissions for adults aged 20 years and older. Assault accounted for 49% of intentional injuries, followed by self-poisoning (40%).

Figure 4-6: Causes of Intentional Injuries Resulting in Hospital Admission for Adults 20+, Sioux Lookout Area First Nations, 2012-2016. Source: (SLFNHA 2019)



Source: Discharge Abstract Database, 2012-2016, Canadian Institute for Health Information

4.3.1 EMERGENCY DEPARTMENT VISITS

Figure 4-7 presents the leading reasons for emergency department visits for adults 20 years of age and older, among Sioux Lookout Area First Nations, which includes LSFN and WFN. Leading reasons included signs, symptoms, and abnormal lab findings (21%); injuries (15%); and mental health, musculoskeletal system, and respiratory system (9% each).

Figure 4-7: Reasons for Emergency Department Visits for Adults 20+, Sioux Lookout Area First Nations, 2012-2016. Source: (SLFNHA 2019)

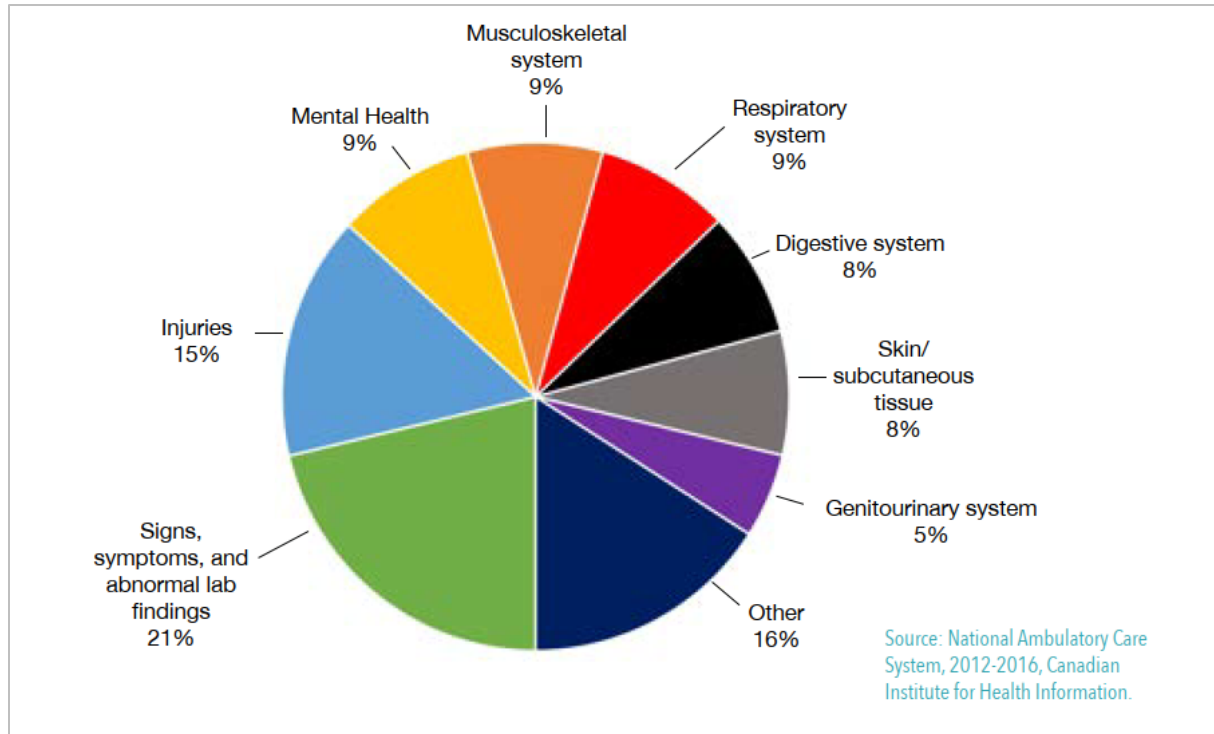
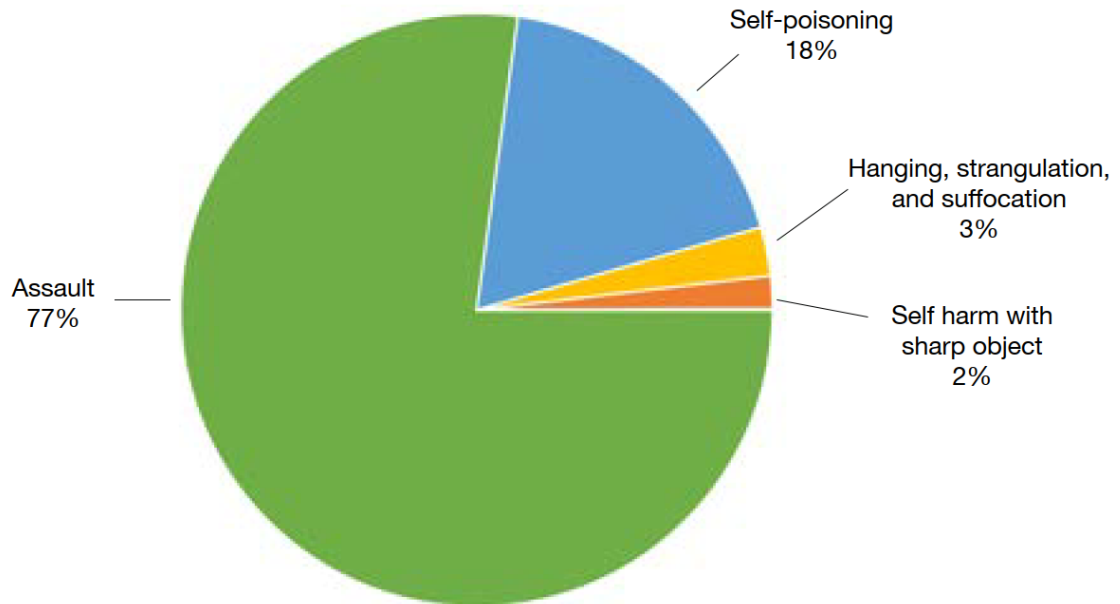


Figure 4-8 presents the leading causes of intentional injuries resulting in emergency department visits for adults 20 years of age and older, among Sioux Lookout Area First Nations, which includes LSFN and WFN. Assault amounted for 77% of intentional injuries, followed by self-poisoning at 18%.

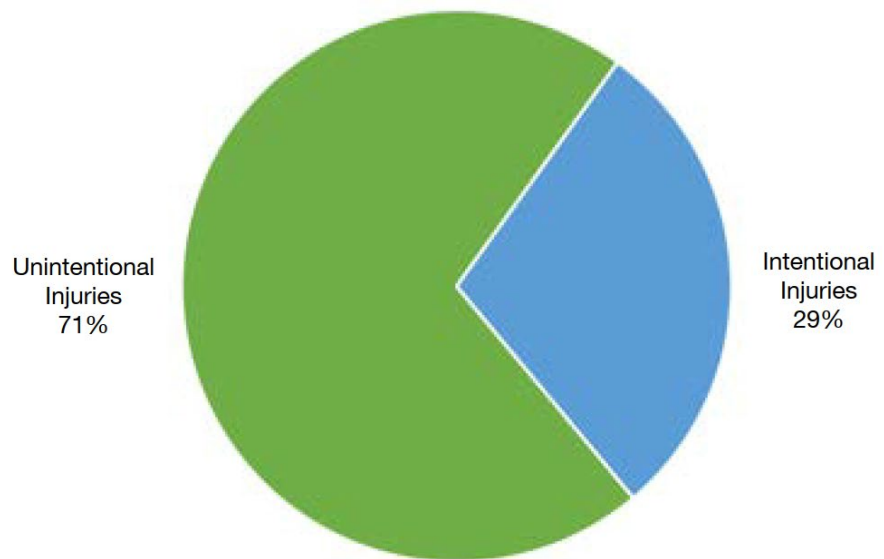
Figure 4-8: Causes of Intentional Injuries Resulting in Emergency Department Visits for Adults 20+, Sioux Lookout Area First Nations, 2012-2016. Source: (SLFNHA 2019)



Source: National Ambulatory Care System, 2012-2016, Canadian Institute of Health Information

Figure 4-9 presents the proportion of unintentional and intentional injury resulting in emergency department visits, among Sioux Lookout Area First Nations hospital visits associated with injury. A majority of injuries (71%) were unintentional.

Figure 4-9: Emergency Department Visits Associated with Injury, Proportion of Unintentional and Intentional Injury, Sioux Lookout Area First Nations, 2012-2016. Source: (SLFNHA 2019)



Source: National Ambulatory Care System, 2012-2016, Canadian Institute for Health Information.

4.3.2 CHILDREN AND YOUTH

Figure 4-10 to Figure 4-13 presents the leading causes of emergency department visits and hospitalizations for infants (less than one year old) among Sioux Lookout Area First Nations, which includes LSFN and WFN. Leading causes included respiratory system (37% of emergency department visits) and conditions at birth (51% of hospitalizations). As presented in Figure 4-12, infants among Sioux Lookout Area First Nations are hospitalized more often than the Ontario average. Figure 4-13 presents that the leading cause of hospitalization of infants was conditions at birth (51% of hospitalizations).

Figure 4-10: Emergency Department Visit Rates Among Infants (Less Than One Year Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

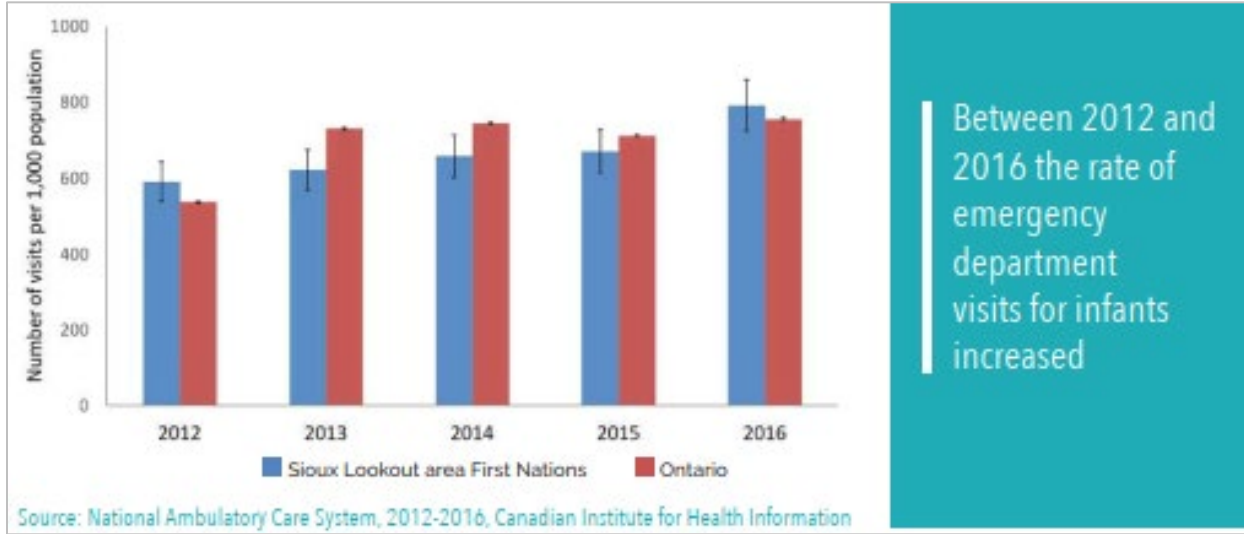


Figure 4-11: Top Three Reasons for Emergency Department Visits Among Infants (Less Than One Year Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

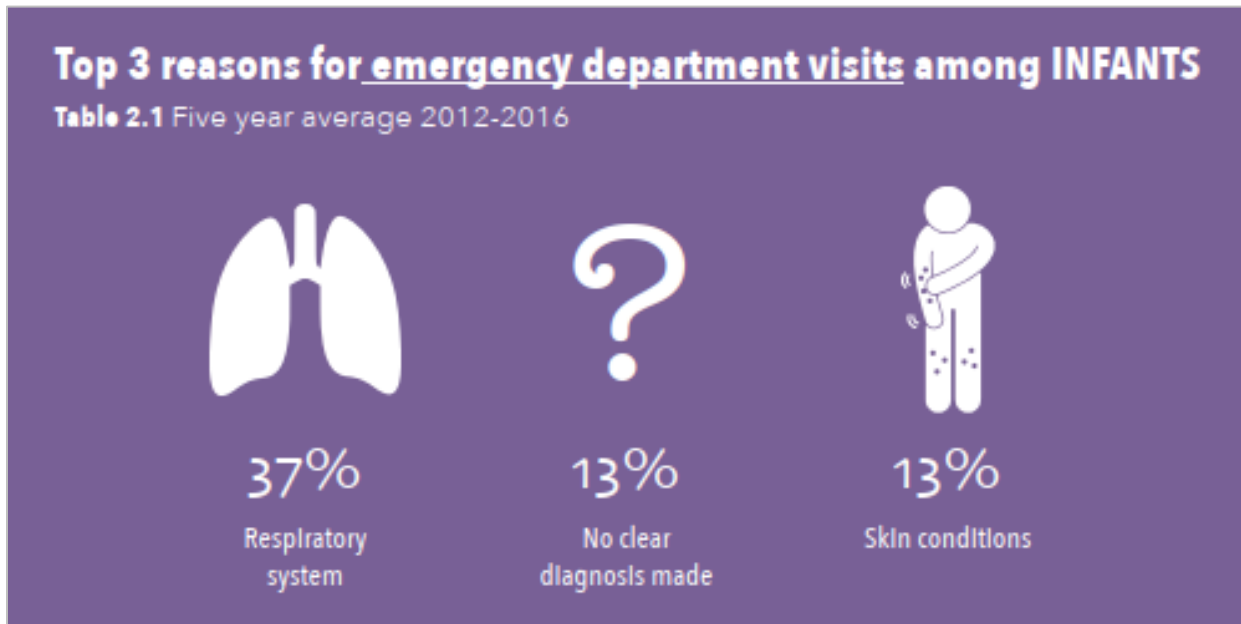


Figure 4-12: Hospitalization Rates Among Infants (Less Than One Year Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

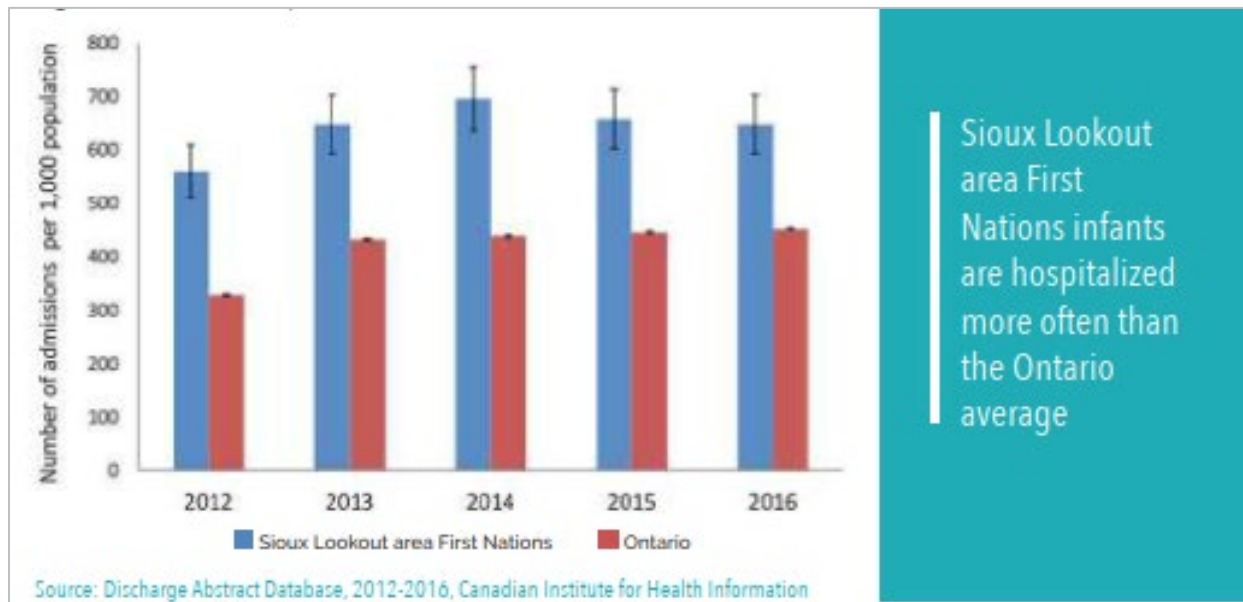


Figure 4-13: Top Three Reasons for Hospitalization Among Infants (Less Than One Year Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

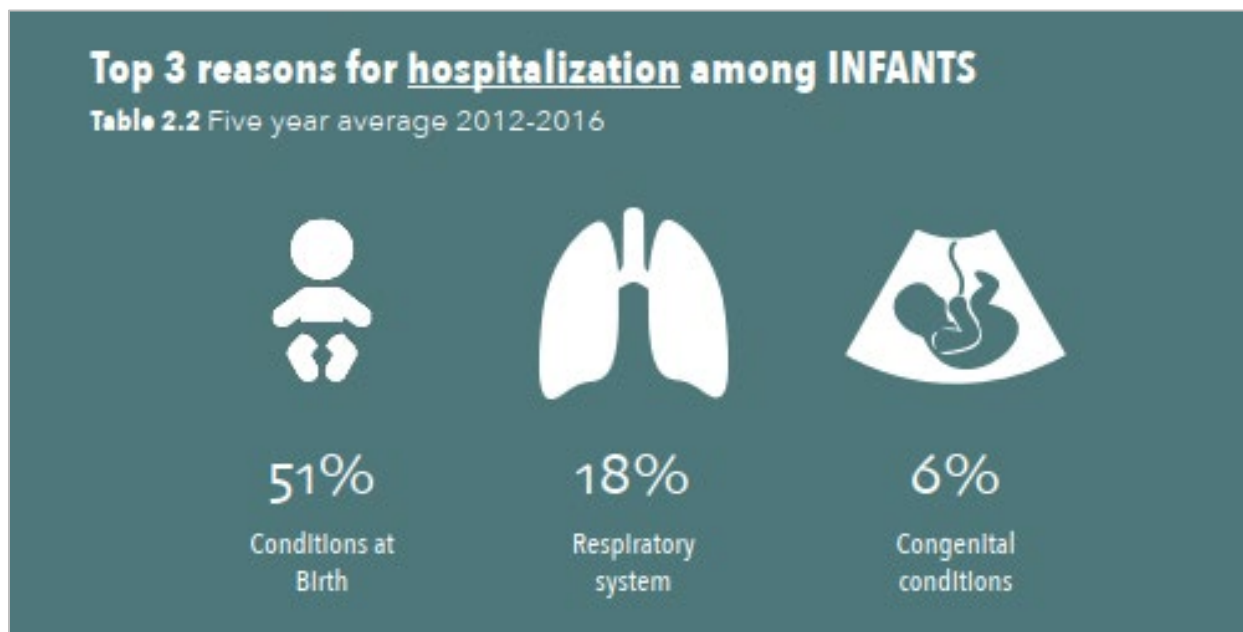


Figure 4-14 to Figure 4-17 presents the leading causes of emergency department visits and hospitalizations for preschool children (aged one to five years old) among Sioux Lookout Area First Nations, which includes LSFN and WFN. Leading causes included respiratory system for both emergency department visits (30%) and hospitalizations (34%). As presented in Figure 4-16, infants among Sioux Lookout Area First Nations are hospitalized more often than the Ontario average.

Figure 4-14: Emergency Department Visit Rates Among Preschool Children (One to Five Years Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

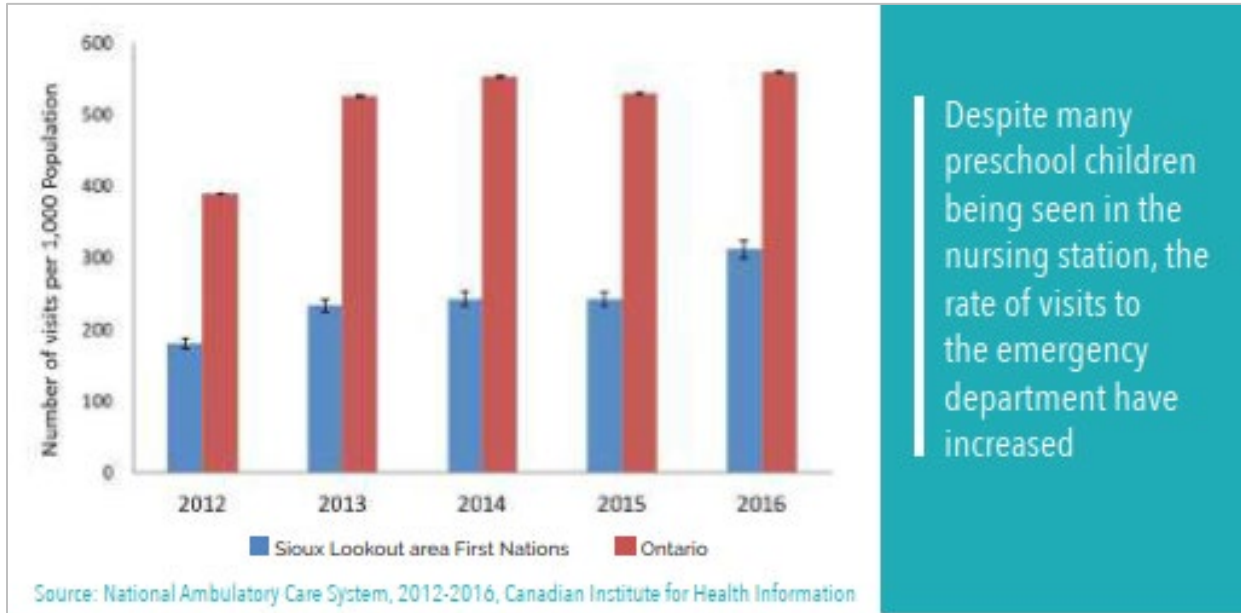


Figure 4-15: Top Three Reasons for Emergency Department Visits Among Preschool Children (One to Five Years Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

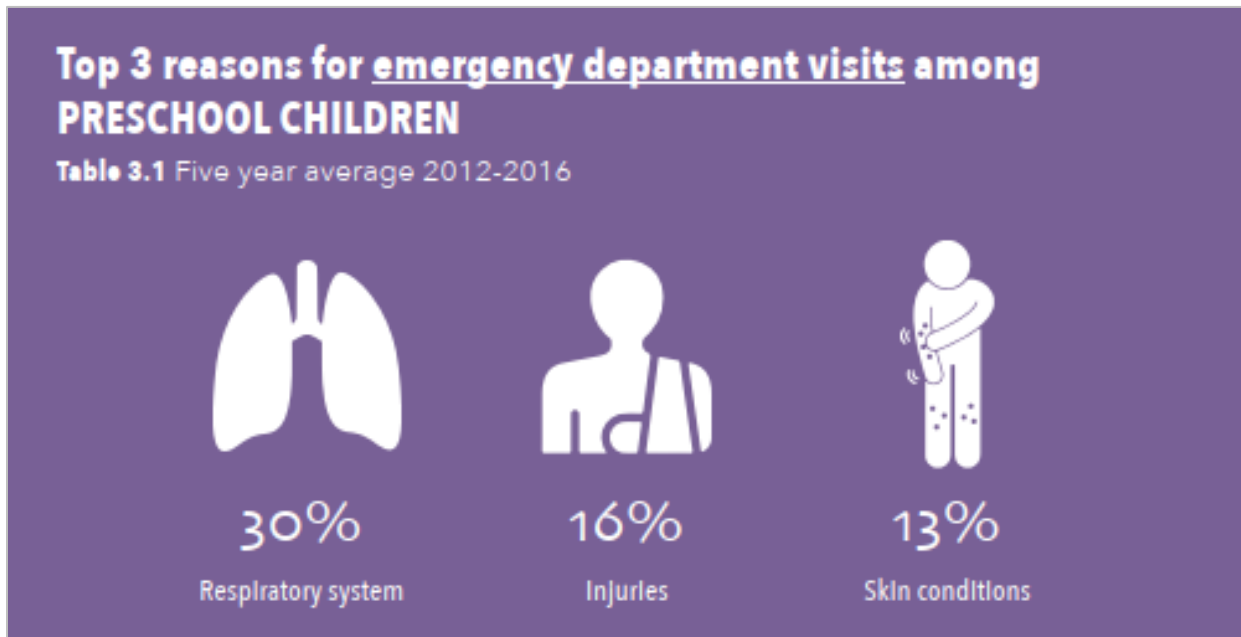


Figure 4-16: Hospitalization Rates Among Preschool Children (One to Five Years Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

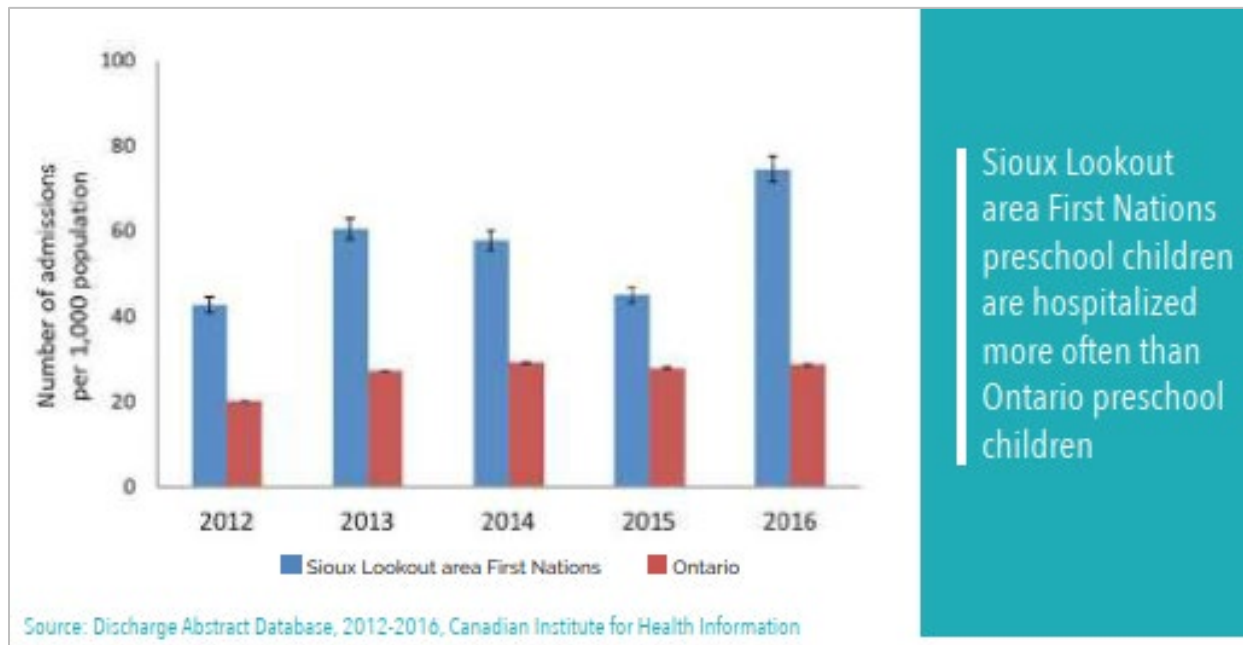


Figure 4-17: Top Three Reasons for Hospitalization Among Preschool Children (One to Five Years Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

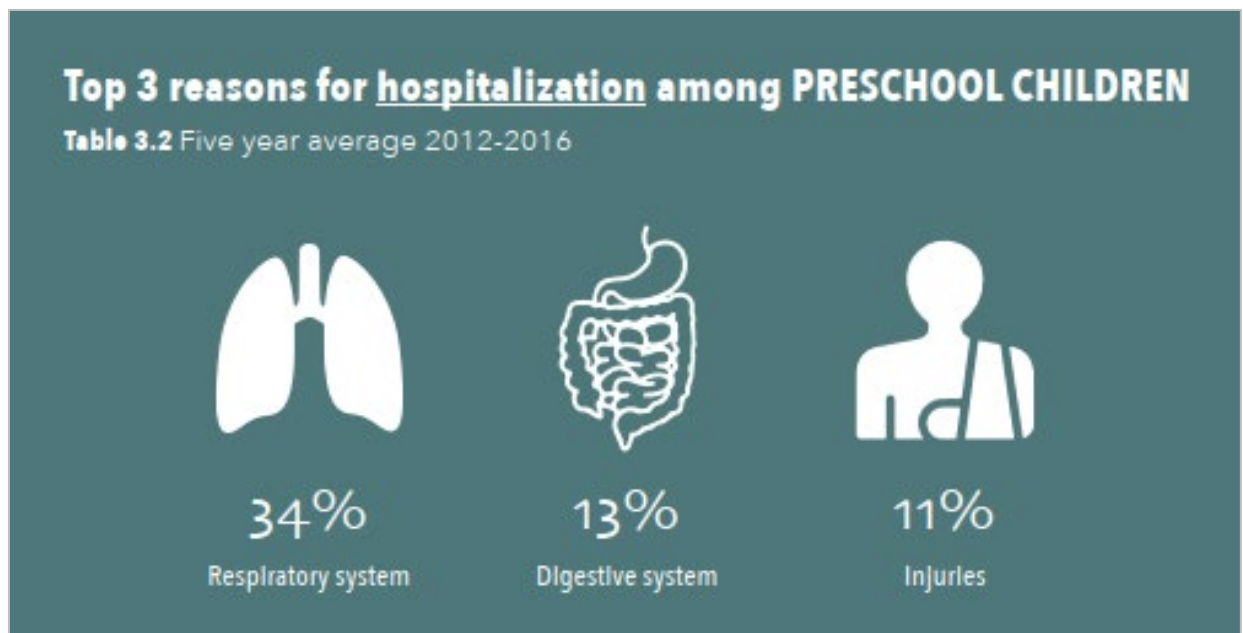


Figure 4-18 to Figure 4-21 presents the leading causes of emergency department visits and hospitalizations for children aged six to ten years old among Sioux Lookout Area First Nations, which includes LSFN and WFN. Leading causes for emergency department visits are injuries (29%) and the leading causes for hospitalizations were respiratory system conditions (21%). As presented in Figure 4-20, children from Sioux Lookout Area First Nations are hospitalized more often than the Ontario average.

Figure 4-18: Emergency Department Visit Rates Among Children (Six to 10 Years Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

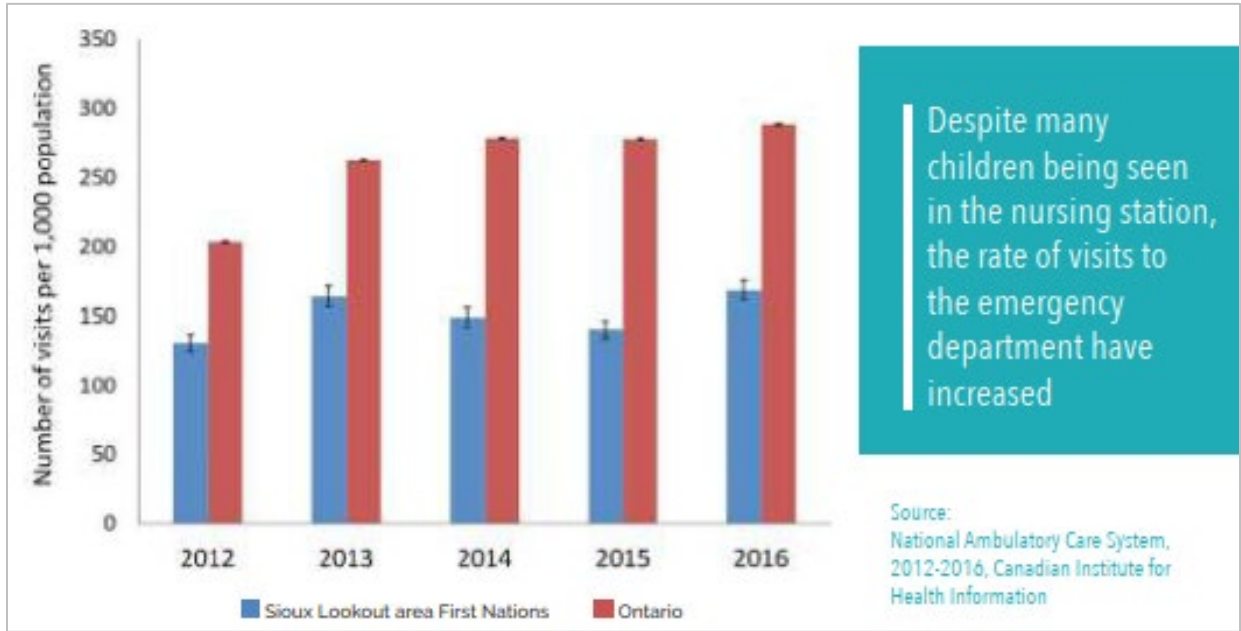


Figure 4-19: Top Three Reasons for Emergency Department Visits Among Children (Six to 10 Years Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

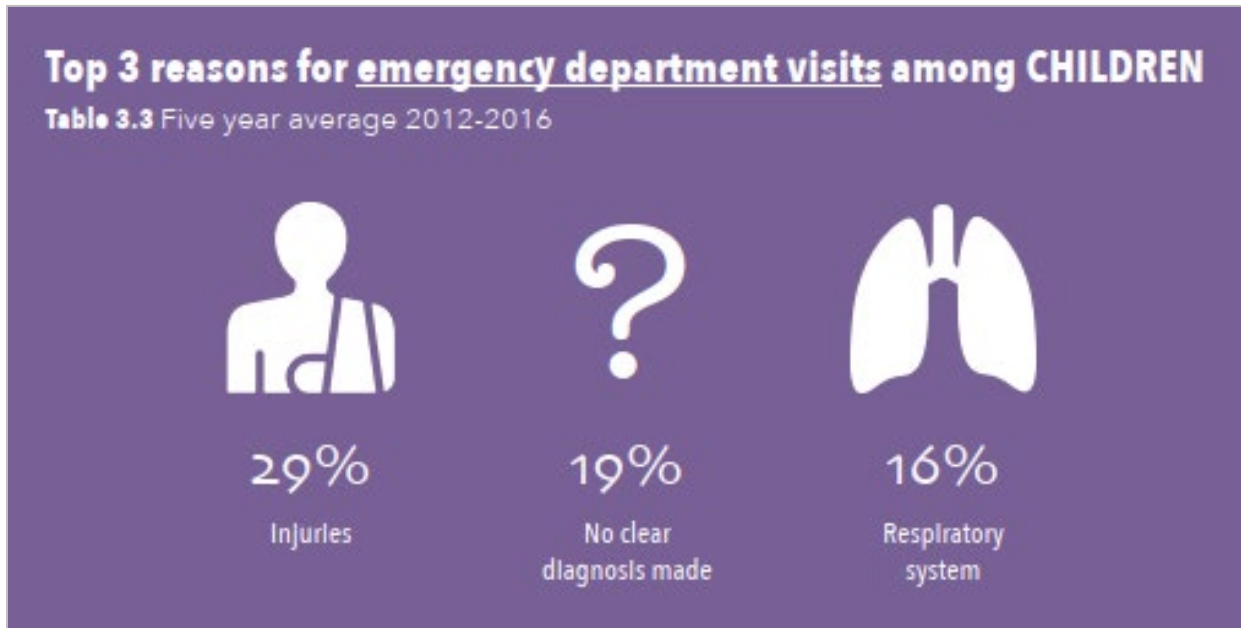


Figure 4-20: Hospitalization Rates Among Children (Six to 10 Years Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

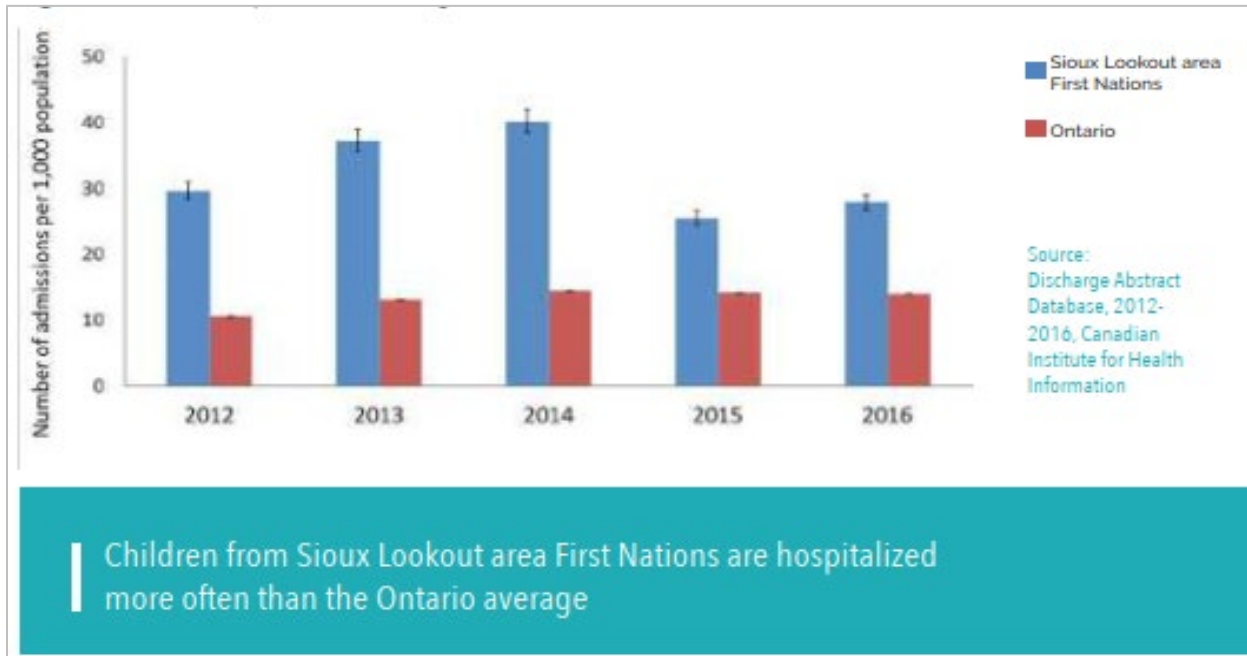


Figure 4-21: Top Three Reasons for Hospitalization Among Children (Six to 10 Years Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

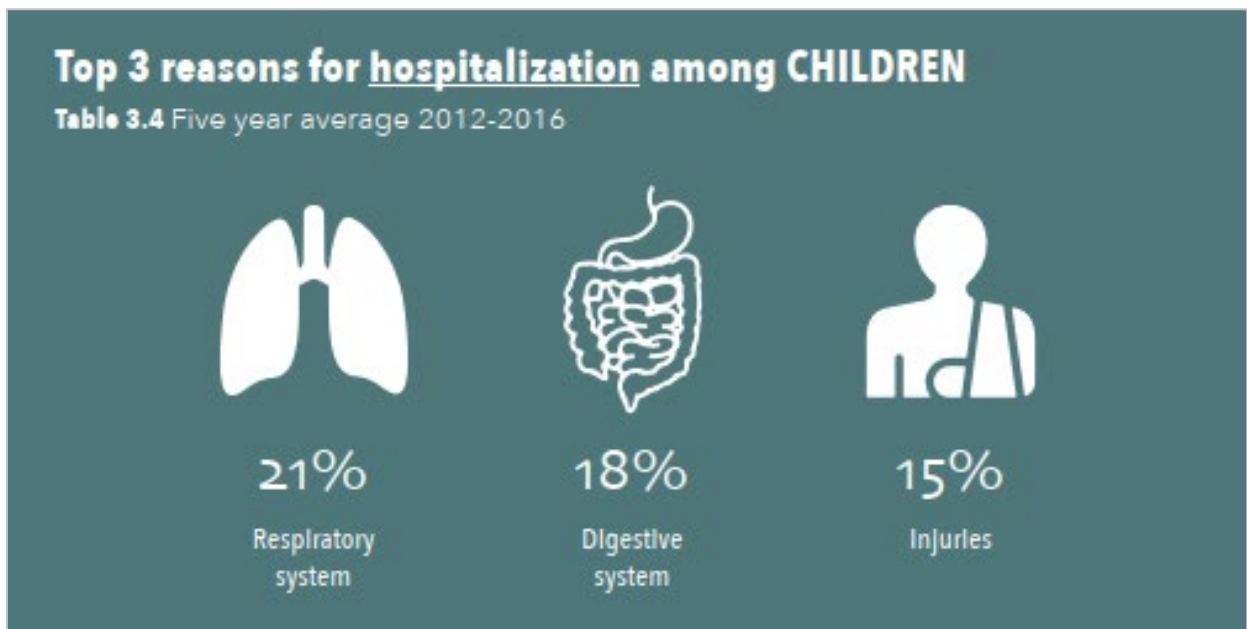


Figure 4-22 to Figure 4-25 presents the leading causes of emergency department visits and hospitalizations for youth aged eleven to nineteen years old among Sioux Lookout Area First Nations, which includes LSFN and WFN. Leading causes for emergency department visits are injuries (30%) and the leading causes for hospitalizations were pregnancy and delivery (33%). As presented in Figure 4-24, in 2016, youth from Sioux Lookout Area First Nations were hospitalized 4.5 times more often than the Ontario average, within pregnancy and delivery and mental health being the leading causes of hospitalizations.

Figure 4-22: Emergency Department Visit Rates Among Youth (11 to 19 Years Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

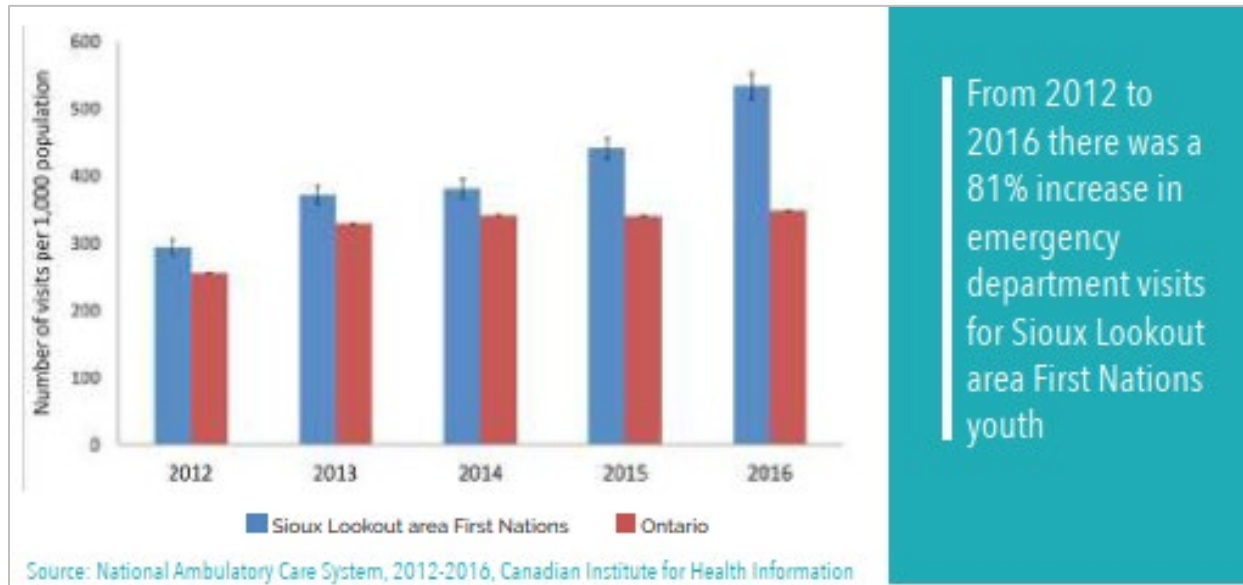


Figure 4-23: Top Three Reasons for Emergency Department Visits Among Youth (11 to 19 Years Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

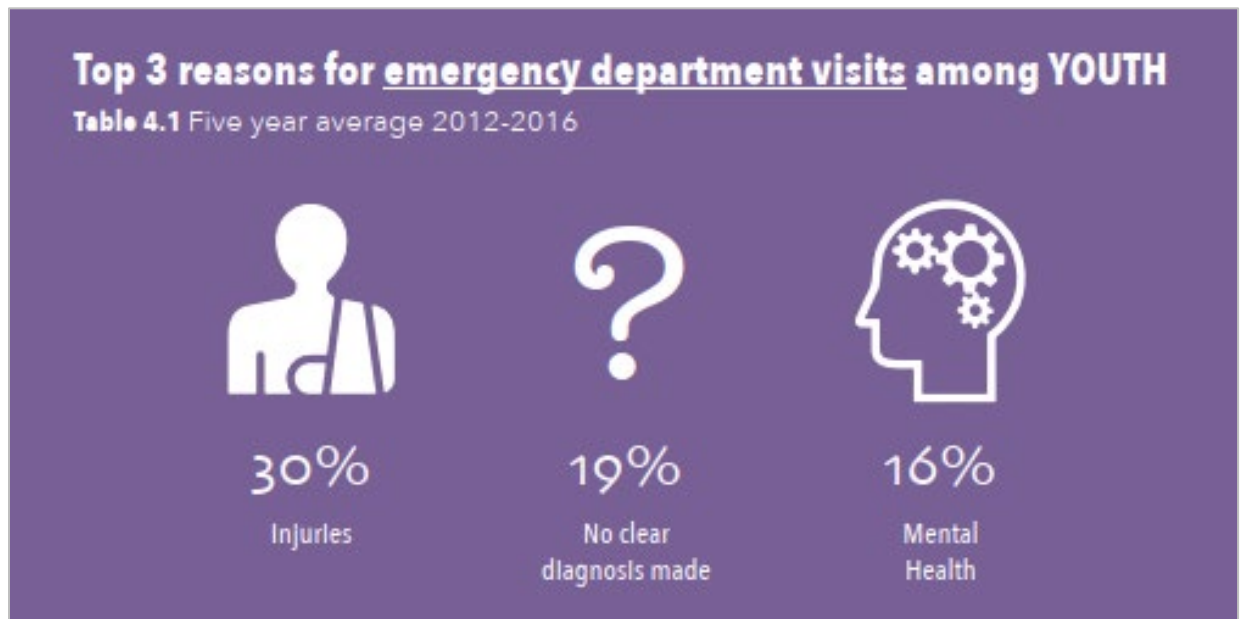


Figure 4-24: Hospitalization Rates Among Youth (11 to 19 Years Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)

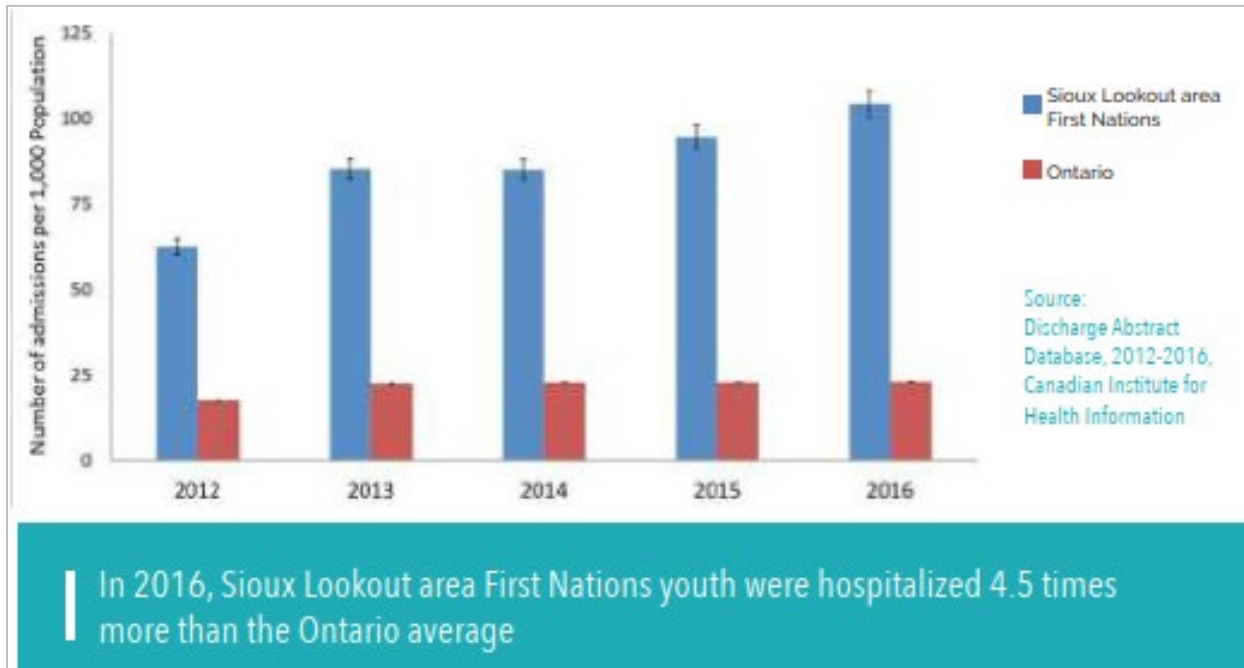
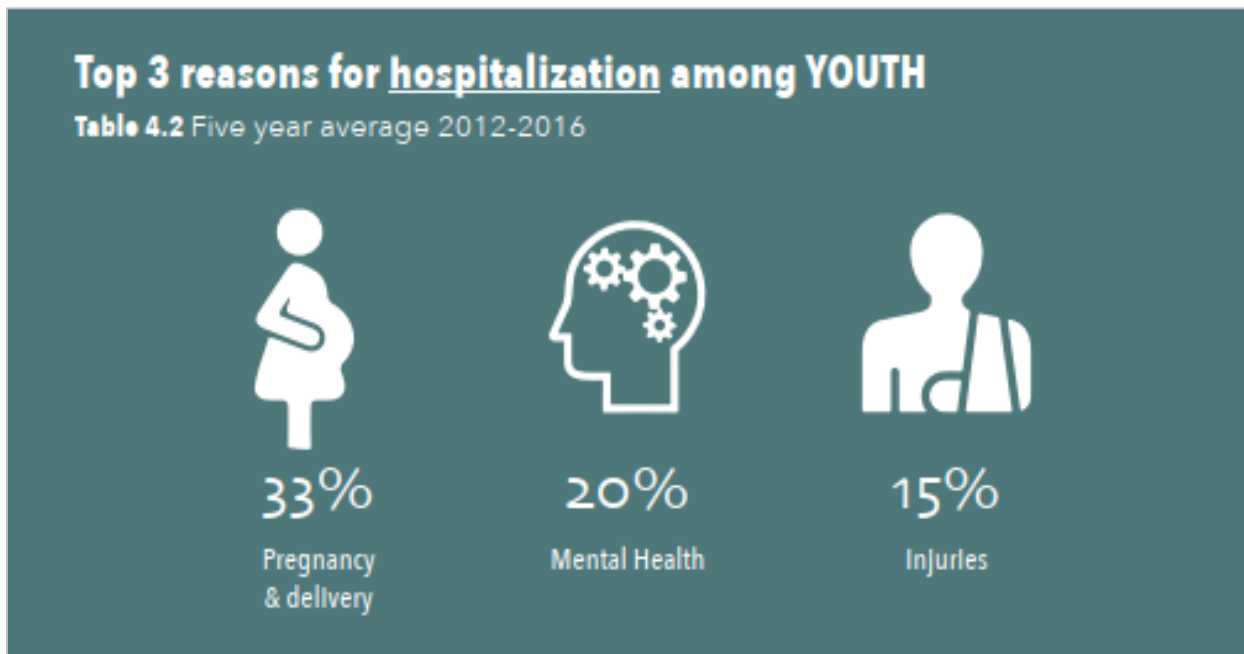


Figure 4-25: Top Three Reasons for Hospitalization Among Youth (11 to 19 Years Old), Sioux Lookout Area First Nations and the Province of Ontario, 2012-2016. Source: (SLFNHA 2018)



4.4 CHRONIC DISEASES AND CONDITIONS

This section presents an overview of chronic health conditions and disease trends in in Sioux Lookout area First Nations. Health conditions such as asthma and hypertension at the regional level were not available from the SLFNHA. Please see Section 5 for additional data on chronic diseases and conditions in the NWHU.

Figure 4-26 presents the prevalence of diabetes in adults (aged 20 years old and over) in Sioux Lookout Area First Nations. Figure 4-27 presents the rate of emergency department visits for diabetes in Sioux Lookout Area First Nations, compared to Ontario. As seen in Figure 4-27, First Nations from Sioux Lookout area age 20 and above were seen in the emergency department for diabetes at a rate three times the Ontario average (SLFNHA 2019). In addition, First Nations from Sioux Lookout area age 20 and above were admitted to hospital for diabetes at a rate 4 times the Ontario average (SLFNHA 2019).

Figure 4-26: Percentage of people aged 20 and above that have diabetes, Sioux Lookout Area First Nations, 2019. Source: (SLFNHA 2019)

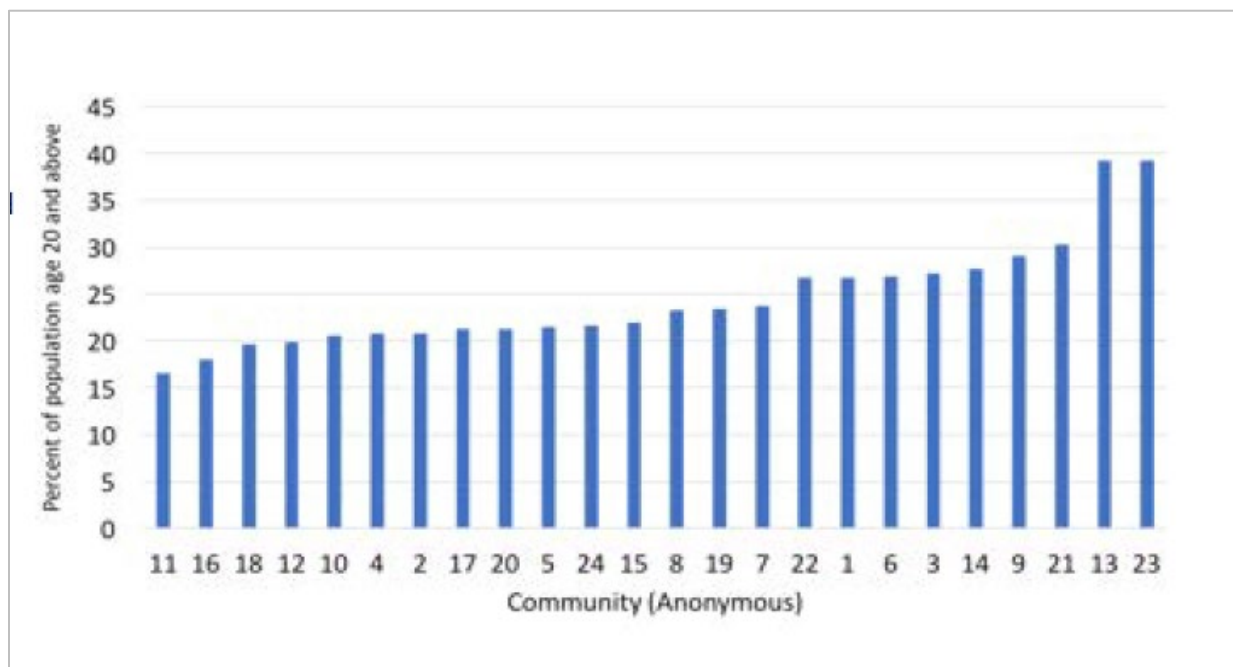
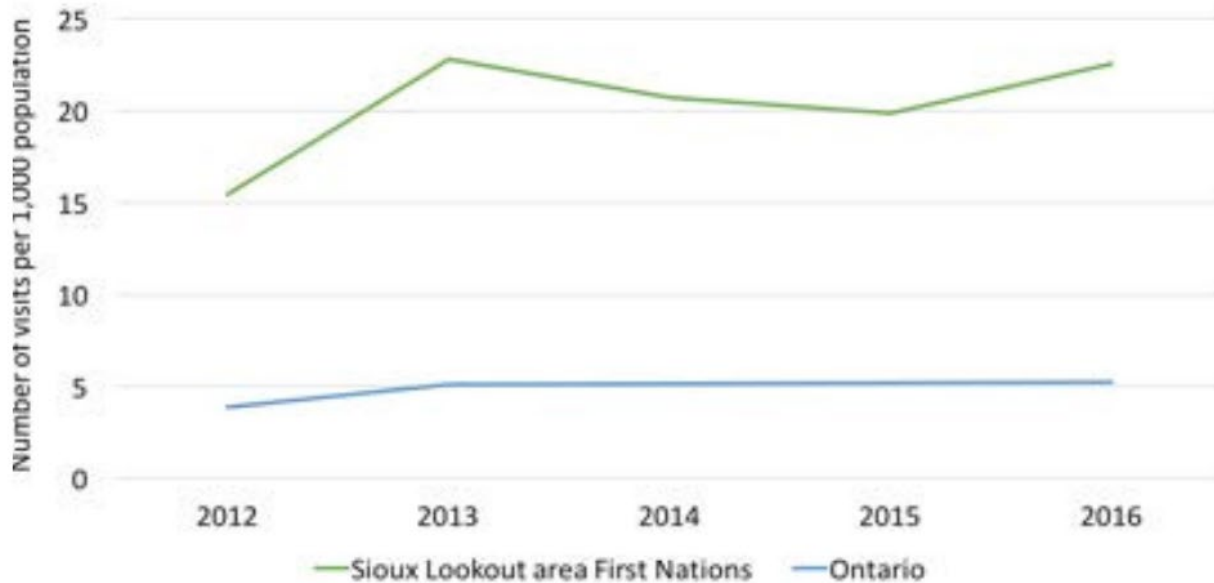


Figure 4-27: Rate of emergency department visits for diabetes compared to Ontario, age 20 and above, 2012-2016. Source: (SLFNHA 2019)



Source: National Ambulatory Care System, 2012-2016, Canadian Institute for Health Information.

4.5 COMMUNICABLE DISEASES

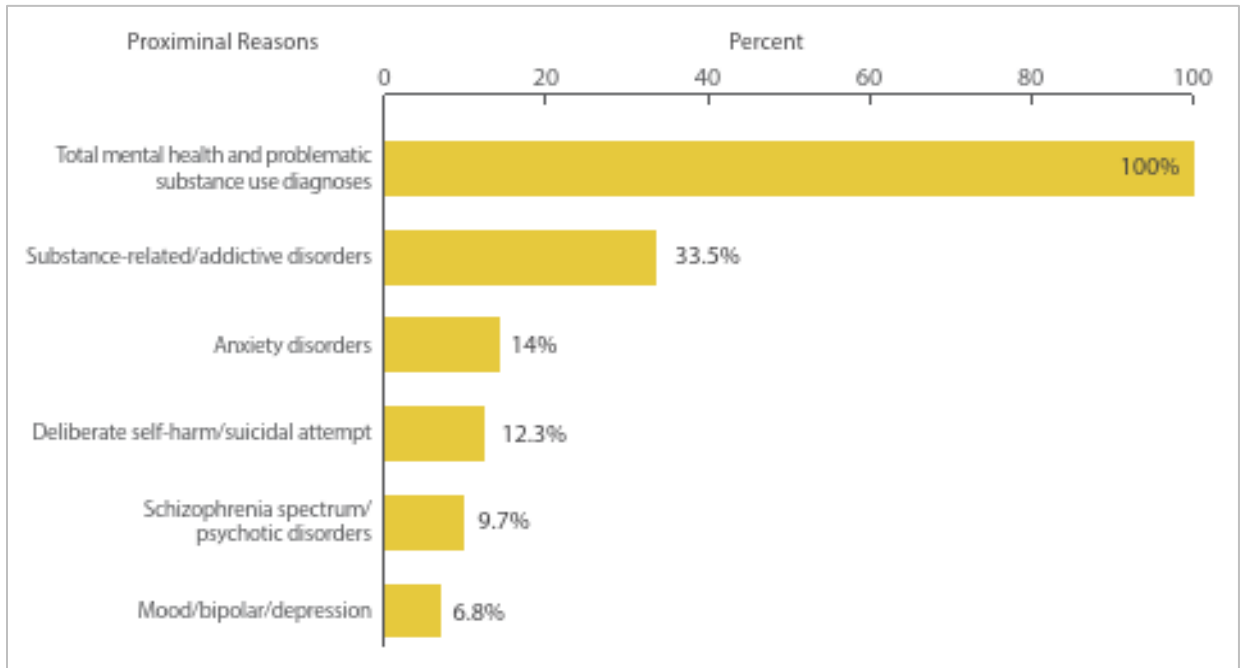
This section presents an overview of the communicable disease data available for the Sioux Lookout area First Nations. The rate of infection for chlamydia in Sioux Lookout area First Nations was approximately ten times higher than the Ontario rate and was higher among women compared to men (SLFNHA 2019).

Communicable disease trends in Sioux Lookout area First Nations in comparison to Ontario for sexually transmitted infections such as HIV and syphilis were not available. Please see Section 5 for additional data on communicable diseases in the NWHU.

4.6 MENTAL HEALTH

This section presents an overview of trends in mental health indicators in the Sioux Lookout area First Nations. Figure 4-28 presents the proportion of the five most common mental health and substance use assessments from 2015 to 2020 among Sioux Lookout area First Nations, which includes LSFN and WFN. The leading type of assessment was substance-related and addictive disorders (33.5%) (SLFNHA 2024a). As stated in SLFNHA (2024a): “Between 2015 to 2020 across the community nursing stations, more women than men visited nursing stations to seek help for substance use / addictive disorders (55.3 females vs. 44.7 males per 1000 visits) and self-harm / suicidal attempts (71.9 females vs. 28.1 males per 1000 visits). However, both men and women had similar numbers of visits for anxiety disorders.”

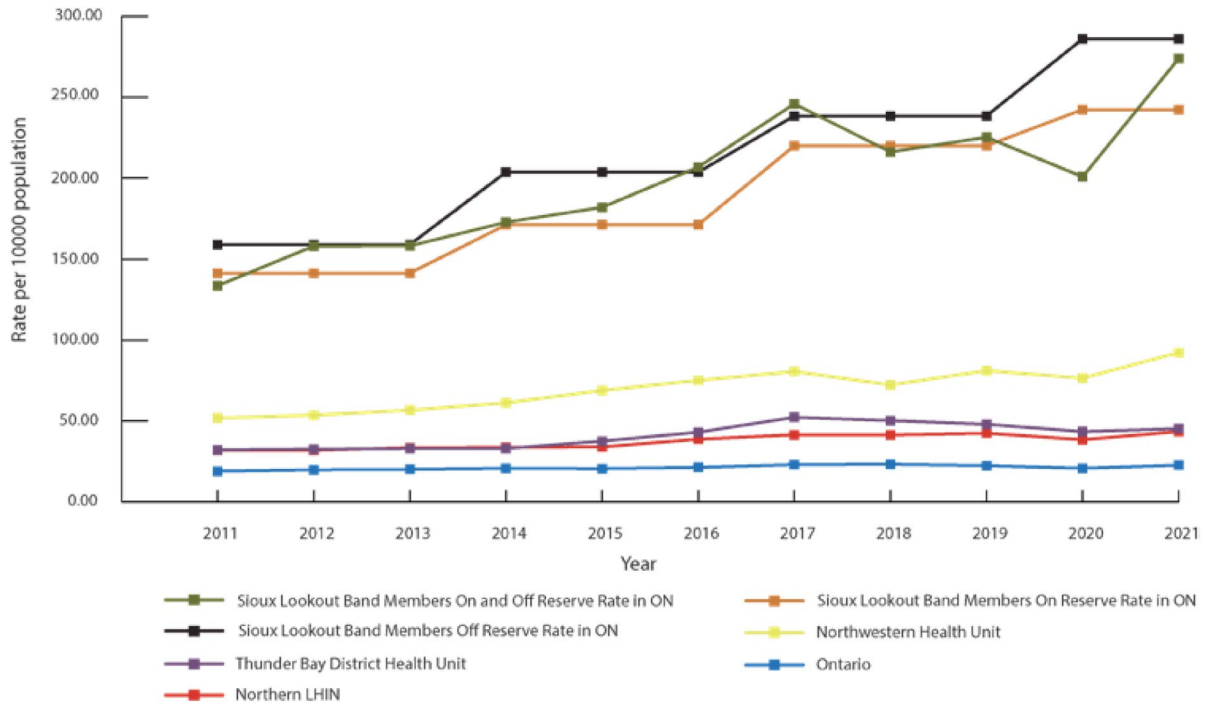
Figure 4-28: Proportion of the Five Most Common Mental Health and Substance Use Assessments, Sioux Lookout Area First Nations, 2015-2020. Source: (SLFNHA 2024a)



ATTACHMENT A: Baseline Health Profile

Figure 4-29 presents the emergency department visit rates for intentional self-injury for Sioux Lookout Area First Nations and regional health units between 2011-2021. Sioux Lookout Band Members on- and off-reserve rates in Ontario were generally higher than the provincial average and rates for the NWHU.

Figure 4-29: Emergency Department Visit Rates per 10,000 population for Intentional Self-Injury, Sioux Lookout Area First Nations and Regional Health Units, 2011-2021. Source: (SLFNHA 2024a)



ATTACHMENT A: Baseline Health Profile

Figure 4-30 presents the emergency department visit rates per 1000 population for mental health and substance use for Sioux Lookout Area First Nations and regional health units between 2011-2021. Sioux Lookout Band Members on- and off-reserve rates in Ontario were generally higher than the provincial average and rates for the NWHU.

Figure 4-30: Emergency Department Visit Rates for Mental Health and Substance Use per 1000 population, by region, by year between 2011-2021, Sioux Lookout Area First Nations and Regional Health Units. Source: (SLFNHA 2024a)

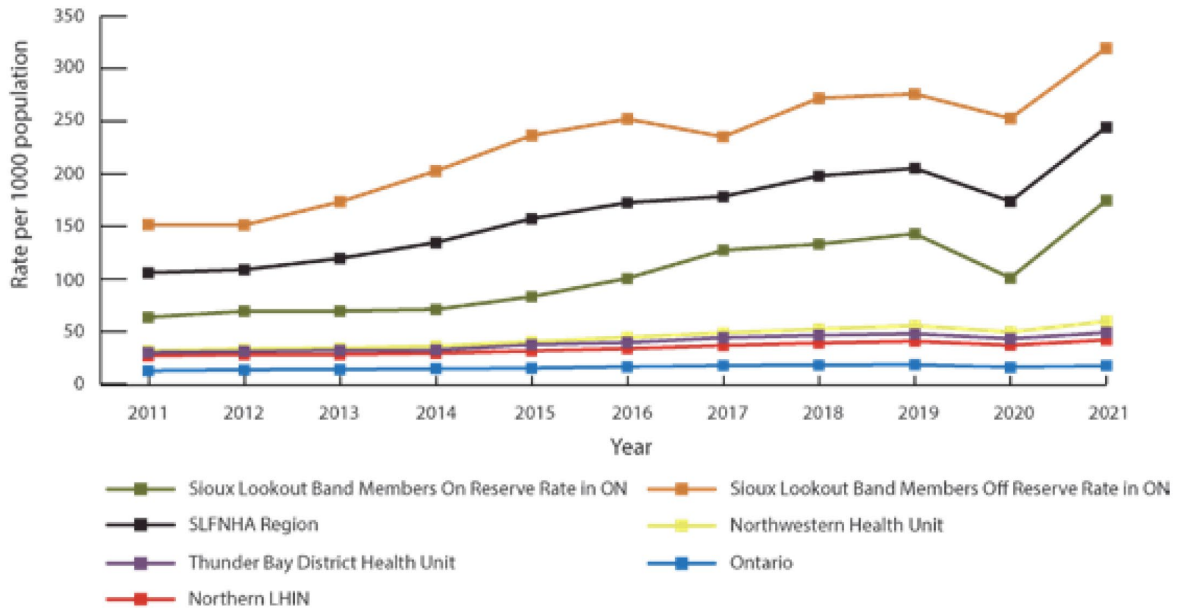
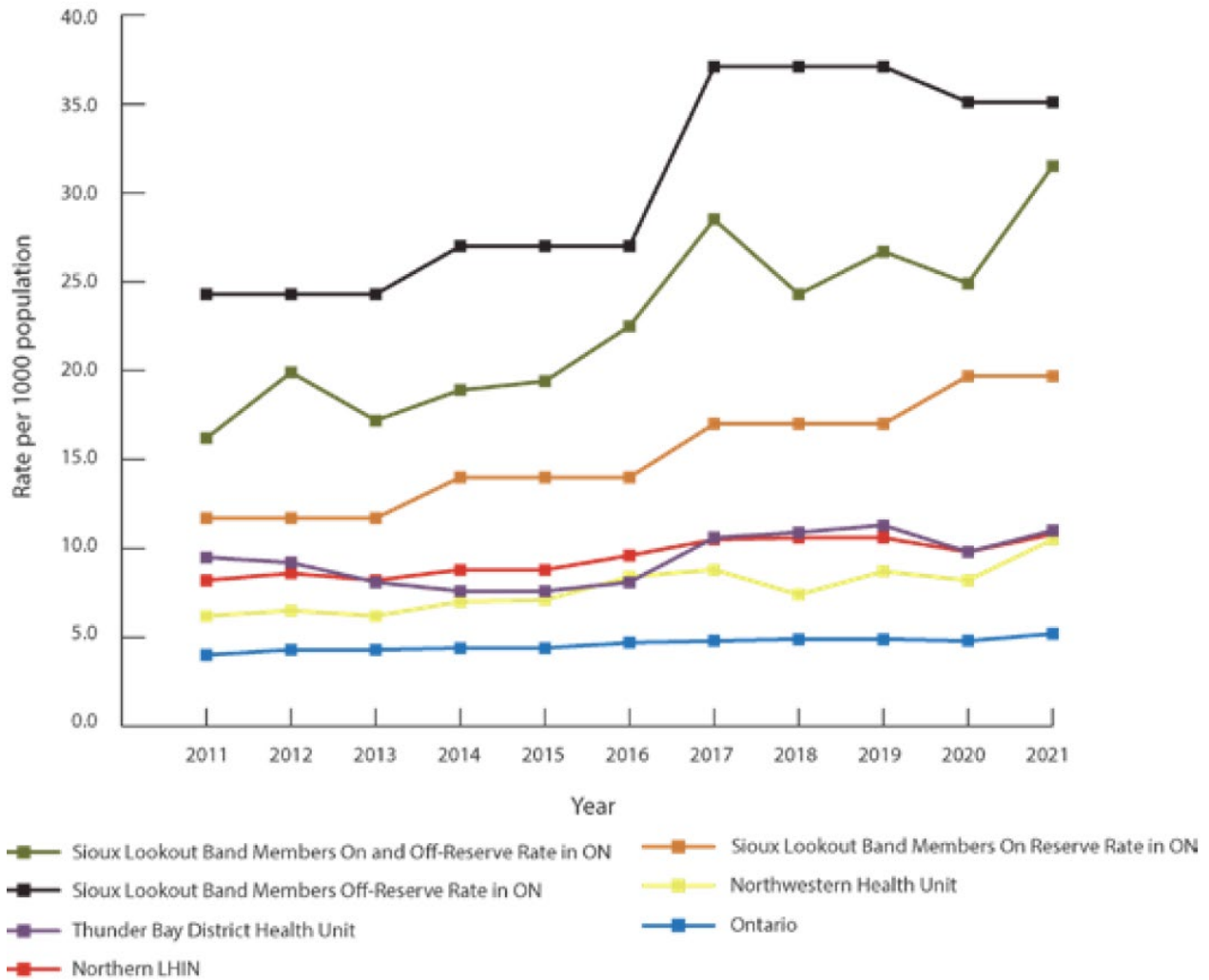


Figure 4-31 presents the hospitalization rates per 1000 population for mental health and substance use for Sioux Lookout Area First Nations and regional health units between 2011-2021. Sioux Lookout Band Members on- and off-reserve rates in Ontario were generally higher than the provincial average and rates for the NWHU.

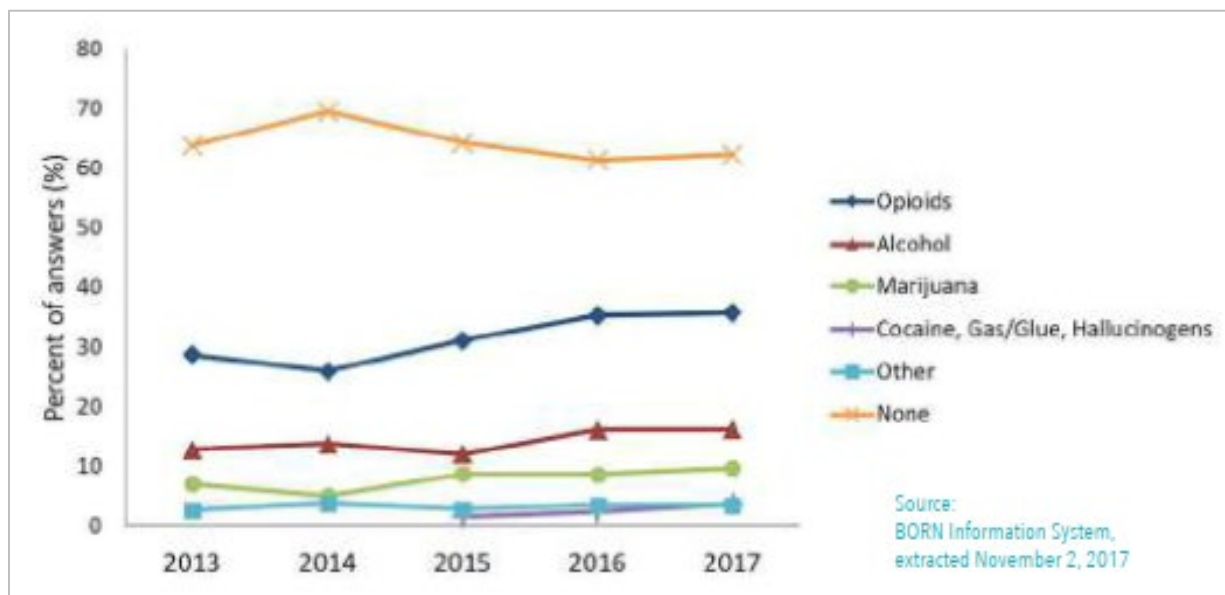
Figure 4-31: Hospitalization Rates for Mental Health and Substance Use per 1000 population, Sioux Lookout Area First Nations and Regional Health Units, 2011-2021. Source: (SLFNHA 2024a)



4.7 MATERNAL AND REPRODUCTIVE HEALTH

This section presents an overview of trends in maternal and reproductive health in the Sioux Lookout area First Nations. According to SLFNHA (2018), the five-year average of mothers who indicated smoking during pregnancy between 2013 and 2017 was 55%. 44% of mothers within Sioux Lookout area First Nations indicated non-smokers during pregnancy (SLFNHA 2018).

Figure 4-32: Drug and Substance Exposure During Pregnancy, Sioux Lookout Area First Nations, 2013-2017.
Source: (SLFNHA 2018)



4.8 CANCER

This section presents an overview of cancer trends in the Sioux Lookout area First Nations, in comparison to provincial rates where data were available. The information from this section was from a report titled *Kayamowemakak Ahkosiwin Tipacimowin Cancer in Sioux Lookout area First Nations 2006-2022* (SLFNHA 2025).

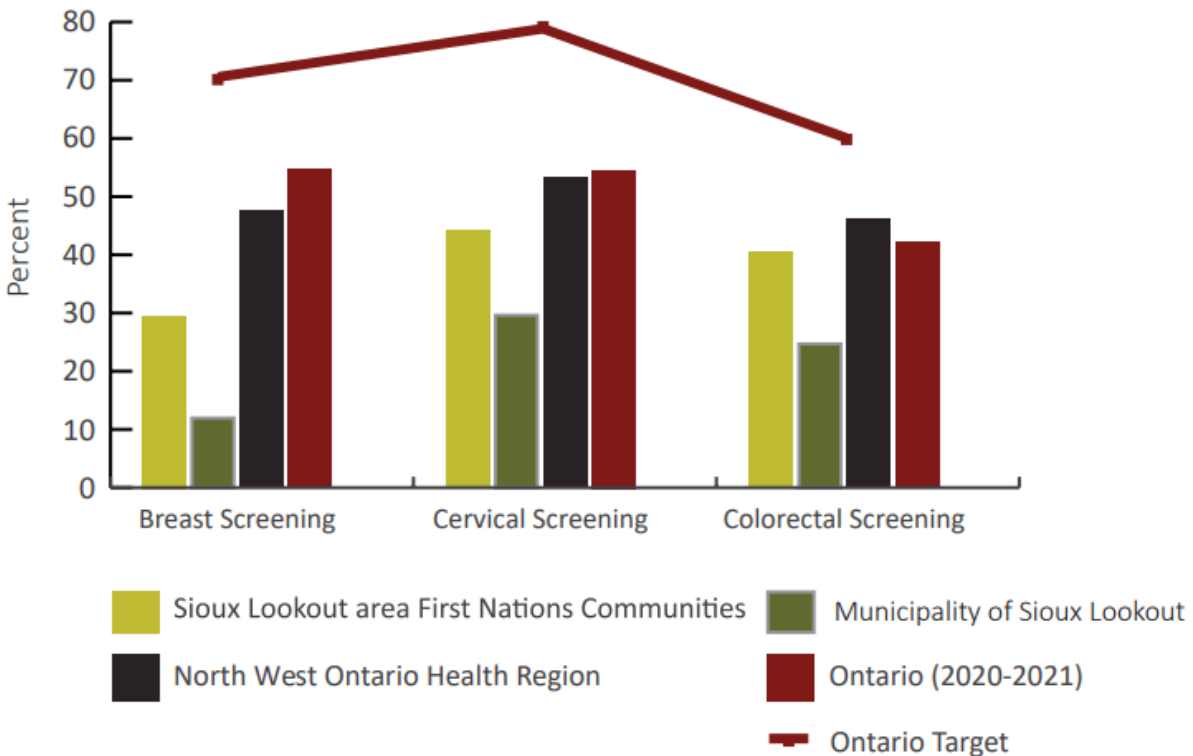
Figure 4-33 presents key findings on cancer incidence in Sioux Lookout area First Nations between 2006 and 2020 (SLFNHA 2025). During most single years between 2006 and 2020, using age-standardized rate measures, the overall cancer incidence (new cases) rates among Sioux Lookout area First Nations, which includes LSFN and WFN, were lower than the rates seen in other public health units (Thunder Bay District Health Unit (TBDHU), and NWHU), and Ontario (SLFNHA 2025).

Figure 4-33: Key findings on cancer incidence in Sioux Lookout area First Nations (SLaFN), 2006-2020. Infographic retrieved from: (SLFNHA 2025).



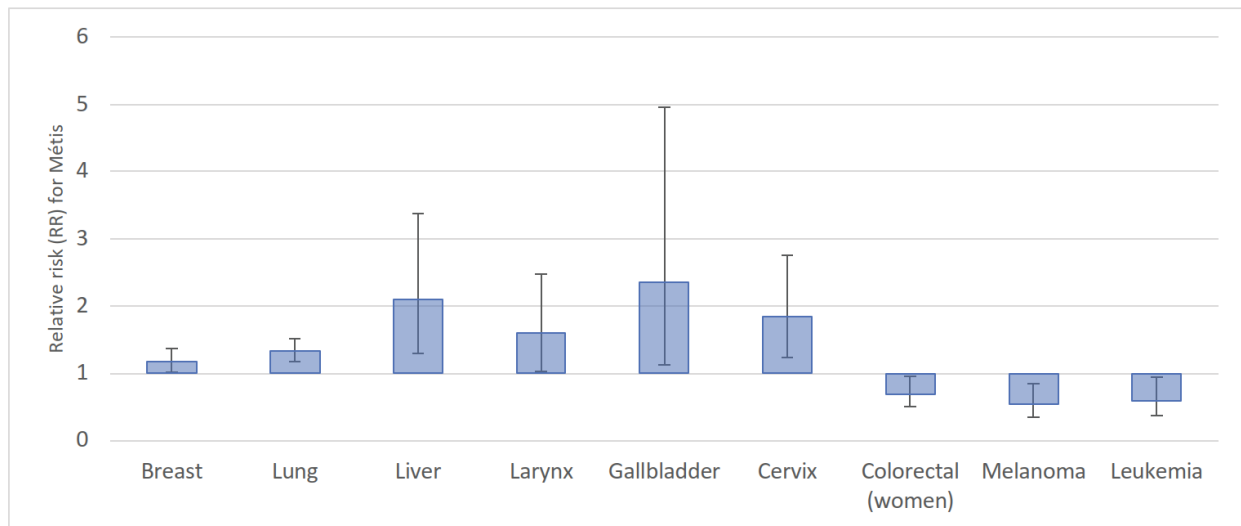
Figure 4-34 presents percentages of up-to-date screened patients for breast, cervical, and colorectal screening programs in Sioux Lookout area First Nations, compared to other regions between 2020 and 2021 (SLFNHA 2025). There was a lower percentage of up-to-date screened patients for breast screening in Sioux Lookout area First Nations communities in comparison with Ontario population (29.5% vs. 54.7%, respectively). In addition, there was a lower percentage of up-to-date screened patients for cervical screening (44.1% vs. 54.5%, respectively). Colorectal screening rates were similar among Sioux Lookout area First Nations communities and Ontario rates (SLFNHA 2025).

Figure 4-34: Percentages of up-to-date screened patients by cancer screening program, Sioux Lookout area First Nations compared to other regions, 2020-2021. Source: (SLFNHA 2025).



Furthermore, a report titled Cancer and Tobacco Risk Factors for Métis People in Canada (Métis National Council 2022) summarizes current trends in cancer and tobacco-related risk factors for Métis populations in Canada. Research suggests that cancer rates among Métis populations are comparable to, or higher than, those observed among non-Indigenous populations. Mazereeuw et al. (2018) as cited in (Métis National Council 2022), examined cancer incidence and mortality using data from the Canadian Census Health and Environment Cohort (1992–2009). Their analysis found that, when all cancer types and both sexes were considered together, overall cancer incidence among Métis adults was similar to that of non-Indigenous adults. However, as illustrated in Figure 4-35, statistically significant higher relative risks of cancer were identified for Métis adults for breast, lung, liver, laryngeal, gallbladder, and cervical cancers. In contrast, lower relative risks were observed among Métis people for colorectal cancer among women, as well as for melanoma and leukemia when men and women were considered together. Differences in incidence for other cancer types were not statistically significant (Métis National Council 2022). report titled Cancer and Tobacco Risk Factors for Métis People in Canada (Métis National Council 2022)

Figure 4-35: Relative Risk for Métis People in Canada for Selected Cancers, from the Canadian Census Follow-Up Cohort (1992-2009). Source (Métis National Council 2022).



4.9 FOOD AND DRINKING WATER ACCESS

4.9.1 FOOD SECURITY

Food security has been globally defined by the Food and Agriculture Organization (FAO) of the United Nations as a collective experience where people have “*physical and economic access to sufficient, safe, and nutritious foods that meet the dietary needs and food preferences for an active and healthy life*” (FAO 2026). Food security is assessed across different dimensions by place and time but usually incorporates concepts of availability (supply or quantity), access (physical and economic barriers), utilization (how food is taken up by the body), and consistency (how stable food access is and remains for people). Food insecurity, then, is the “*inability of individuals and households to access adequate food because of financial constraints,*” which is an extension of financial and material deprivation and a common feature in the experience of being low-income or in poverty (PROOF n.d.).

People who are food insecure are more likely to experience chronic health problems, such as diabetes, depression, arthritis, asthma, heart diseases, and high blood pressure (Moffat et al. 2017). Beyond physical health, food security informs cultural health as well, such as having access to culturally relevant foods of good quality. Household food insecurity is experienced by many across Canada, and it particularly affects immigrants and refugees (Moffat et al. 2017). Cultural practices inform food and eating behaviours, which informs the idea of cultural food security as an additional indicator of health and wellbeing (Power 2008). The idea of food being nourishing culturally, socially, and emotionally plays a role in how people access food as much as socio-economic status and income (Moffat et al. 2017).

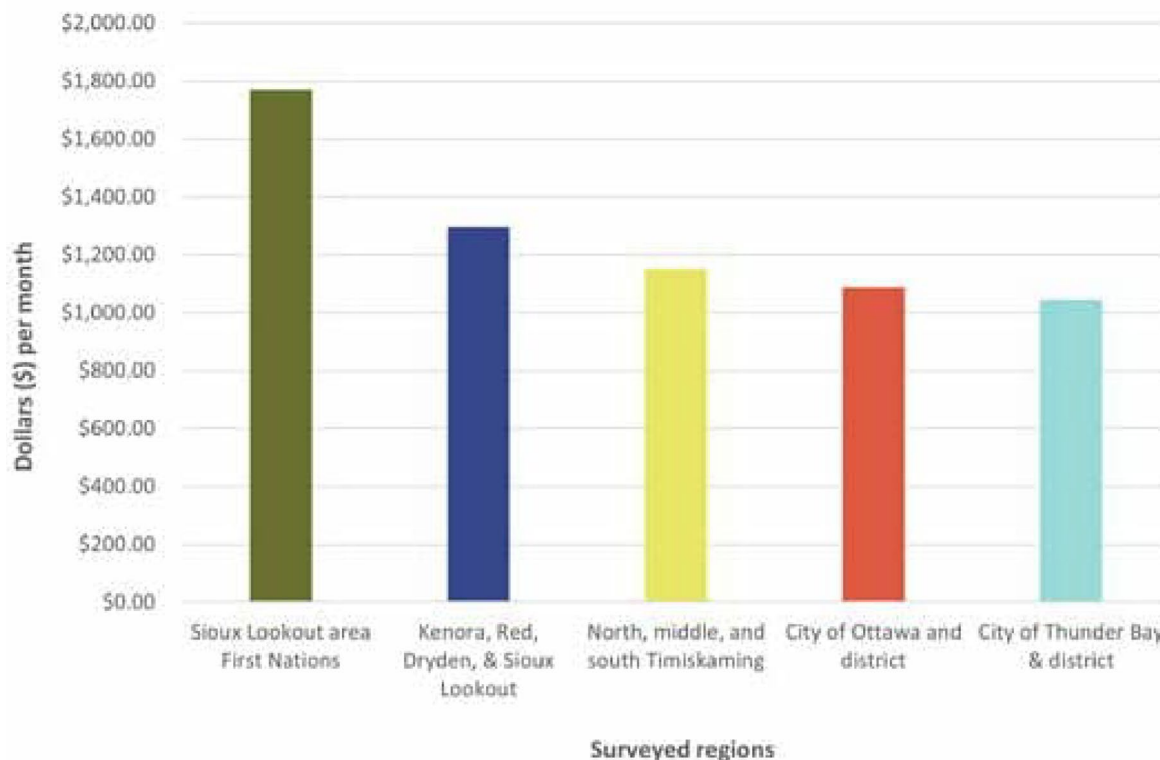
For many First Nations communities, colonization and the imposition of colonial policies have disrupted traditional food knowledge and practices. These interventions have resulted in a shift away from longstanding Indigenous food systems toward reliance on market foods, which are commercially produced, store-bought items that are imported into communities from retailers (SLFNHA 2024b).

This section provides information on food security within Sioux Lookout area First Nations from the SLFNHA.

Figure 4-36 presents the average monthly food cost for a family of four in Sioux Lookout area First Nations compared to other towns and cities in Northwestern Ontario, based on data from the Nutritious

Food Basket Survey. Across three stores surveyed in two Sioux Lookout area First Nations, the average monthly cost of foods was \$1769.43 in 2022. This was between 37% and 69% higher than the monthly average for other municipalities within the NWHU (11 stores surveyed), Timiskaming Health Unit (10 stores surveyed), Ottawa Public Health (14 stores surveyed), and Thunder Bay District Health Unit (4 stores surveyed) regions, respectively (SLFNHA 2024b).

Figure 4-36: Average healthy food cost per month for a family of four in three stores in two Sioux Lookout area First Nations compared to grocery stores in Northern and Eastern Ontario municipalities, 2022. Source: (SLFNHA 2024b).



4.9.2 FIRST NATIONS FOOD NUTRITION AND ENVIRONMENT STUDY (FNFNES)

In 2011, the First Nations Food Nutrition and Environment Study (FNFNES) assessed food security in First Nations communities (including ANA) using the Household Food Security Survey Module and results are summarized in a report titled FNFNES Ontario Regional Report (2011–2012), (Chan et al. 2014). It is noted that LSFN, WFN, NWOMC, and RLEF were not participants in this study. The Ontario regional report grouped communities by ecozone so results could be compared across ecological regions. For the Boreal Shield / Subarctic zone (Ecozone 1), which encompasses northern First Nations including ANA, the report identifies several key findings:

- The highest household food insecurity rate (52%; 34% moderately and 18% severely) was reported among First Nations households located in the Boreal Shield / Subarctic Ecozone 1, compared to other Ontario ecozones in the study (Chan et al. 2014).
- In Ontario (all ecozones), when asked if their household would like to have more traditional food, the majority of adults (73%) said that they would (Chan et al. 2014).

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- First Nations households in Ecozone 1 exhibit strong land-based participation relative to other ecozones and Ontario as a whole (Figure 4-37). When examining data by specific activity, hunting and fishing participation was the highest in Ecozone 1 with 48% of households reported fishing and 24% reported hunting. Less commonly reported was collecting wild plant food, with 19% of households in Ecozone 1 reporting they participate in gathering practices (Chan et al. 2014).
- The main barriers preventing greater use of traditional food by First Nations households in Ontario were time constraints, absence of a hunter in the household, and lack of equipment and / or transportation (Figure 4-38). Other reported barriers that limit harvesting for traditional food in Ontario included forestry operations, government restrictions, and roadways (Figure 4-39) (Chan et al. 2014).

Figure 4-37: Percent of First Nations households in Ontario participating in traditional food harvest and gathering practices (including hunting, fishing, collecting wild plants, or planting a garden) by Ecozone 1 compared to all Ontario communities (n=1429). Figure Source: (Chan et al. 2014).

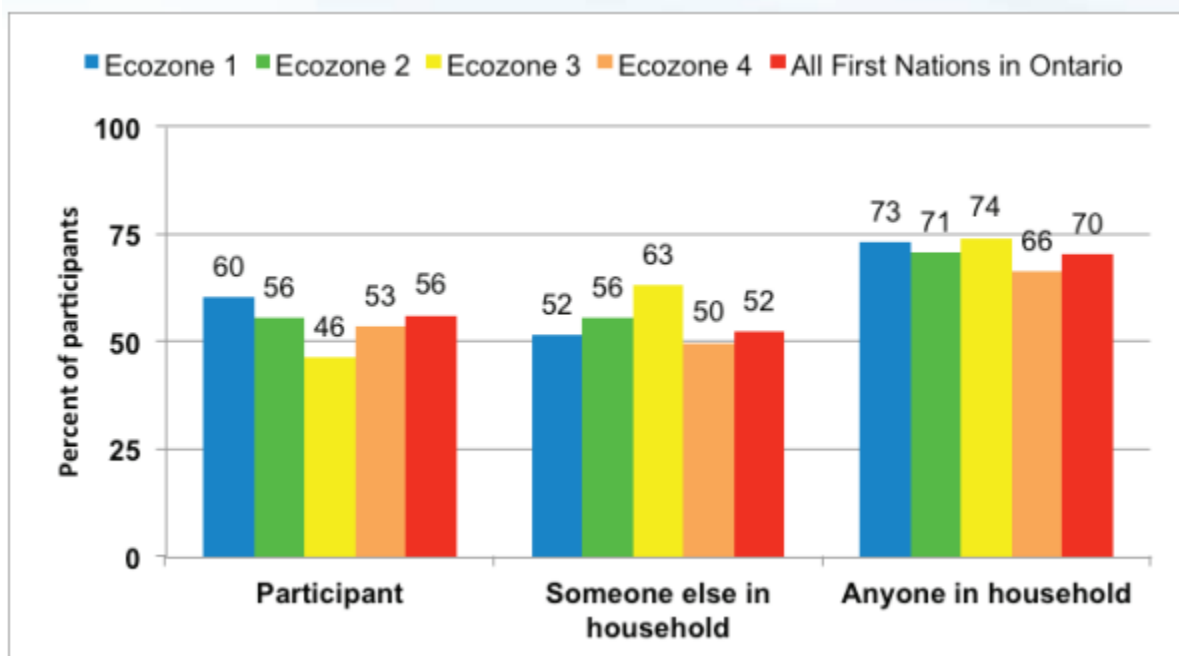


Figure 4-38: Top five reported barriers preventing First Nations households in Ontario from using more traditional foods (n=1331). Figure Source: (Chan et al. 2014).

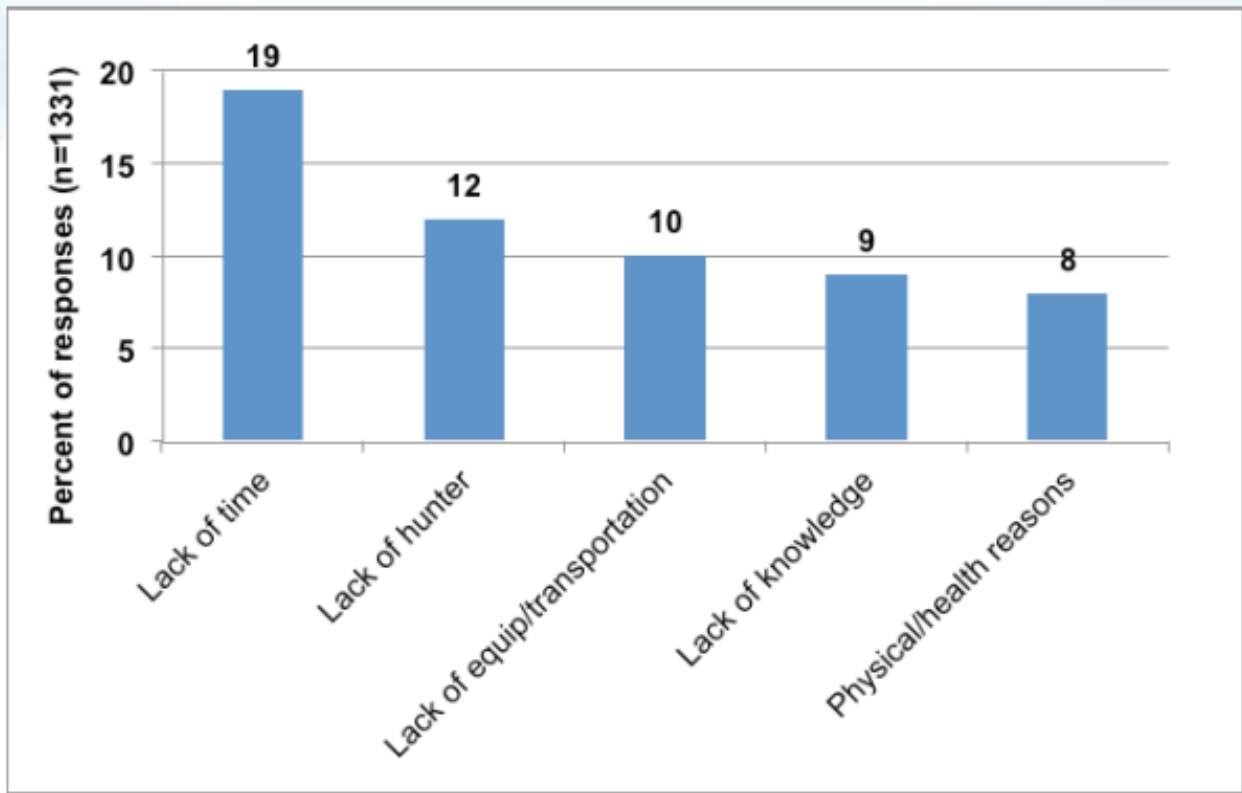
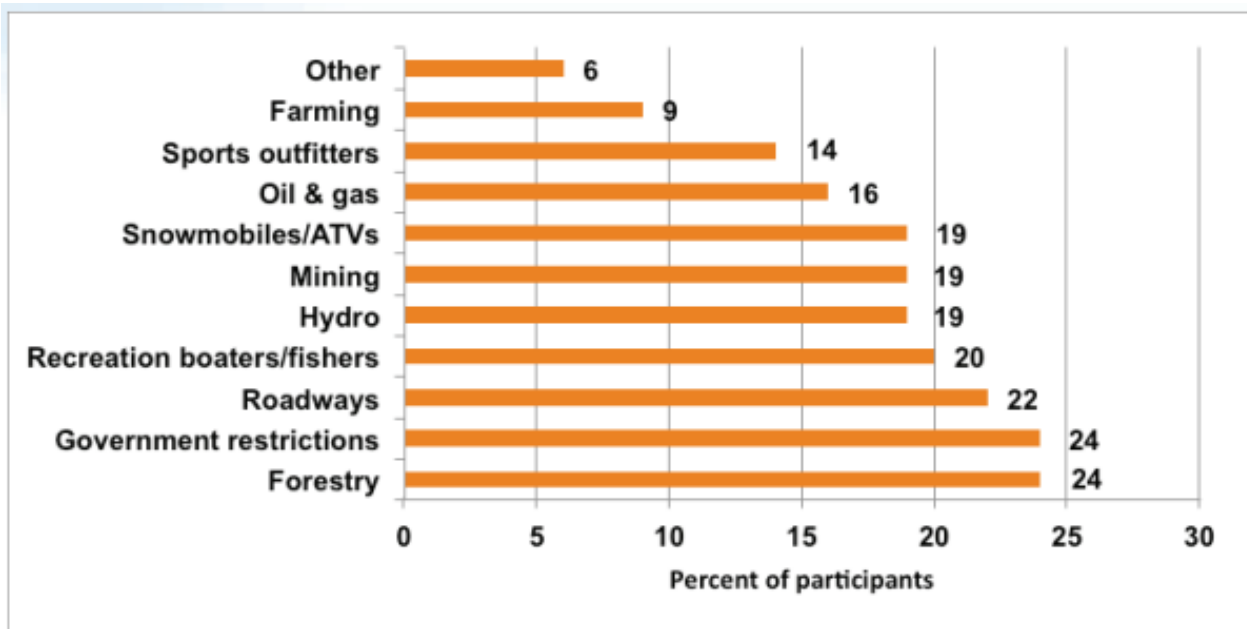


Figure 4-39: Percent of First Nations adults in Ontario who reported that the following affected (or limited) where they could hunt, fish or collect berries (n=1429). Figure Source: (Chan et al. 2014).



4.9.3 DRINKING WATER QUALITY AND ACCESS

First Nations are the owners and operators of water infrastructure in First Nations communities in Ontario. It is the responsibility of Indigenous Services Canada (ISC) to ensure access to safe drinking water by:

- Providing funding and advice to First Nations communities, to design, construct, upgrade, repair, and operate drinking water systems
- Supporting drinking water monitoring
- Providing public health advice when there are concerns about drinking water quality (Office of the Auditor General of Canada 2021).

First Nations Chiefs and Councils issue and lift drinking water advisories.

A 2021 Independent Auditor's Report, Access to Safe Drinking Water in First Nations Communities – Indigenous Services Canada was prepared for the Office of the Auditor General of Canada. The Auditor's Report was intended to support Canada's commitment to achieving the United Nations' 2030 Agenda for Sustainable Development, which included the goal of providing clear water and sanitation to all by 2030 (Office of the Auditor General of Canada 2021). The Report found that ISC had not provided the necessary support to ensure First Nations communities had ongoing access to safe drinking water (Office of the Auditor General of Canada 2021). The Report found that outdated policy and formula for funding First Nations water infrastructure, salary gaps for water systems operators, and the lack of a regulatory regime to manage drinking water in First Nations communities were among the key reasons why First Nations communities did not have drinking water protections comparable to other communities in Canada (Office of the Auditor General of Canada 2021).

The most recently available information on drinking water sources within the Indigenous communities was obtained from a report titled the National Assessment of First Nations Water and Wastewater Systems (Neegan Burnside Ltd. 2011). Based on this report, the drinking water sources for the Indigenous communities are as follows:

- Wabauskang Reserve No. 21 (located approximately 56 km from the Project)
 - Surface water: Wabauskang Lake
- English River No. 21 (located approximately 77 km from the Project)
 - Surface water: Grassy Narrows Lake
- Lac Seul Reserve No. 28 (located approximately 101 km from the Project)
 - Surface water (Frenchman's Head settlement)
 - Groundwater (Kejick Bay and Whitefish Bay settlement).

The Municipality of Red Lake and the Township of Ear Falls are served by surface water systems drawn from Skookum Bay (Red Lake) and the English River, respectively (Municipality of Red Lake 2024; Township of Ear Falls 2024).

Based on the information readily available to date, the PA, LSA, and RSA are not within a Source Protection Region or Source Protection Area (MECP 2026).

A search of available water well records from the Ontario Ministry of Environment, Conservation, and Parks (MECP) online Water Well Information System conducted by WSP (2025), indicates that there are 12 monitoring or test wells, 7 existing or former water supply wells, and 3 wells of unknown use located within the 3 km buffer of the Property boundary. Based on their recorded locations, these wells were assumed to be active if located adjacent to buildings, indicating there are 8 active water supply wells in the area. All these potentially active wells are located adjacent to large water bodies at significant distances from the Property. Of the remaining 12 wells, all but 2 are described as test wells that were drilled in the 1960's, whose location information is very poor and reported as non-productive and are assumed to be abandoned. One monitoring well, WWR7133399, was located and confirmed to be the existence at the site at the gravel pit off Tuzyk's Road. A second likely monitoring well is reportedly

located near to the gravel pit at the intersection of Tuzyk's Road and Highway 105, but no construction details are available. There are no water supply wells within the Property boundary. All of the water supply wells are north of the Property, to the northwest, close to Boyden Creek, or north and northeast close to Gullrock Lake. There are a number of small buildings, which are likely cottages, located along the shores of lakes without wells in the MECP Water Well Information System, which are assumed to have lake-based water supplies. There are no active Permit to Take Water approvals within the surveyed area not held by Great Bear Resources (WSP 2025).

All of the water supply wells are north of the Property, to the northwest, close to Boyden Creek, or north and northeast close to Gullrock Lake, and lie on far sides of groundwater divides from aspects of the Project that are likely to affect groundwater (WSP 2025). There are no groundwater water wells (including drinking water wells) present within the LSA and RSA which will be affected by the Project. As such, groundwater exposure pathways for human health were therefore considered to be incomplete for the Project, as described in the HHERA (Impact Statement Appendix N-1; WSP 2026a).

4.10 MORTALITY

This section provides an overview of a report titled Learning from Our Ancestors: Mortality Experience of First Nations in Northern Ontario (1992–2014), published by the SLFNHA (Mamow Ahyamowen 2020). The report examines mortality and chronic health conditions among members of 59 First Nations communities in Northern Ontario. It compares mortality trends to the Ontario population overall and highlights key health challenges and inequities faced by First Nations communities. Although SLFNHA serves 33 First Nation communities in the Sioux Lookout region in Ontario, Canada, including LSFN and WFN, this report was published by the Mamow Ahyamowen (everyone's voices) Partnership, which is an epidemiology partnership of 11 First Nations organizations collectively serving 78 communities across northern Ontario. 59 communities participated in this analysis including ANA and LSFN (Mamow Ahyamowen 2020). It is noted that WFN and NWOMC were not participants in this analysis and as such, the data may not be representative of these communities.

While this report may be slightly outdated, it reflects the most recently available data on mortality at this level (i.e., specific to local First Nations). Due to the infrequent release of community-specific mortality statistics (for many communities this is the first time that mortality data has ever been available at the community level) some indicators presented here may not capture the most current conditions but represent the best available evidence at the time of reporting (Mamow Ahyamowen 2020).

Figure 4-40 presents the common causes of death between 1992 and 2014 for Mamow Ahyamowen communities with comparison to Ontario rates. Members of Mamow Ahyamowen communities are more likely to die before retirement age (65 years old) than the overall Ontario population, with the average age at death among Mamow Ahyamowen communities being 54 years old compared to 74 years old for Ontario. The most common causes of death among Mamow Ahyamowen community members between 1992 and 2014 included injuries, circulatory, cancer, and diabetes related deaths. Mamow Ahyamowen communities have more deaths due to injuries and diabetes than Ontario overall, whereas circulatory and cancer deaths showed similar rates to Ontario overall.

Figure 4-41 presents a closer look at the Injuries category of common causes of death among Mamow Ahyamowen communities with comparison to Ontario rates. Mamow Ahyamowen communities had higher rates than Ontario for all types of injuries identified.

Figure 4-40: Common causes of death among Mamow Ahyamowen communities, 1992-2014 (* = data suppressed for privacy reasons). Source: (Mamow Ahyamowen 2020).

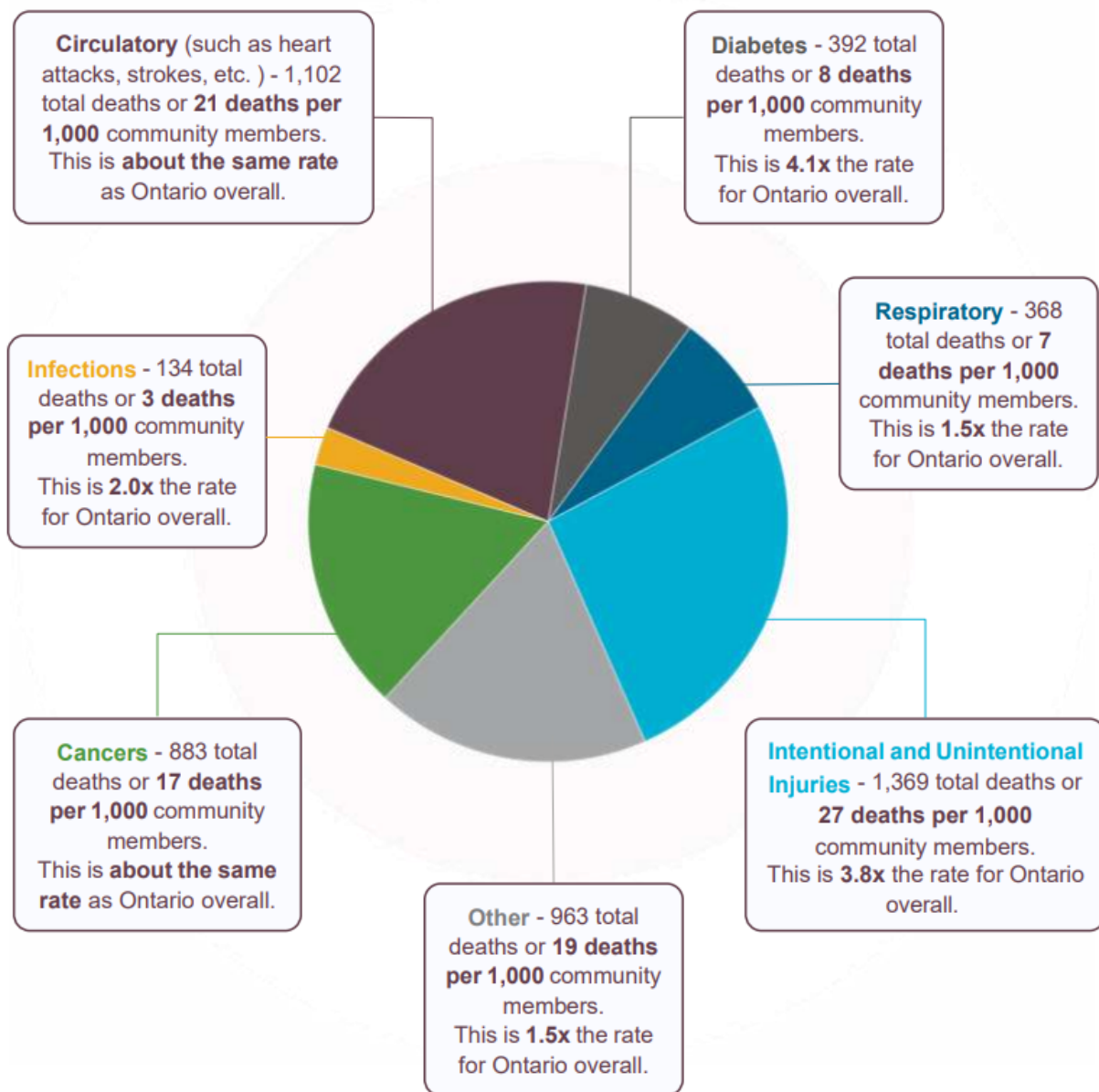


Figure 4-41: Common causes of death (injuries category) among Mamow Ahyamowen communities, 1992-2014. Source: (Mamow Ahyamowen 2020).

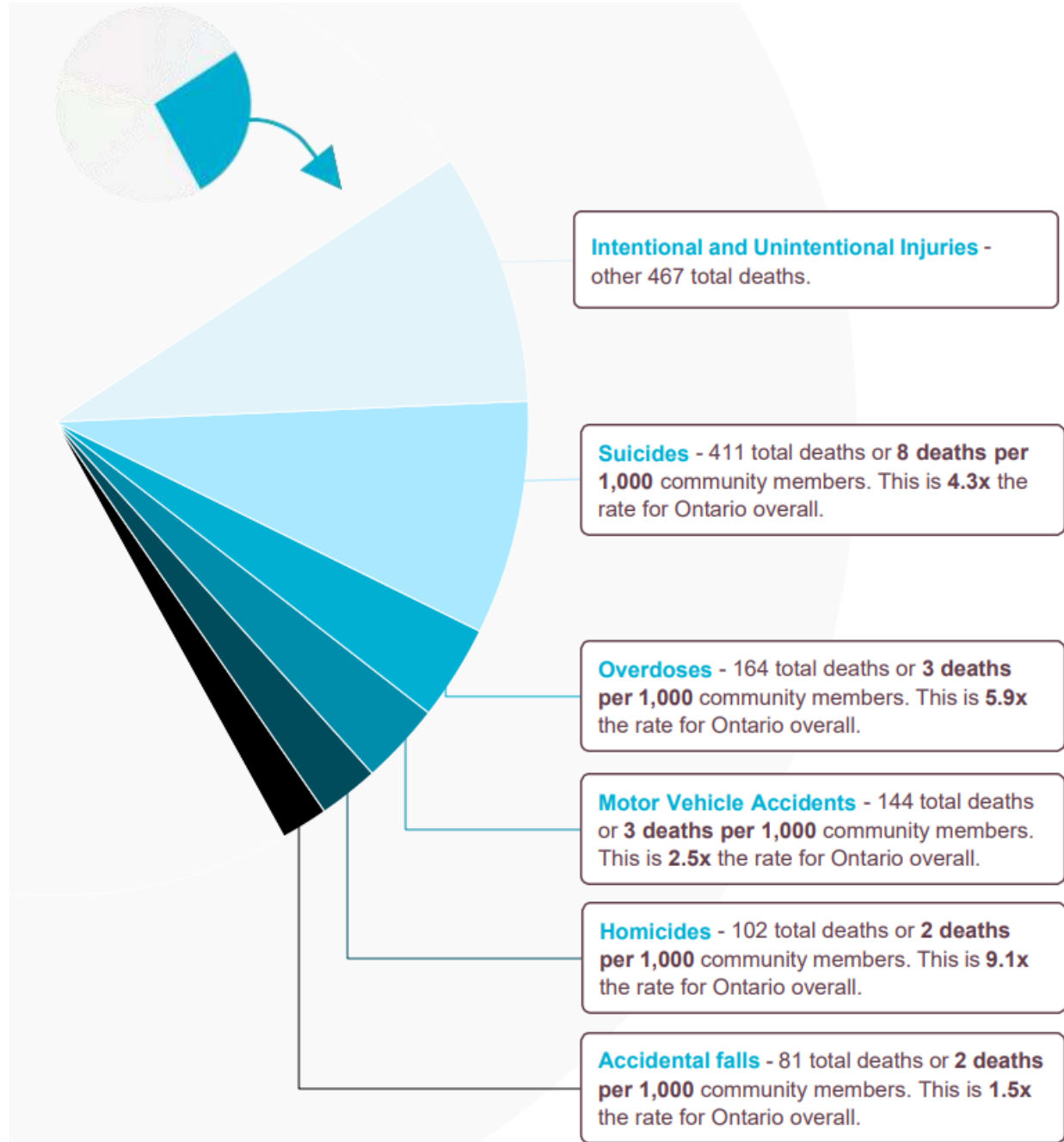


Figure 4-42 presents men and women within Mamow Ahyamowen communities with a history of diabetes at death compared to Ontario between 1992 and 2014. More people in Mamow Ahyamowen communities tend to have diabetes when they die compared to Ontario overall, and women were more likely to have a history of diabetes when they die compared to men (Mamow Ahyamowen 2020).

Figure 4-42: Men and women within Mamow Ahyamowen communities with a history of diabetes at death compared to Ontario, 1992-2014 (* = data suppressed for privacy reasons). Source: (Mamow Ahyamowen 2020).

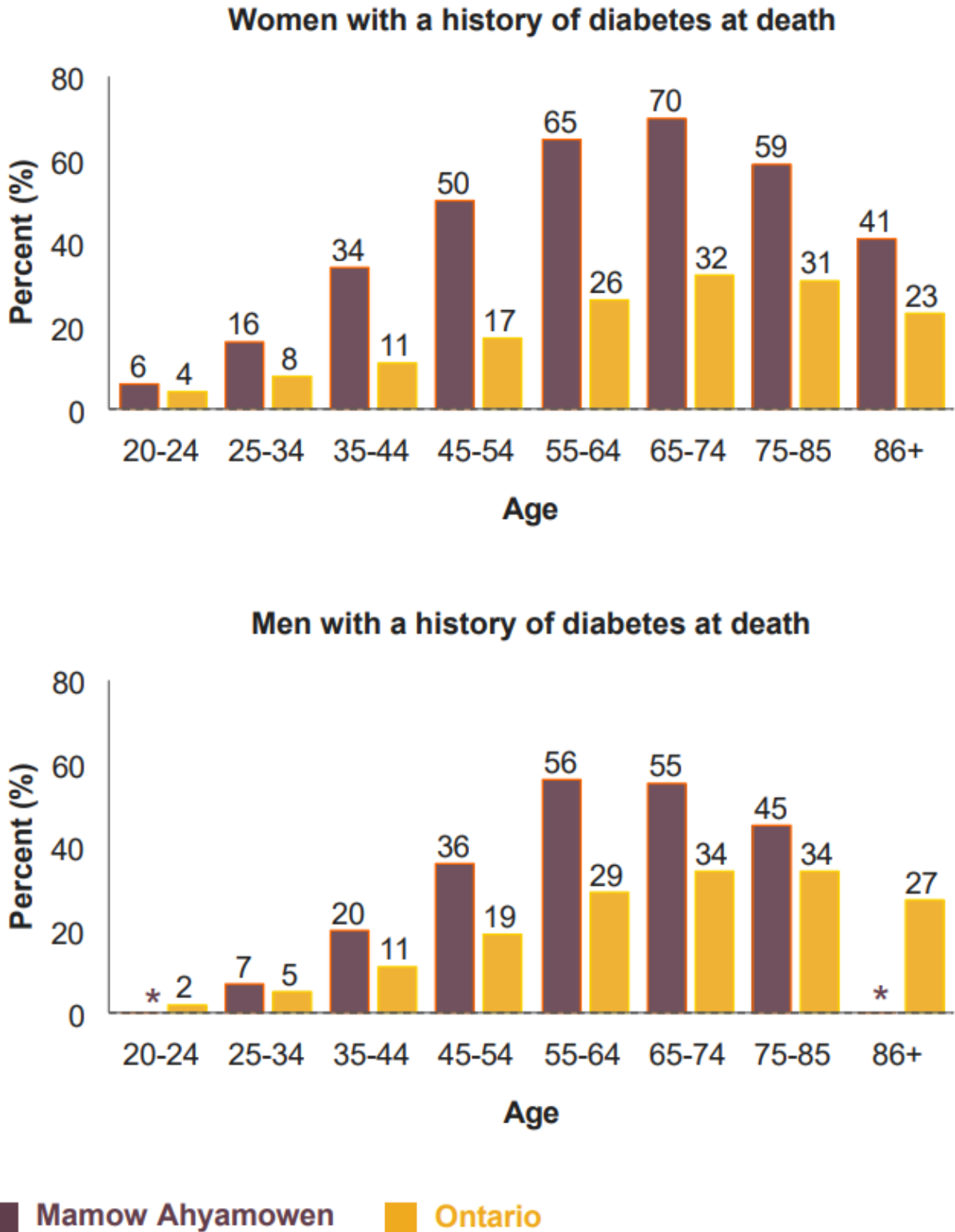


Figure 4-43 presents men and women within Mamow Ahyamowen communities with a history of depression or anxiety at death compared to Ontario between 1992 and 2014. Mamow Ahyamowen community members were less likely to have a history of depression or anxiety at death compared to Ontario overall and women were more likely to have a history of depression and anxiety when they die compared to men (Mamow Ahyamowen 2020).

Figure 4-43: Men and women within Mamow Ahyamowen communities with a history of depression and anxiety at death compared to Ontario, 1992-2014. Source: (Mamow Ahyamowen 2020).

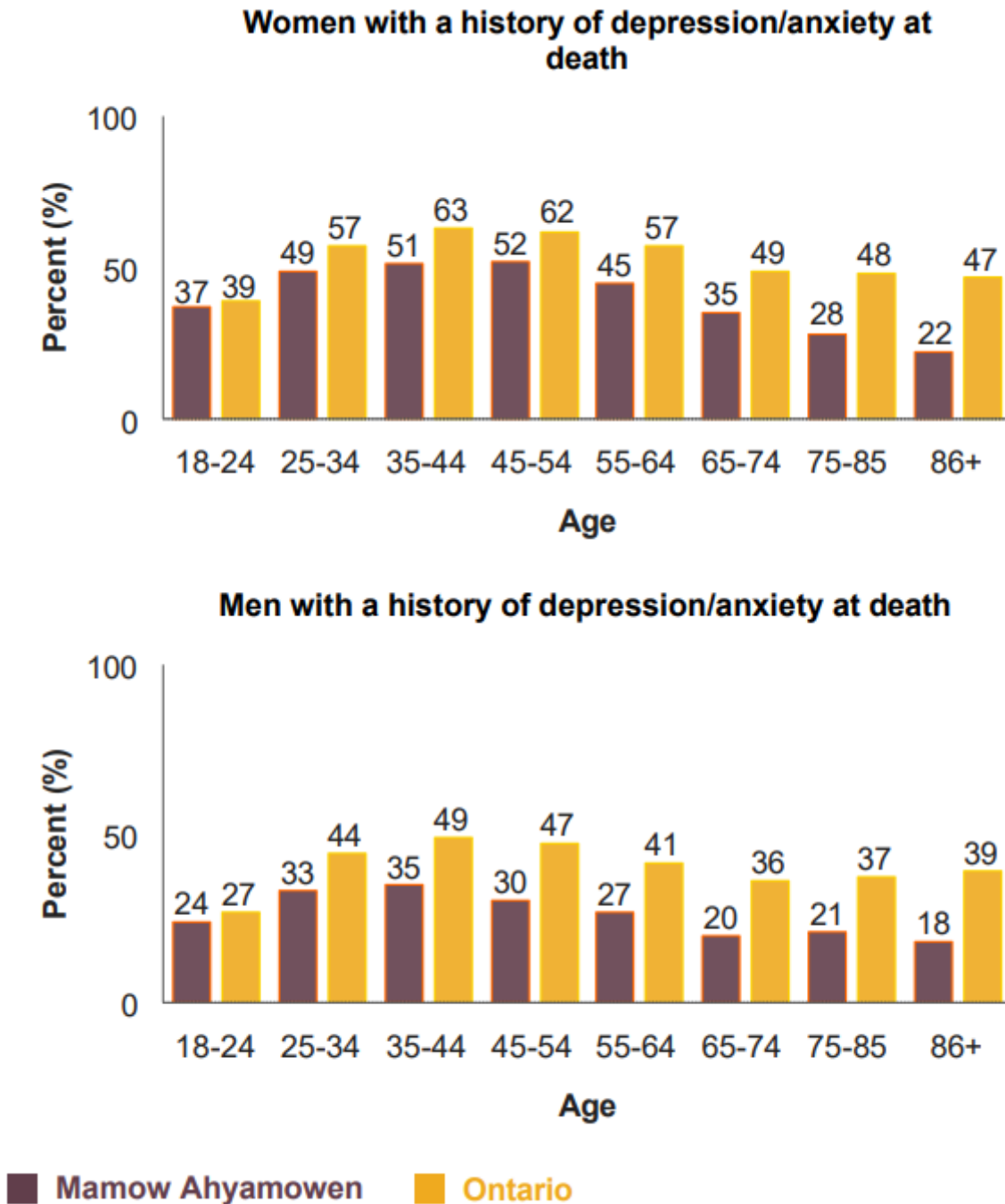
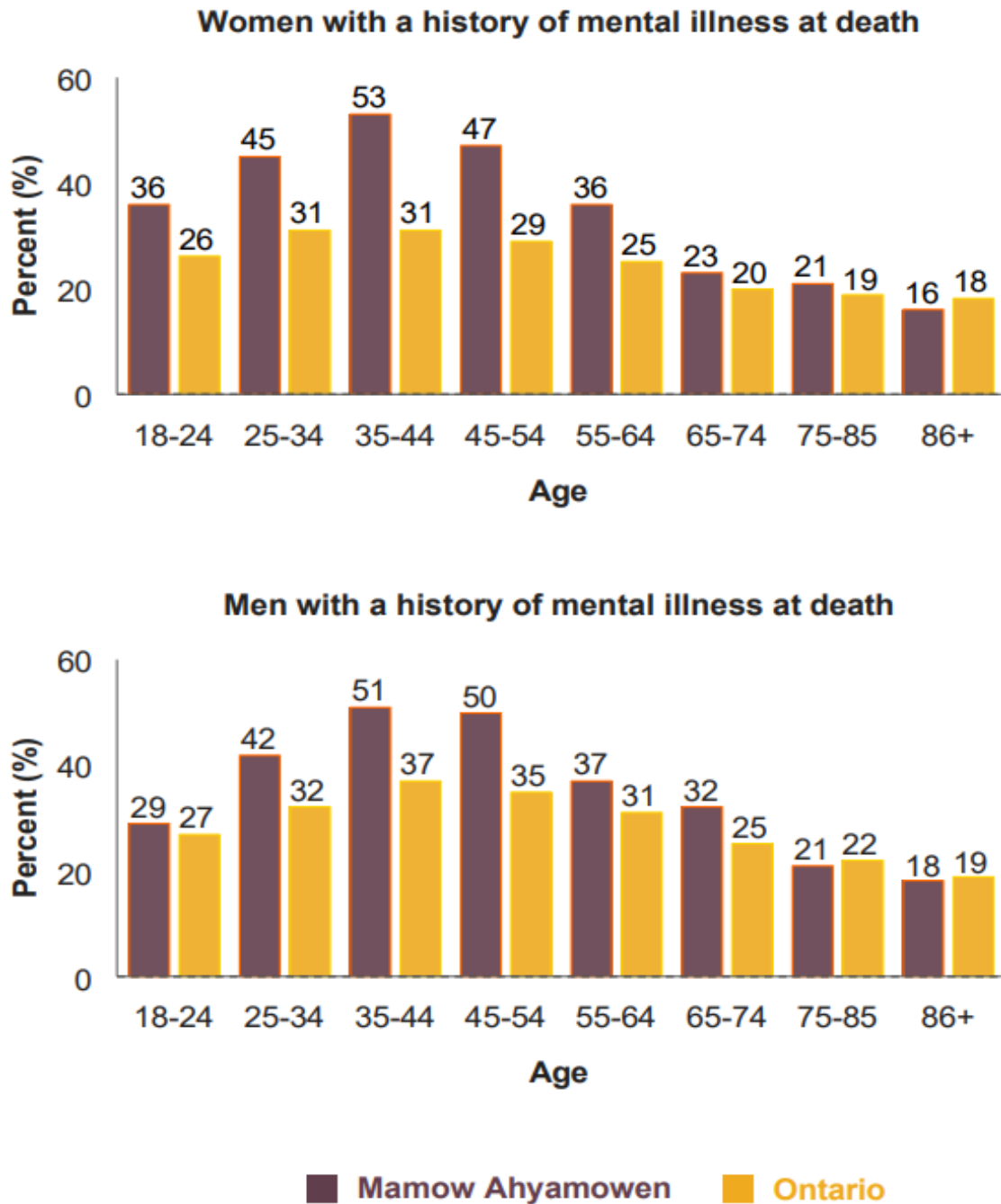


Figure 4-44 presents men and women within Mamow Ahyamowen communities with a history of mental illness (e.g., psychosis, personality disorders, schizophrenia) at death compared to Ontario, between 1992 and 2014. Mamow Ahyamowen community members were more likely to have mental illness at death compared to Ontario overall. The rates of mental illness at death were highest in men between 25 and 64 years of age and women between 18 and 54 years of age (Mamow Ahyamowen 2020).

Figure 4-44: Men and women within Mamow Ahyamowen communities with a history of mental illness at death compared to Ontario, 1992-2014. Source: (Mamow Ahyamowen 2020).



5 BASELINE PUBLIC HEALTH DATA

This section provides a summary of publicly available data primarily on a variety of indicators of health (e.g., birth rates, disease rates, injuries, mental health rates). While the data presented in this section may include data from some First Nations communities in the region, these data are not specific to Indigenous people and are not disaggregated to the individual community level. Additional specific Indigenous health data for the local Indigenous communities are included in other sections of this attachment, where applicable.

As described in Section 2.2, health characteristics are largely drawn from the database of statistics available through Statistics Canada and Public Health Ontario, which in turn have been sourced from the National Ambulatory Care Reporting System; the Ministry of Health and Long-Term Care; IntelliHealth, Discharge Abstract Database; Vital Statistics Mortality; HBHC-ISCIS Reporting Sub-System; the Ministry of Children, Community and Social Services; Statistics Canada; and the CCHS. Age-standardized rates in this section have been adjusted by Public Health Ontario to the 2011 Census population.

The smallest geographical scale for which health snapshots are available through Statistics Canada and Public Health Ontario are public health units. Health statistics specific to individual municipalities were not available from publicly available data at the time of preparation of this report. As noted in Section 2.2, the LSA and RSA municipalities fall within the Northwestern Public Health Unit (NWHU). The boundaries of the NWHU encompasses several communities, including LSFN, WFN, ANA, NWOMC, the Municipality of Red Lake, the Township of Ear Falls, and the District of Kenora. Accordingly, unless otherwise stated, the health statistics presented in this section are drawn from the RSA's corresponding public health unit - NWHU. Therefore, the data presented in this section reflects general population health indicators across both Indigenous and non-Indigenous communities at the public health unit-level (i.e., within the NWHU).

Unless explicitly stated, references to results being higher or lower throughout this section indicate relative differences only and should not be interpreted as statistically significant.

Various sources of population-health statistics at the national, provincial, and local levels are available. Disease rates in small populations can vary substantially, and it may not be possible to calculate them reliably. Further, in cases where the sample size is too low, health data is suppressed. Unlike the federal Census, health data is not gathered and presented on a set timeline. Therefore, health statistics for some health conditions may be more recent than others.

5.1 PERCEPTIONS OF HEALTH AND WELLNESS

This section provides an overview of perceptions of health and wellness in the NWHU, in comparison to provincial averages.

Figure 5-1 presents the age-standardized rates of respondents to the CCHS, from NWHU and the province of Ontario, who reported a good or excellent perception of their overall health. The rates of males in NWHU who reported a good or excellent perception of their overall health slightly declined from 2015-16 to 2019-20 and were lower than the rates for females the NWHU (not statistically validated). In addition, the rates for males in the NWHU were also lower than rates for males in the province (only significantly lower for the 2017-2018 and 2019-2020 period; no significant difference in the 2015-2016 period) (Ontario Agency for Health Protection and Promotion, 2023a). The rates of females in the NWHU who reported a good or excellent perception of their overall health was relatively steady throughout the years. The rates for females in the NWHU were lower than the rates for females in the province in 2015-16 and 2019-20, however rates for females were not significantly lower than provincial rates.

Figure 5-1: Perceived Health is Good or Excellent, Northwestern Health Unit and the Province of Ontario, 2015-2020. Source: (Ontario Agency for Health Protection and Promotion, 2023a).

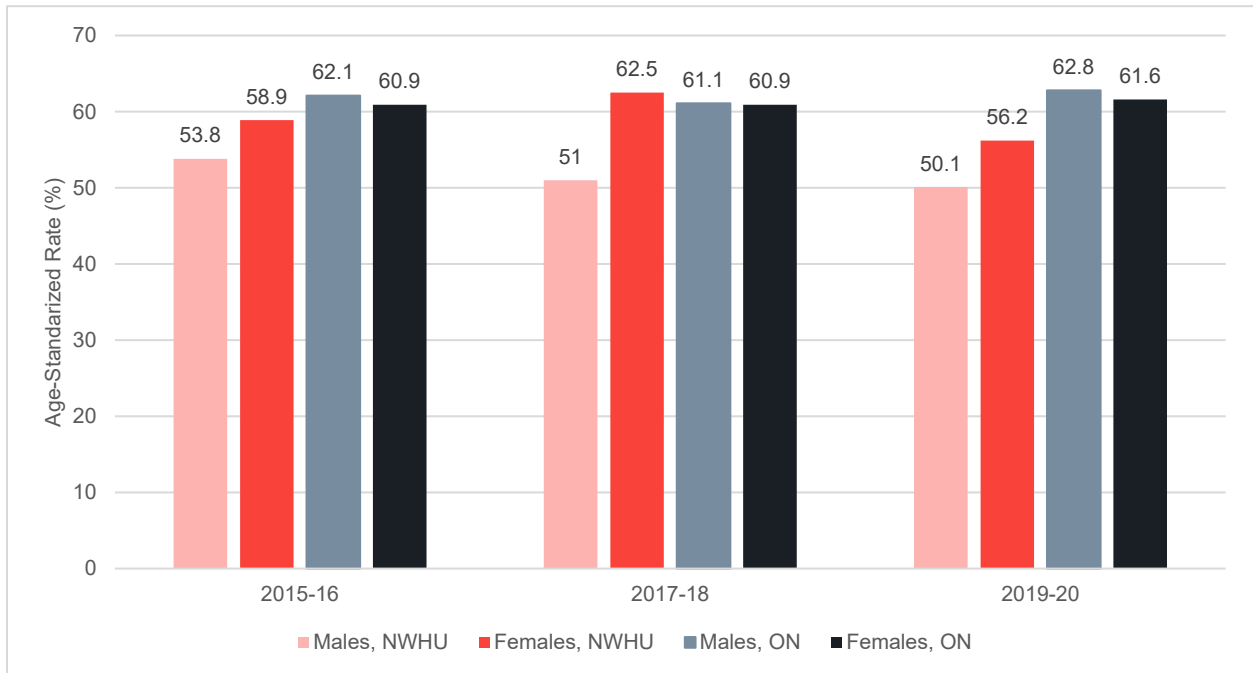


Figure 5-2 presents the age-standardized rates of respondents to the CCHS from the NWHU and the province who reported being satisfied or very satisfied with life in general. The rates of males in NWHU who reported being satisfied or very satisfied with life in general steadily declined from 2015-16 to 2019-20, while the rates for females in the NWHU increased between 2015-16 and 2017-18, but declined in 2019-20 (Ontario Agency for Health Protection and Promotion, 2023a). In 2015-16 and 2017-18, the rates for males in NWHU were higher than the rates for females in the NWHU and the rates for males in the province. In 2019-20, the rates for males were lower than the rate for females in NWHU, and lower than the rates for males in the province.

Figure 5-2: Satisfied or Very Satisfied with Life in General, Northwestern Health Unit and the Province of Ontario, 2015-2020. Source: (Ontario Agency for Health Protection and Promotion, 2023a)

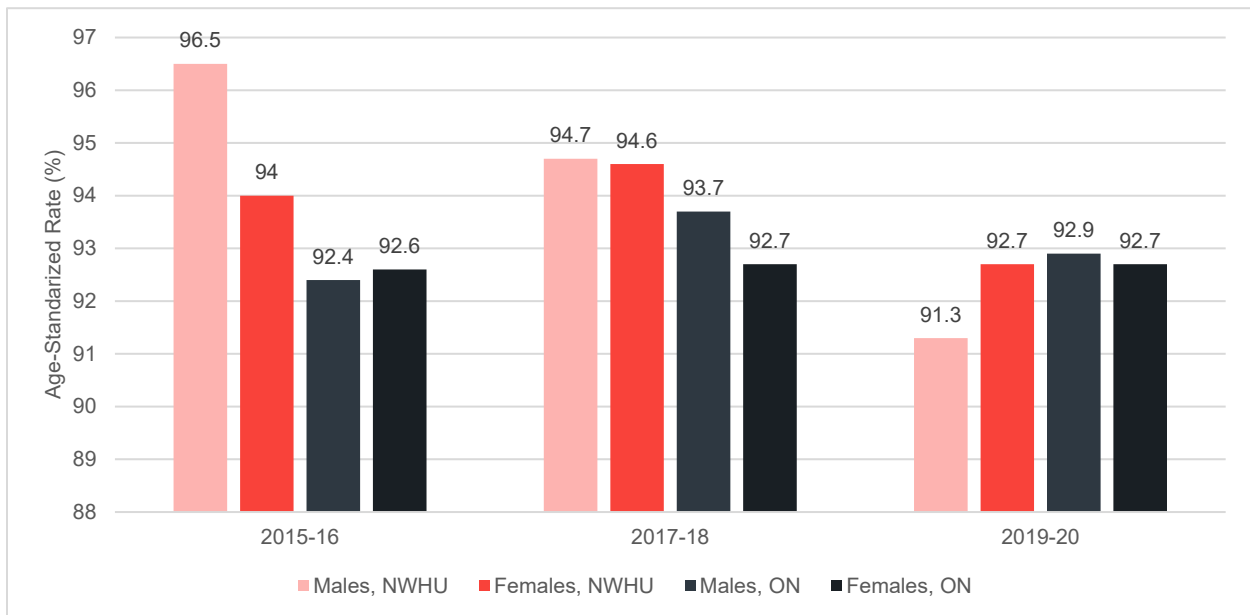


Figure 5-3 presents the age-standardized rates of respondents to the CCHS from the NWHU and the province who reported a good or excellent perception of their mental health. The rates of females in NWHU who reported a good or excellent perception of their mental health were higher than the provincial average, while the rates for males were lower than the provincial average between 2015-16 to 2019-20 (Ontario Agency for Health Protection and Promotion, 2023a). The rates of females in the NWHU who reported a good or excellent perception of their mental health were higher than the rates for males in NWHU in 2015-16 and 2017-18 and were lower than the rates for males in the NWHU in 2019-20.

Figure 5-3: Perceived Mental Health is Good or Excellent, Northwestern Health Unit and the Province of Ontario, 2015-2020. Source: (Ontario Agency for Health Protection and Promotion, 2023a)

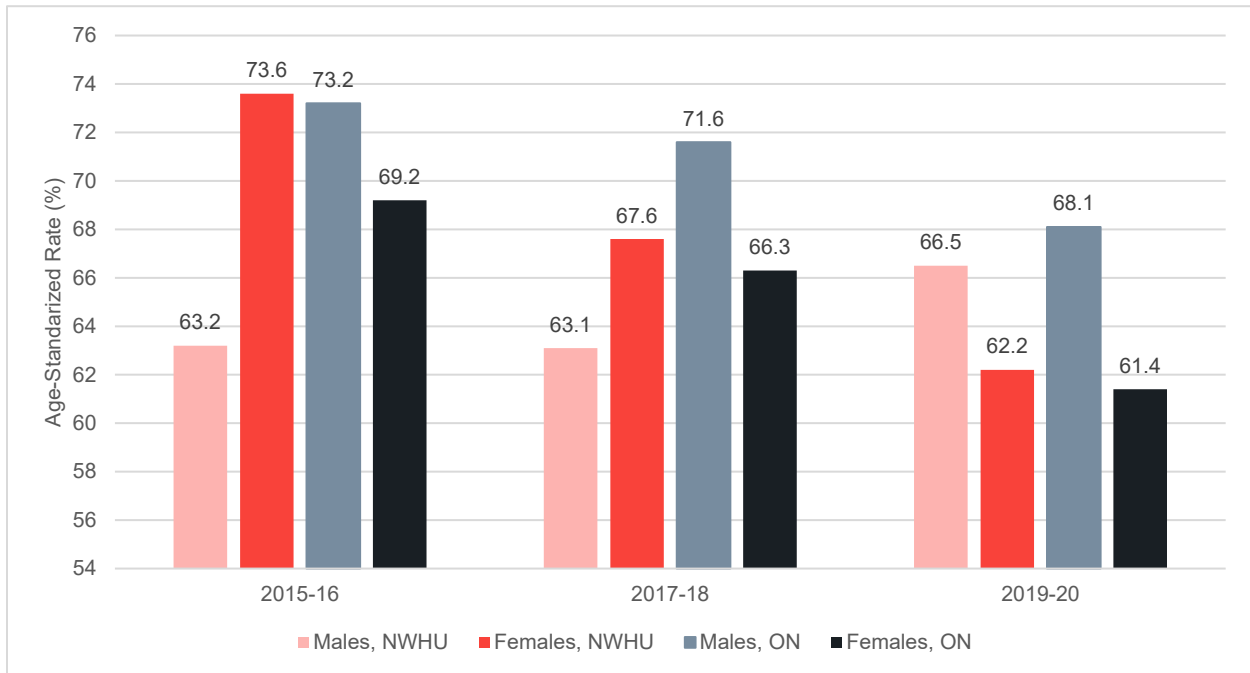
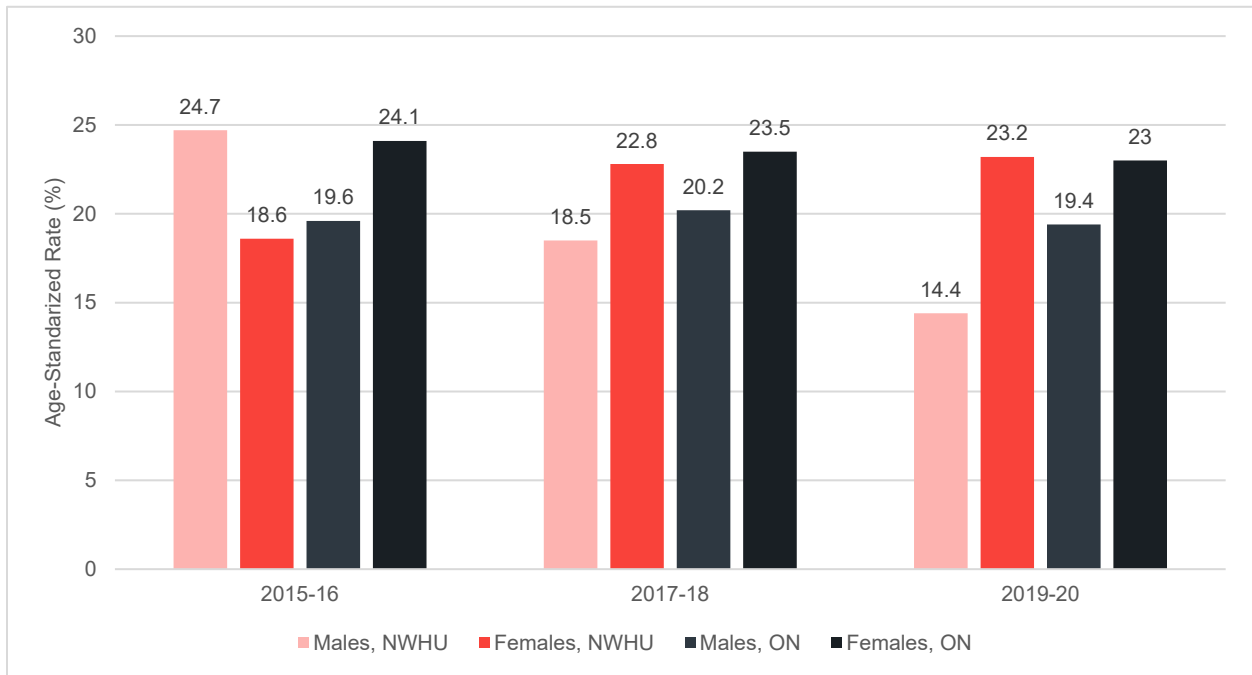


Figure 5-4 presents the age-standardized rates of respondents to the CCHS from NWHU and the province who reported feeling quite a bit or extremely stressed most days. In 2015-16, the rates of males in NWHU who reported feeling quite a bit or extremely stressed most days were higher than the rates of females in NWHU (Ontario Agency for Health Protection and Promotion, 2023a). In 2017-18, the rates for females in NWHU was higher than the rates for males in NWHU, and the rates for females in the province. In 2019-20, the rates for males in NWHU were higher than the rates for females in NWHU but lower the rates for males in the province. However, in all years captured in the figure below, rates of perceived life stress in the NWHU were not statistically different from Ontario rates.

Figure 5-4: Perceived Life Stress, Most Days Quite a Bit or Extremely Stressful, Northwestern Health Unit and the Province of Ontario, 2015-2020. Source: (Ontario Agency for Health Protection and Promotion, 2023a)



5.2 LIFESTYLES AND BEHAVIOURS

This section provides an overview of health-related lifestyles and behaviours in the RSA health units' catchment areas (i.e., NWHU), in comparison to provincial averages.

Figure 5-5 presents the age-standardized rates of CCHS respondents from the NWHU and the province who reported smoking daily. In 2015-16 and 2017-18, males and females in the NWHU had higher rates of current daily smoking than the provincial averages, with higher rates of smoking among males for both NWHU and Ontario (Ontario Agency for Health Protection and Promotion, 2023b).

Figure 5-5: Current Daily Smoker, Northwestern Health Unit and the Province of Ontario, 2015-2018. Source: (Ontario Agency for Health Protection and Promotion, 2023b)

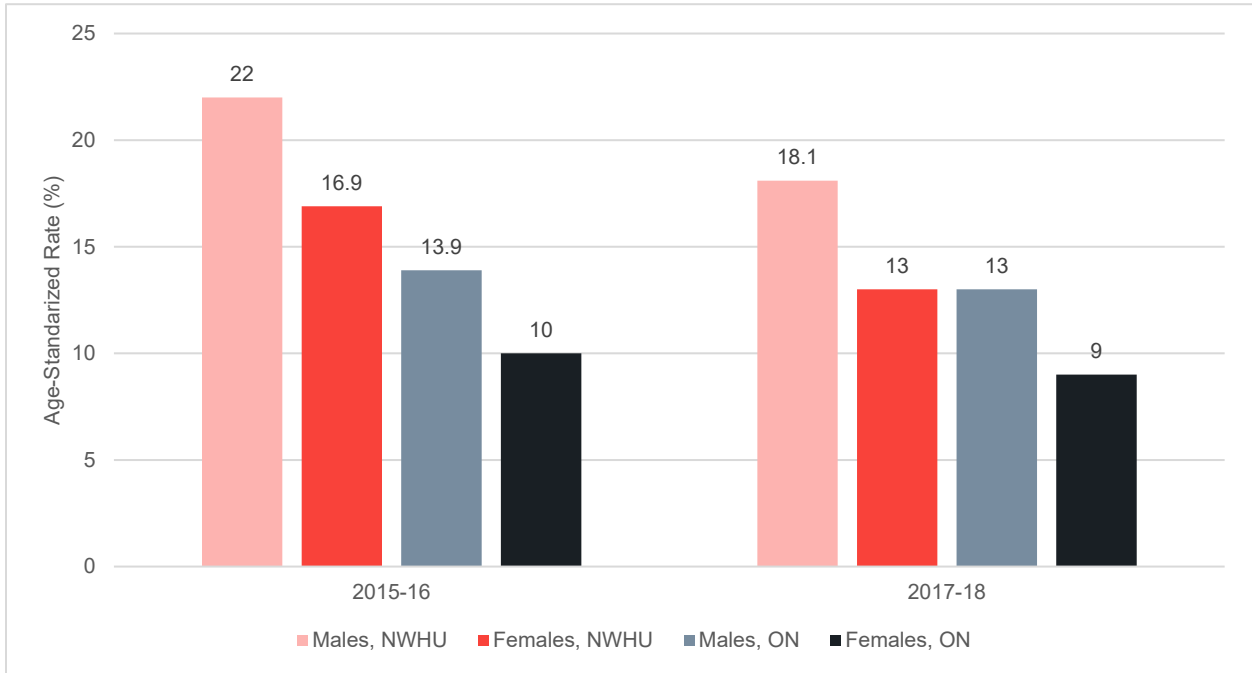
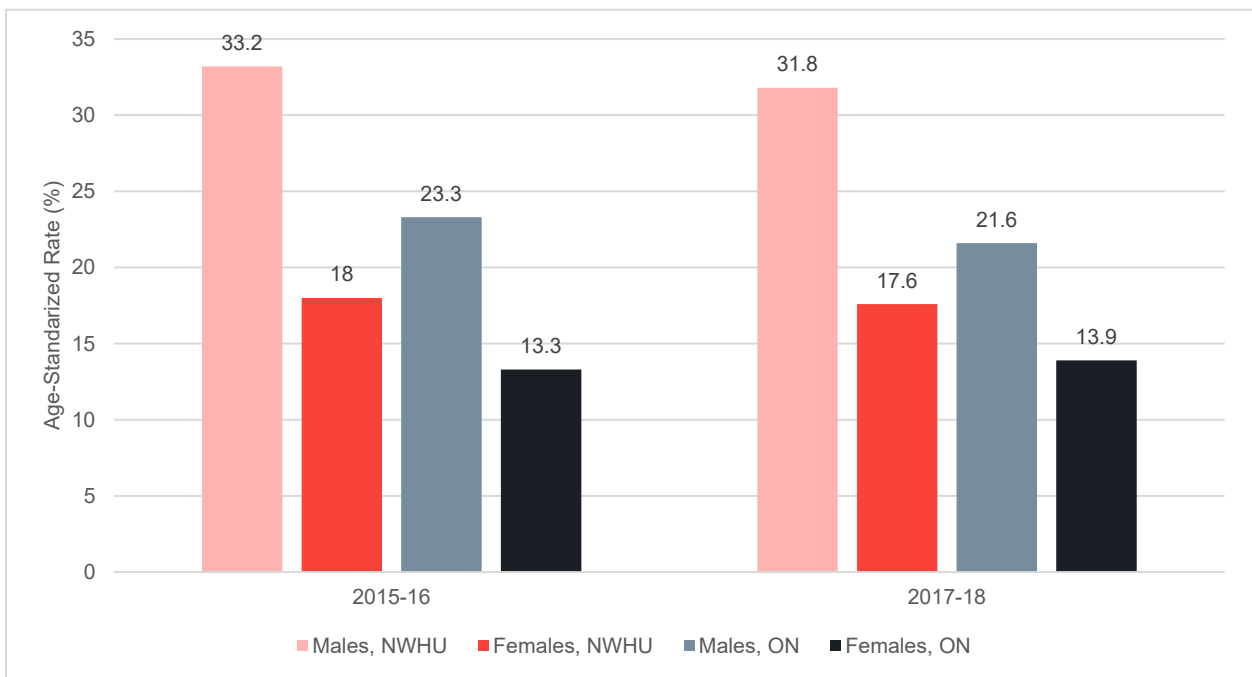


Figure 5-6 presents the age-standardized rates of respondents to the CCHS from the NWHU and the province who reported heavy drinking. NWHU had higher rates of self-reported heavy drinking than the province in 2015-16 and 2017-18, with rates among males being higher than rates among females in both the NWHU and the province (Ontario Agency for Health Protection and Promotion, 2023c).

Figure 5-6: Heavy Drinking, Northwestern Health Unit and the Province of Ontario, 2015-2018. Source: (Ontario Agency for Health Protection and Promotion, 2023c)



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Figure 5-7 presents the age-specific and age-standardized rates of respondents to the CCHS from NWHU and the province with self-reported adult obesity. Males in the NWHU had higher rates of self-reported obesity rates than males in Ontario as a whole in 2021, whereas results for females in the NWHU were not significantly different from Ontario. When disaggregated by age, those in age groups 45 to 64 and 65+ in the NWHU were significantly higher than their Ontario counterparts, whereas those aged 18 to 44 in the NWHU were similar to their Ontario counterparts (Ontario Agency for Health Protection and Promotion 2023o).

Figure 5-7: Self-reported prevalence of adult obesity, Northwestern Health Unit and the Province of Ontario, 2021. Source: (Ontario Agency for Health Protection and Promotion, 2023o)

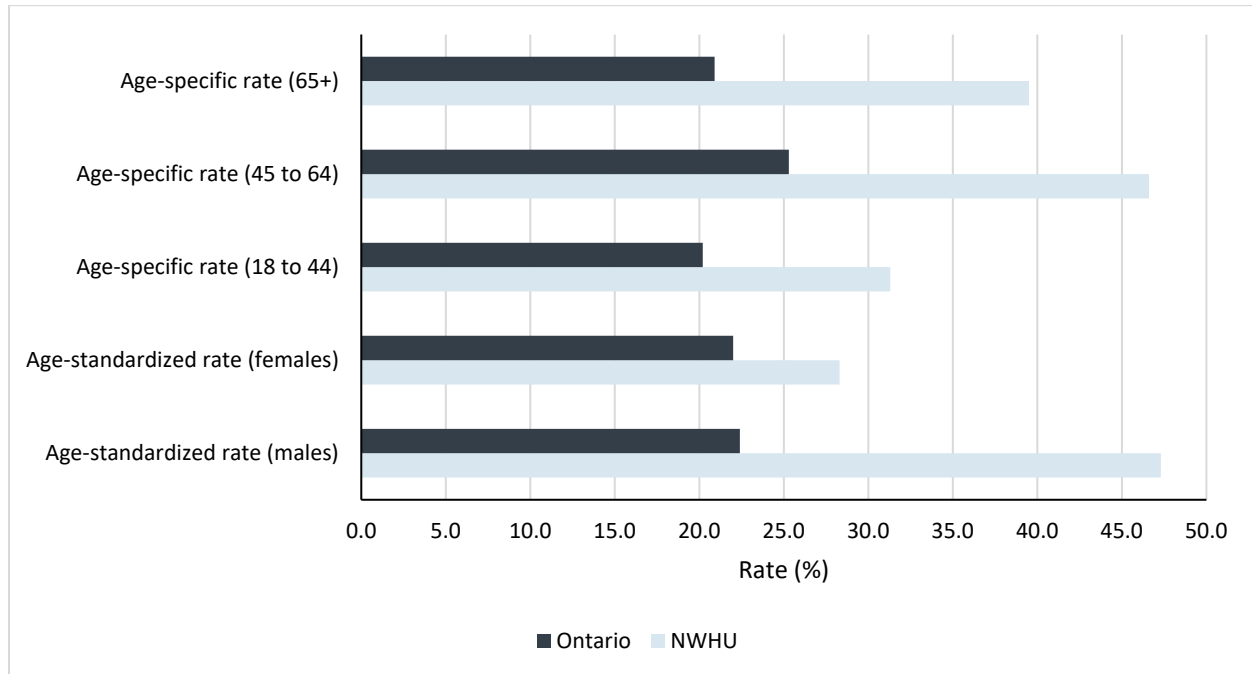
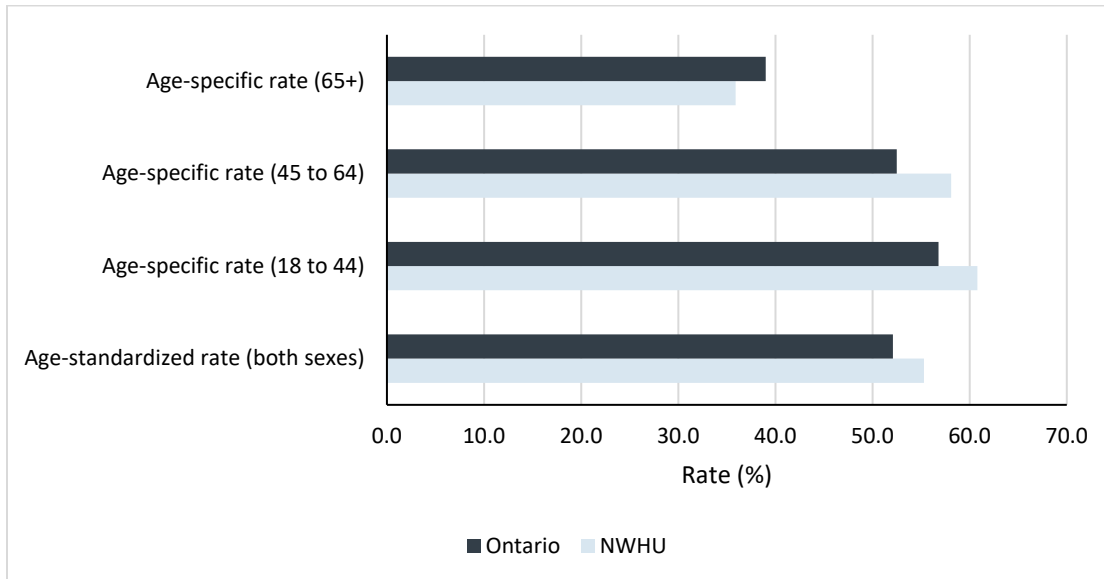


Figure 5-8 presents the age-standardized rates of respondents to the CCHS from NWHU and the province reporting physical activity levels at or above recommended level from the Canadian Physical Activity Guidelines. Individuals in the NWHU tended to have slightly higher rates of physical activity although NWHU rates were not significantly different from Ontario rates (Ontario Agency for Health Protection and Promotion 2023p).

Figure 5-8: Self-reported adult physical activity at or above recommended level from the Canadian Physical Activity Guidelines, Northwestern Health Unit and the Province of Ontario, 2020. Source: (Ontario Agency for Health Protection and Promotion, 2023p)



5.3 HOSPITALIZATIONS AND SAFETY

This section provides an overview of hospitalizations chronic disease statistics in the NWHU in comparison.

Figure 5-9 shows the rates of hospitalization for injuries due to assault in NWHU and the province between 2012 and 2021. The rates in NWHU showed an increasing trend during this period, rising sharply 2019 onwards, and were higher than the respective provincial averages (Ontario Agency for Health Protection and Promotion, 2023e). The rates of hospitalization for injuries due to assault for males in NWHU were higher than the rates for females in NWHU.

Figure 5-9: Hospitalization for Injuries Due to Assault, Northwestern Health Unit and the Province of Ontario, 2012-2021. Source: (Ontario Agency for Health Protection and Promotion, 2023e)

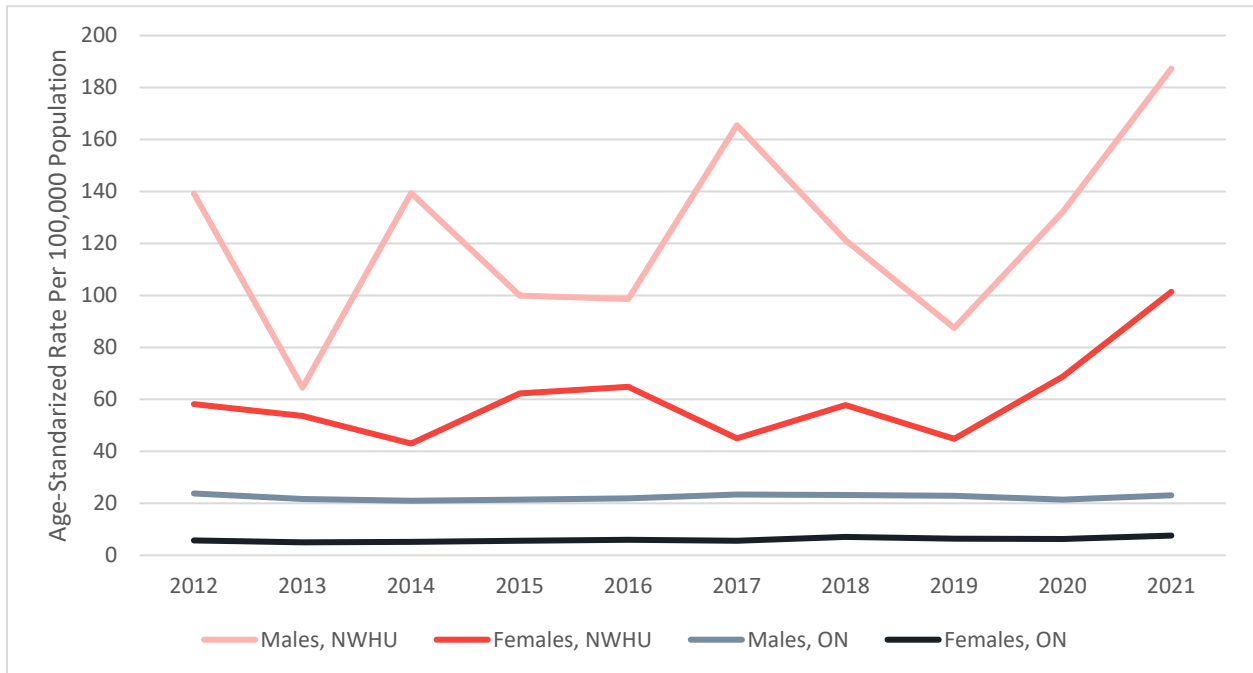
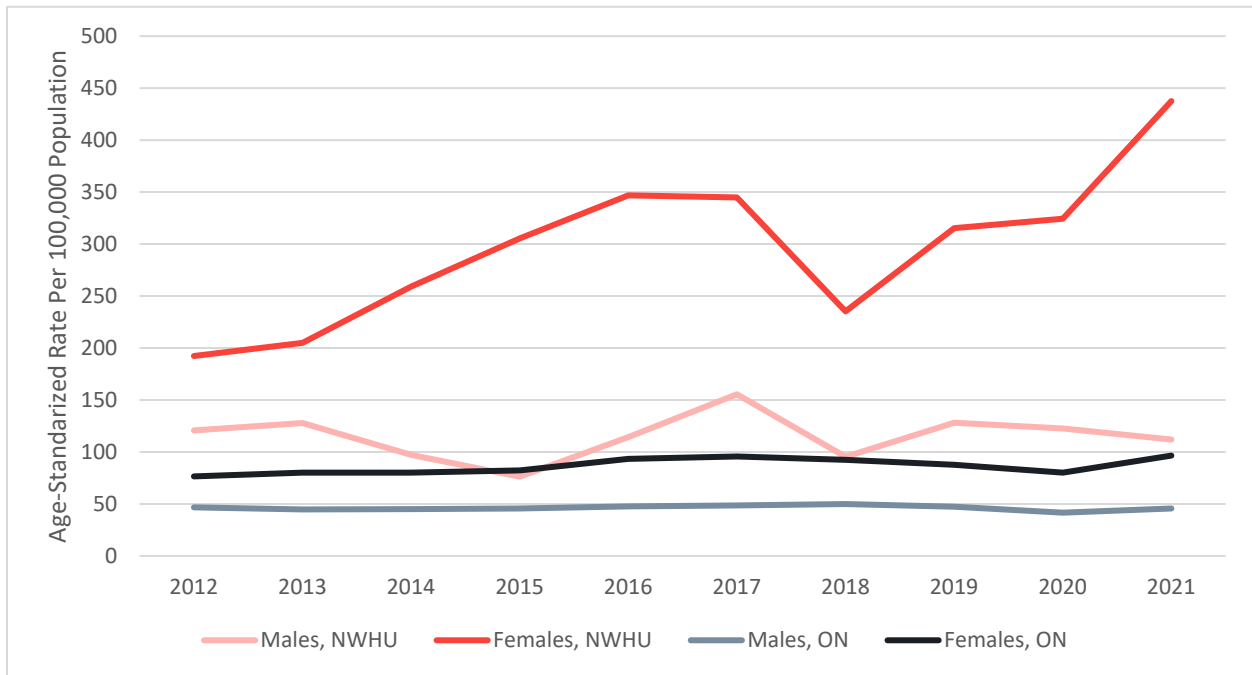


Figure 5-10 shows the rates of hospitalization for injuries due to intentional self-harm in NWHU and the province between 2012 and 2021. The rates for males in NWHU showed an increasing trend during this period and were higher than the rates for females in NWHU and males in the province (Ontario Agency for Health Protection and Promotion, 2023e). The gap between the rates for males and females in NWHU has widened over time, particularly in 2014 and 2017, compared to the gap between the rates of hospitalization for injuries due to intentional self-harm for males and females in the province.

Figure 5-10: Hospitalization for Injuries Due to Intentional Self Harm, Northwestern Health Unit and the Province of Ontario, 2012-2021. Source: (Ontario Agency for Health Protection and Promotion, 2023e)



5.4 CHRONIC DISEASES AND CONDITIONS

This section presents an overview of chronic health conditions and disease trends in the NWHU and the Province of Ontario. It includes longitudinal data from 2010 to 2022, highlighting differences in trends in several health conditions such as asthma (Figure 5-9), diabetes (Figure 5-10), hypertension (Figure 5-11), cancer (Figure 5-12).

As presented in Figure 5-9, in 2020 asthma prevalence was lower in the NWHU than the Ontario provincial rate.

Figure 5-11: Prevalence of Asthma, Northwestern Health Unit and the Province of Ontario, 2011-2020. *Source:* (Ontario Agency for Health Protection and Promotion, 2023i)

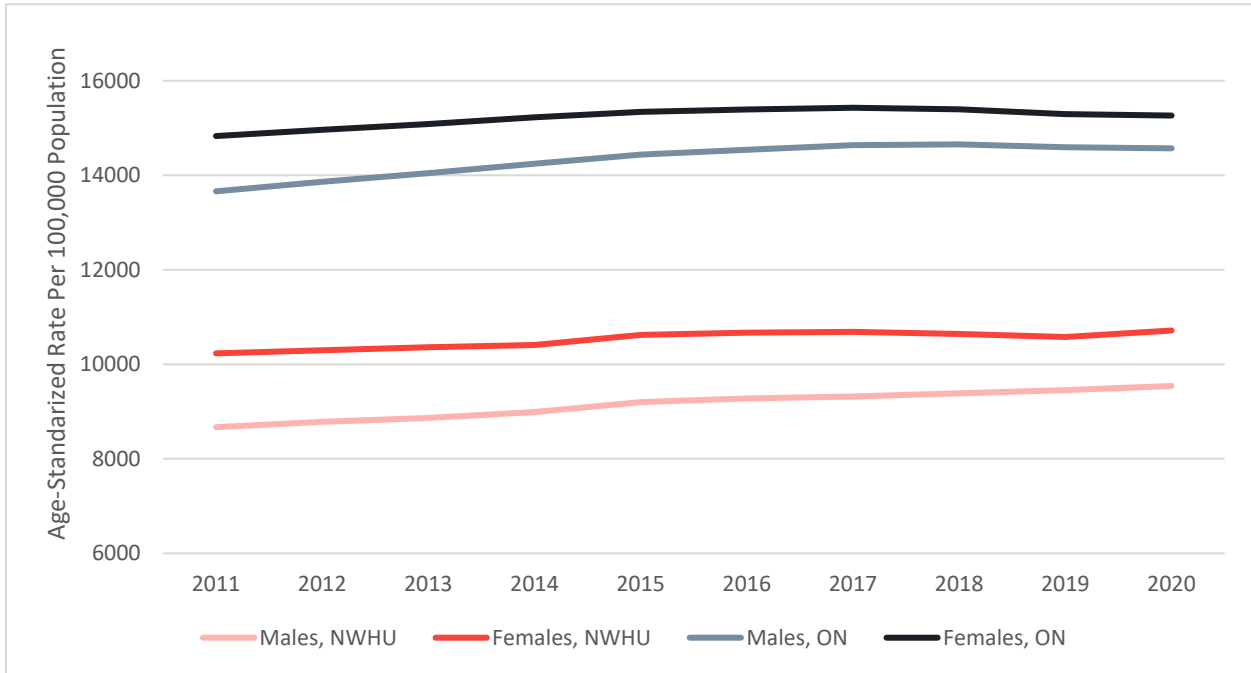
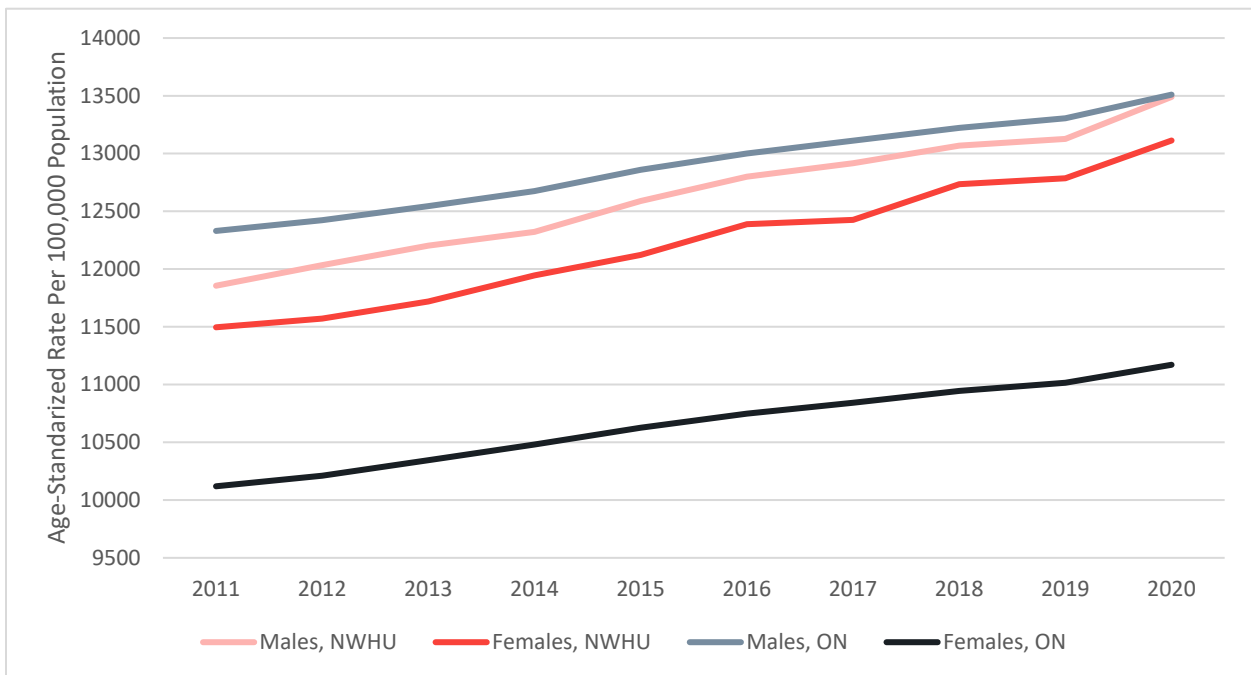


Figure 5-10 presents the prevalence of diabetes in adults (aged 20 years old and over) in the NWHU. As seen in Figure 5-10, diabetes prevalence showed an increasing trend from 2011 to 2020 for both NWHU and Ontario, with males having higher prevalence rates of diabetes for both the NWHU and Ontario.

Figure 5-12: Prevalence of Diabetes in Adults 20+, Northwestern Health Unit and the Province of Ontario, 2011-2020. *Source:* (Ontario Agency for Health Protection and Promotion, 2023i)



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Figure 5-13 presents the prevalence of hypertension in adults (aged 20 years old and over) in the NWHU in comparison to the province of Ontario. Hypertension prevalence from 2011 to 2020 showed a slight decline in the NWHU and Ontario, with rates in Ontario being higher than rates in the NWHU for both males and females (Ontario Agency for Health Protection and Promotion, 2023i).

Figure 5-13: Prevalence of Hypertension in Adults 20+, Northwestern Health Unit and the Province of Ontario, 2011-2020. Source: (Ontario Agency for Health Protection and Promotion, 2023i)

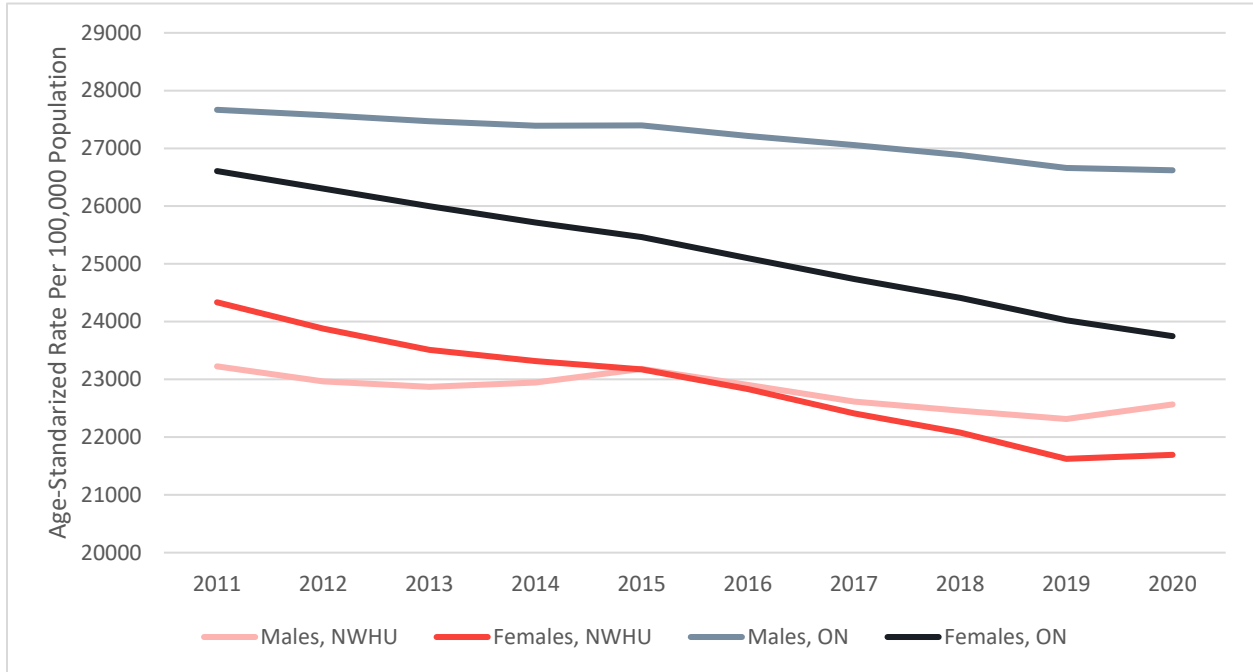


Figure 5-14 presents the incidence of all types of cancers in the NWHU and the province of Ontario. Cancer rates (all types) show a general downward trend for both males and females in the NWHU, though there are some year-to-year fluctuations. In comparison, the rates in Ontario for both genders remain relatively steady, with only a slight decline over time. Overall, cancer rates for both males and females are relatively higher than rates in the NWHU for both males and females.

Figure 5-14: Incidence of All Cancers, Northwestern Health Unit and the Province of Ontario, 2010-2014.
Source: (Ontario Agency for Health Protection and Promotion, 2023j)

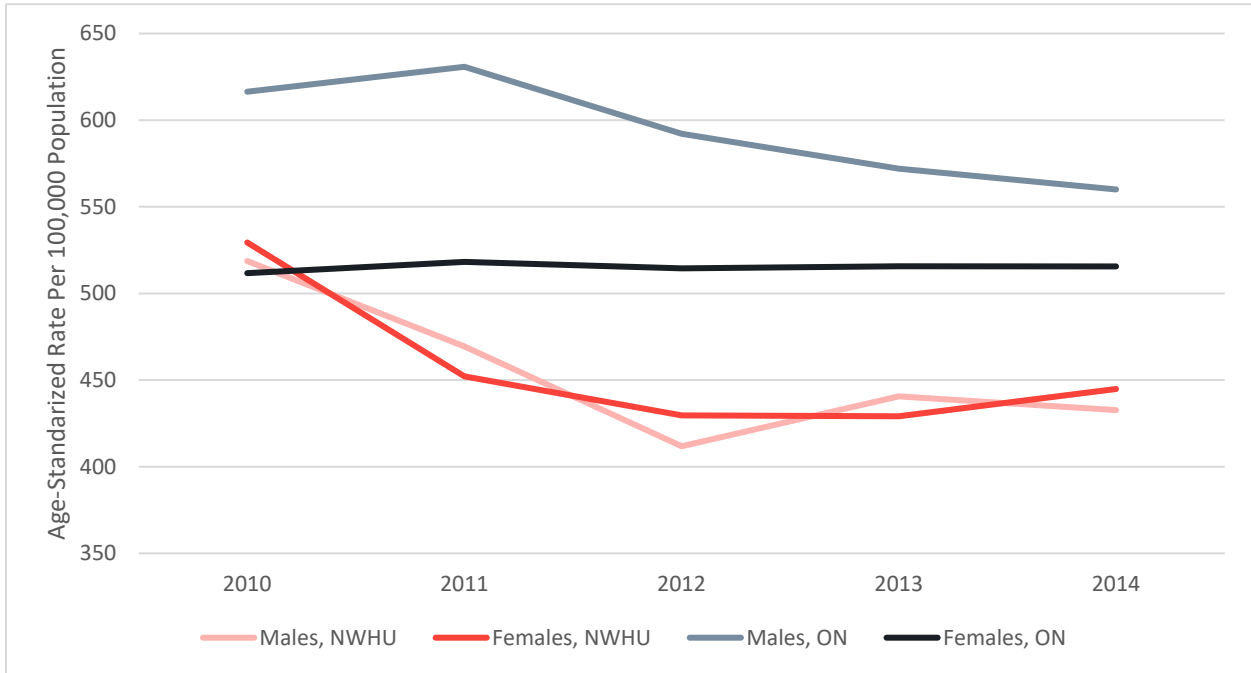
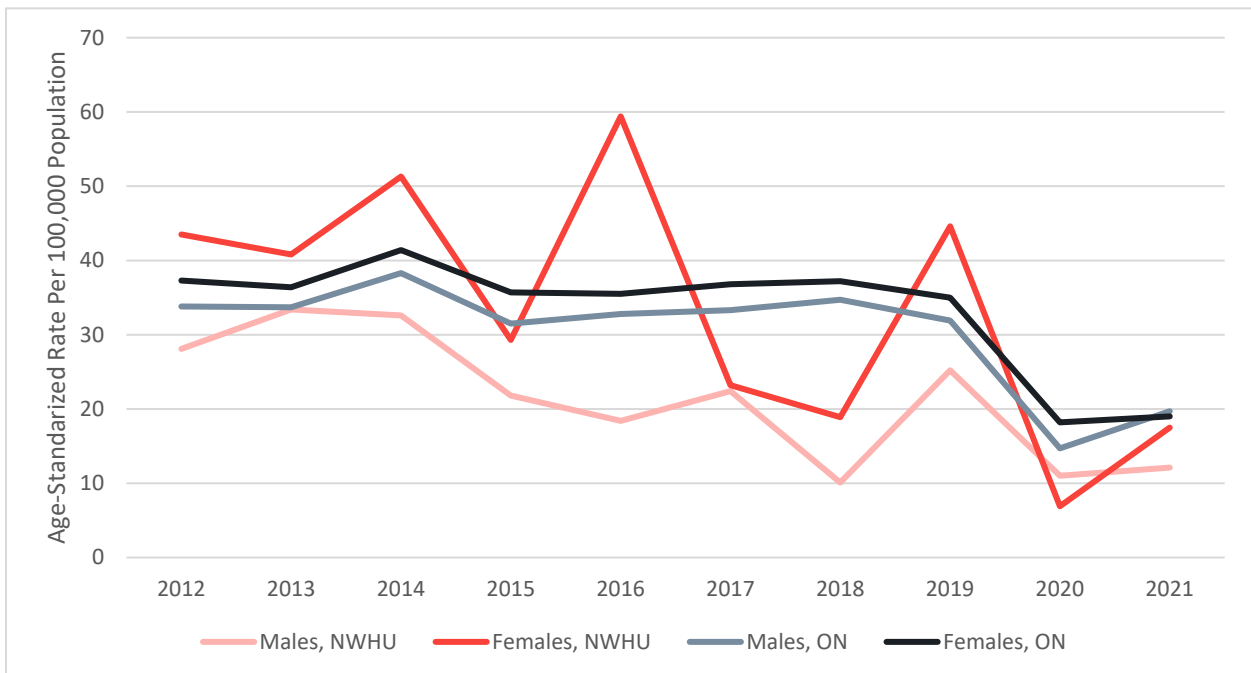


Figure 5-15 presents the rates of hospitalization for asthma in NWHU and the province between 2012 and 2021. The rates of hospitalization for asthma for males in NWHU between 2012 and 2019 were lower than the rates for women in NWHU, and for males in Ontario (Ontario Agency for Health Protection and Promotion, 2023d). The rates of hospitalization for asthma for females in NWHU increased sharply in 2014, 2016, and 2019 as compared to the previous year.

Figure 5-15: Hospitalization for Asthma, Northwestern Health Unit and the Province of Ontario, 2012-2021.
Source: (Ontario Agency for Health Protection and Promotion, 2023d).



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Figure 5-16 presents the rates of hospitalization for diabetes in NWHU and the province between 2012 and 2021. The rates for males in NWHU showed an increasing trend between 2014 and 2021 and were higher than the rates of hospitalization for diabetes for females in NWHU and for the province (Ontario Agency for Health Protection and Promotion, 2023d).

Figure 5-16: Hospitalization for Diabetes, Northwestern Health Unit and the Province of Ontario, 2012-2021.
Source: (Ontario Agency for Health Protection and Promotion, 2023d)

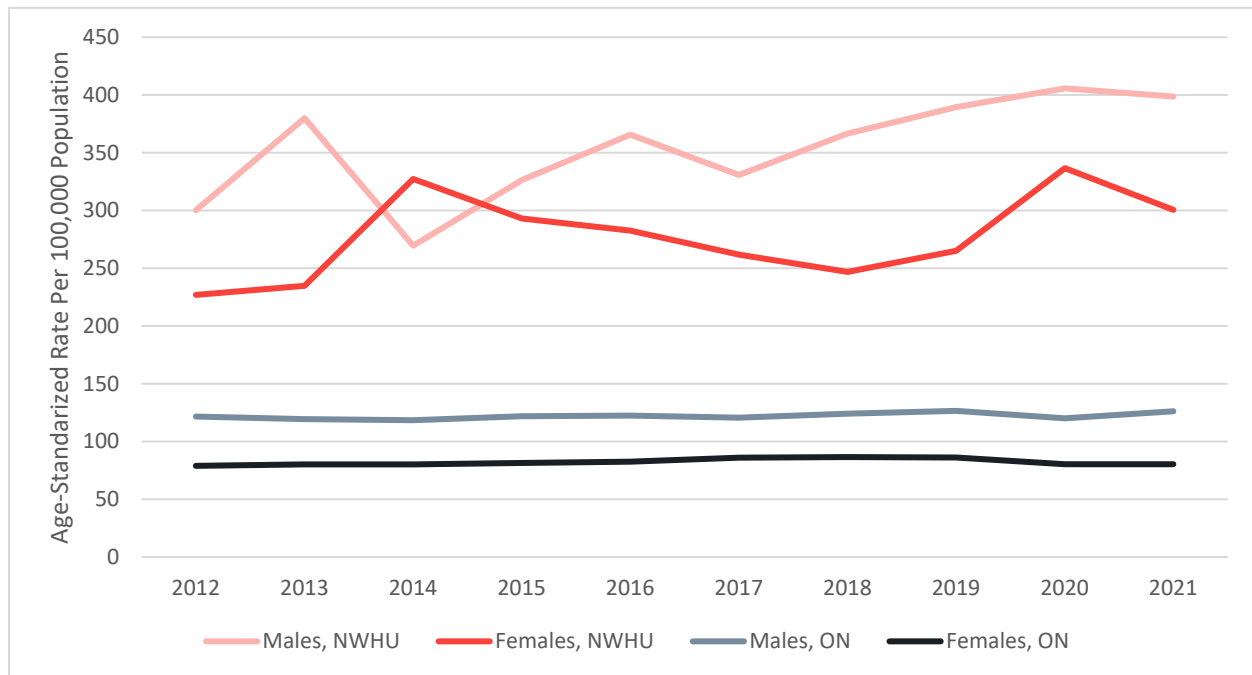


Figure 5-17 presents the rates of hospitalization for hypertension in NWHU and the province between 2012 and 2021. The rates for males in NWHU showed a decreasing trend during this period, and fell sharply to zero in 2020; however, it is important to note that this coincides with the global COVID-19 crisis so reporting may not be reflective of typical trends (Ontario Agency for Health Protection and Promotion, 2023d). The rates of hospitalization for hypertension for females in NWHU were higher than the rates for females in Ontario and showed a regularly recurring pattern of increase followed by a decrease.

Figure 5-17: Hospitalization for Hypertension, Northwestern Health Unit and the Province of Ontario, 2012-2021. Source: (Ontario Agency for Health Protection and Promotion, 2023d).

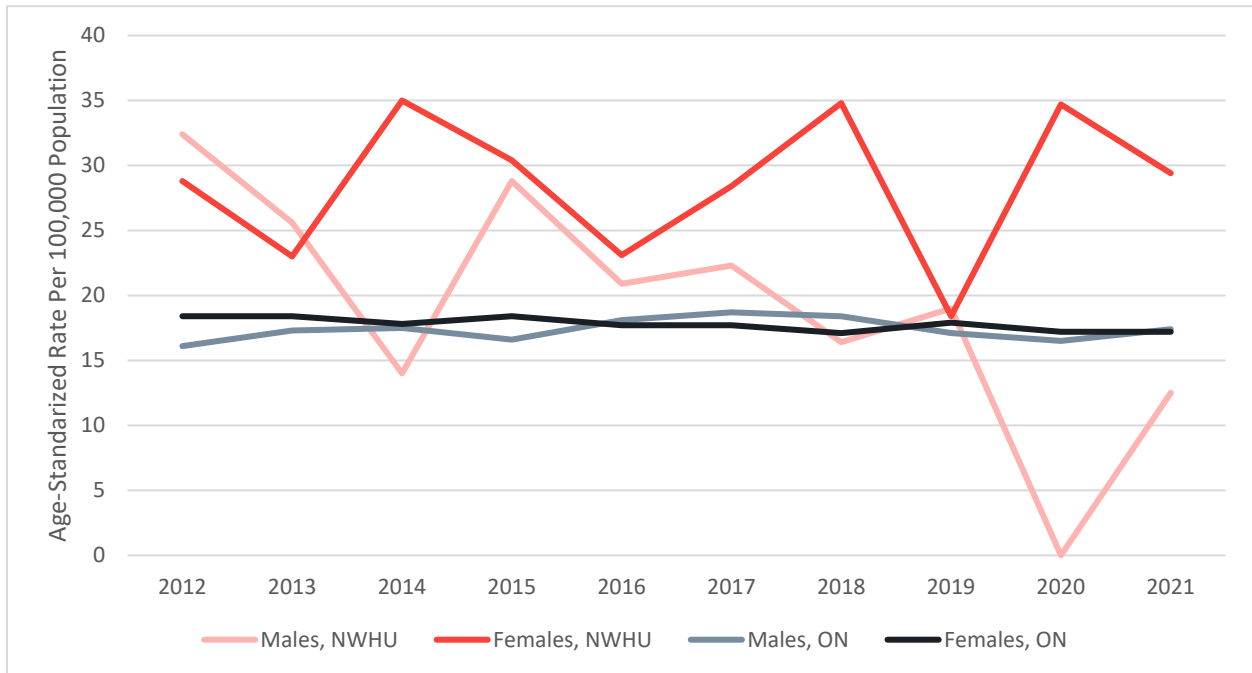
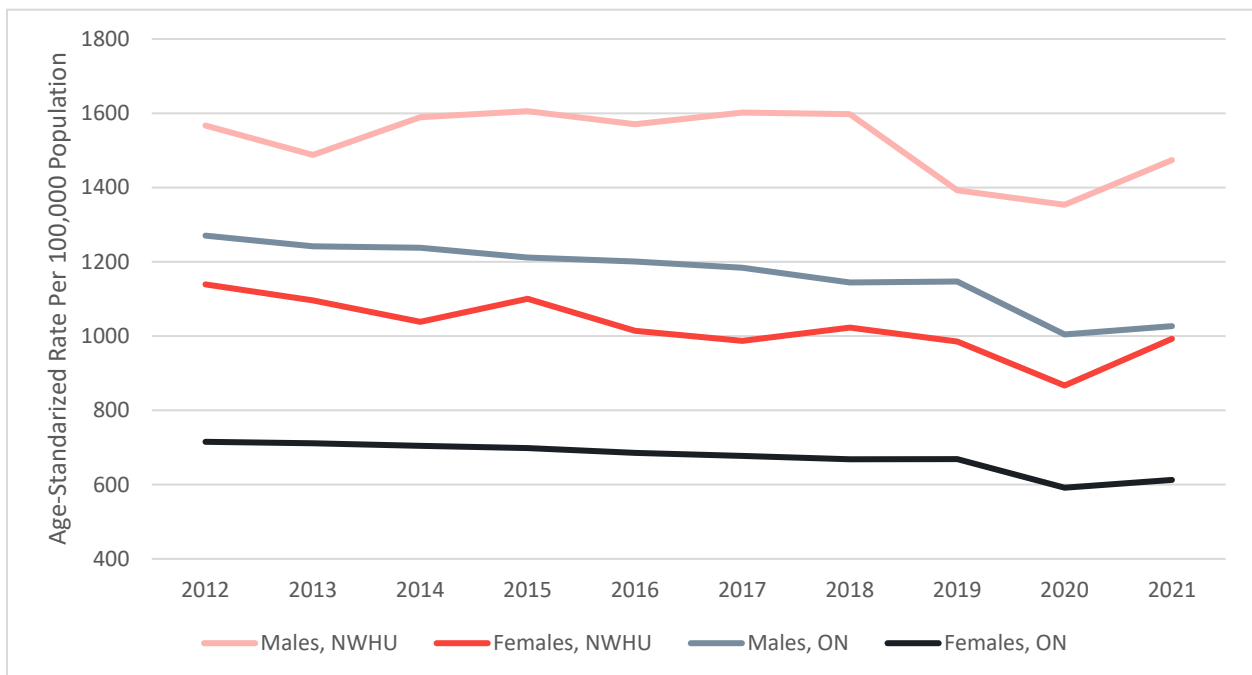


Figure 5-18 presents the rates of hospitalization for cardiovascular disease in the NWHU and the province between 2012 and 2021. The rates for males in NWHU showed a decreasing trend during this period and were higher than the rates for females in NWHU and males in the province (Ontario Agency for Health Protection and Promotion, 2023d).

Figure 5-18: Hospitalization for Cardiovascular Disease, Northwestern Health Unit and the Province of Ontario, 2012-2021. Source: (Ontario Agency for Health Protection and Promotion, 2023d)



5.5 COMMUNICABLE DISEASES

This section presents an overview of communicable disease trends in the NWHU and the Province of Ontario. It includes data on sexually transmitted infections such as HIV (Figure 5-19), and syphilis (Figure 5-20).

Figure 5-19 presents rates of HIV in the NWHU in comparison to the province of Ontario. There is generally a stable trend for both males and females in Ontario from 2013 to 2022, and males had higher rates than females over the years. In contrast, the rates for males and females in the NWHU display more noticeable fluctuations, with some periods of increase and decrease. Overall, males had higher rates than females in most years, although the NWHU rates appear more variable compared to Ontario.

Figure 5-19: Incidence of HIV, Northwestern Health Unit and the Province of Ontario, 2013-2022. Source: (Ontario Agency for Health Protection and Promotion, 2023k)

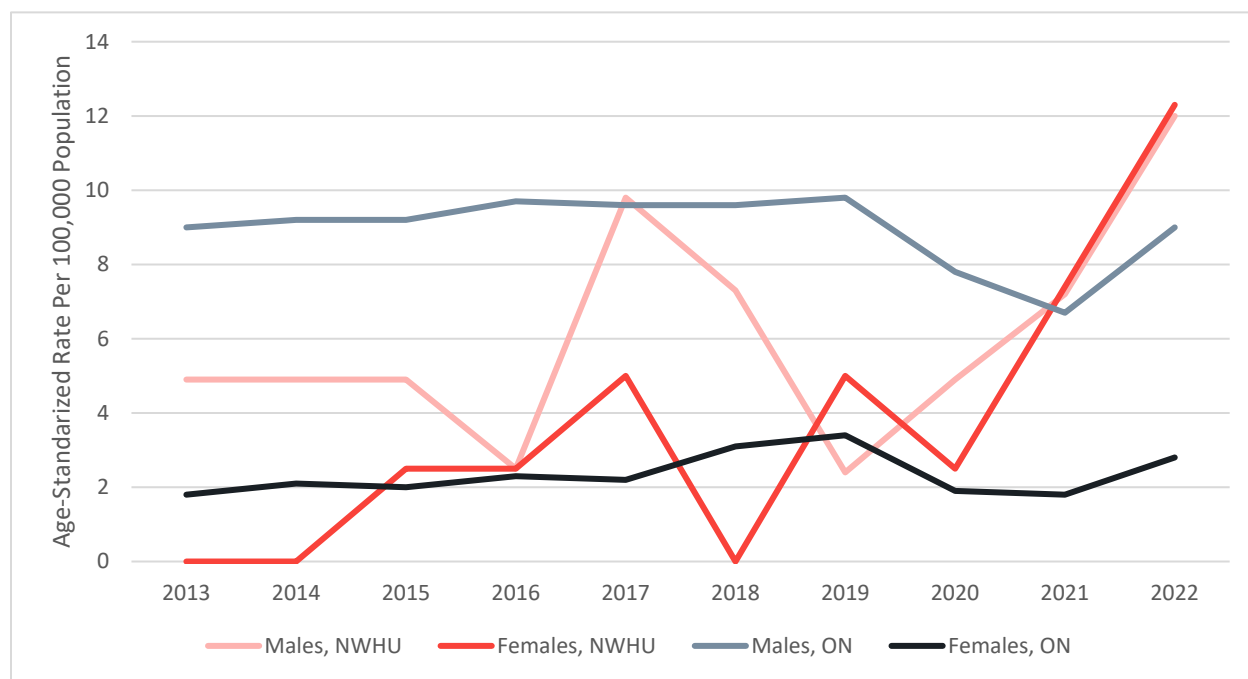
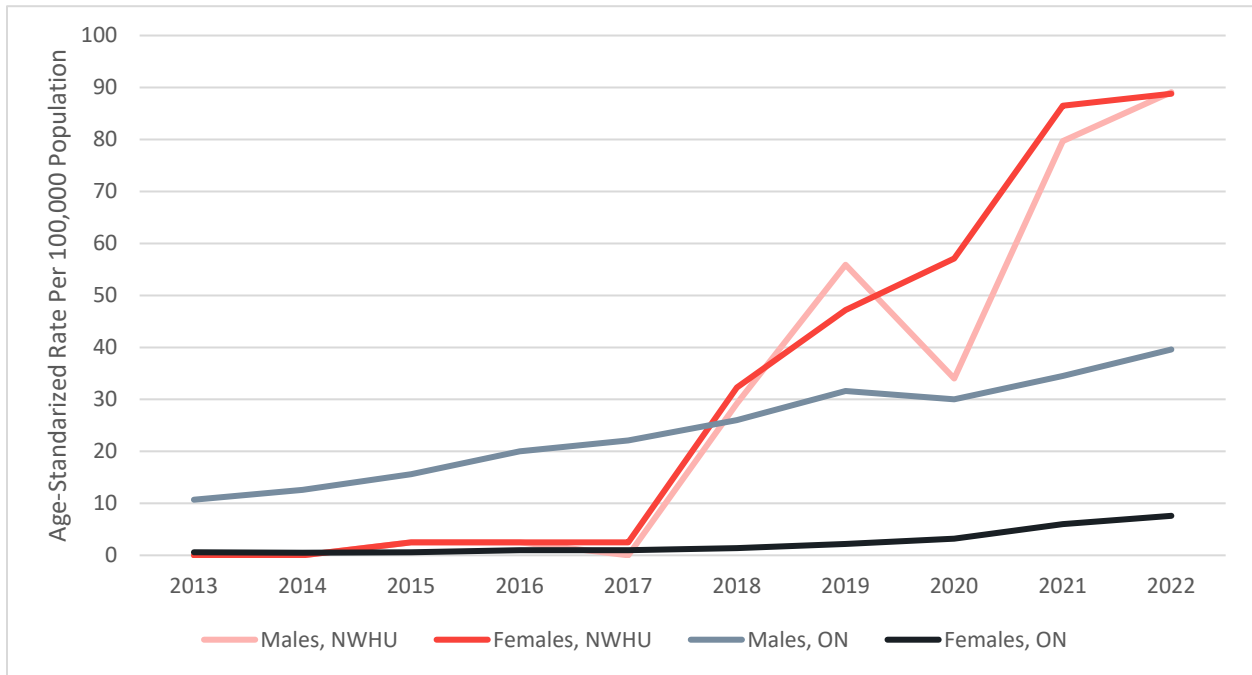


Figure 5-20 presents the age-standardized rates of incidence rates of infectious syphilis in NWHU and in Ontario. There is an increasing trend in age-standardized rates for both males and females in NWHU starting around 2017, while Ontario exhibits a more gradual increase over the same period. By 2022, rates in NWHU surpass those in Ontario for both males and females, indicating a regional divergence. In Ontario, rates of syphilis are generally higher for males than females, whereas in the NWHU, incidence rates between males and females are less distinct.

Figure 5-20: Incidence of Infectious Syphilis, Northwestern Health Unit and the Province of Ontario, 2013-2022. Source: (Ontario Agency for Health Protection and Promotion, 2023I)



5.6 MENTAL HEALTH

This section presents an overview of trends in mental health indicators in the NWHU, compared to provincial averages.

Figure 5-21 presents the self-reported prevalence of mood disorders and Figure 5-22 presents the self-reported prevalence of anxiety disorders in the NWHU in comparison to the province of Ontario. Females were more likely to report mood disorders and anxiety in both the NWHU and the province.

Figure 5-21: Self-Reported Prevalence of Mood Disorders, Northwestern Health Unit and the Province of Ontario, 2015-2020. Source: (Ontario Agency for Health Protection and Promotion, 2023m)

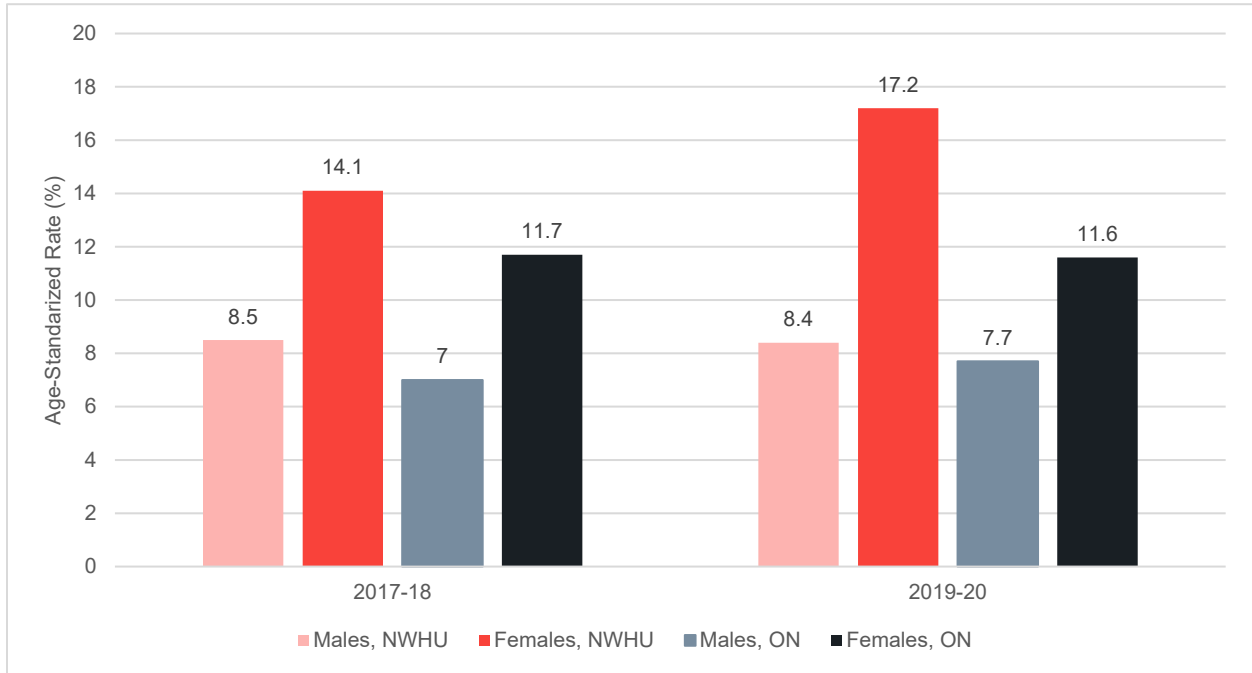
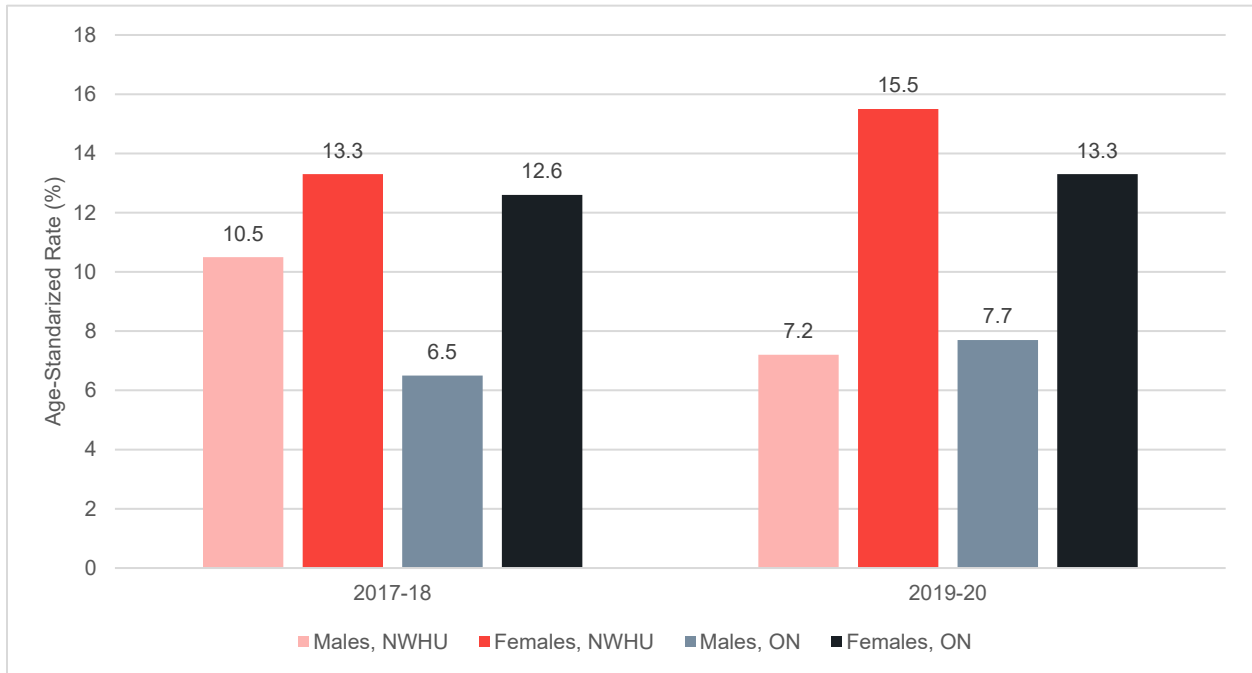


Figure 5-22: Self-Reported Prevalence of Anxiety Disorders, Most Days Quite a Bit or Extremely Stressful, Northwestern Health Unit and the Province of Ontario, 2015-2020. Source: (Ontario Agency for Health Protection and Promotion, 2023m)



Northwestern Health Unit Mental Health Survey 2022 / 2023 Report

This section summarizes the results of the Northwestern Health Unit Mental Health Survey 2022 / 2023 Report (NWHU 2023) to characterize existing conditions on mental wellness and community cohesion.

The NWHU and Prairie Research Associates (PRA) Inc. commissioned a mental health survey via telephone and online surveys between October 28, 2022, and February 24, 2023, to help identify and monitor mental health issues within its service area. Overall, there were 925 survey respondents who were northwestern Ontario residents (aged 12+), with 126 online responses and 799 telephone participants. Demographics of survey respondents were recorded (e.g., sex, age, ethnicity, and local health hub). The results of the survey were weighted by client demographics according to 2021 Statistics Canada census data. Some results of the survey were separated by subgroup, where data were available. This survey included Indigenous respondents; however, it is noted only 16% of the sampled population self-identified as Indigenous. The respondents Local Health Hub was also recorded. Given their geographical proximity to the Project, where data were available for the Sioux Lookout health hub and the Red Lake health hub, the results from these health hubs are described below. It is noted that 6.2% of the total respondents (n ~57) were from the Red Lake health hub and 10.7% were from the Sioux Lookout health hub (n ~99).

- Resiliency: In the NWHU overall, approximately 73.1% of respondents said their ability to cope with unexpected or difficult problems was good or excellent, whereas 26.9% of respondents responded fair or poor. Similar results were observed in the Red Lake and Sioux Lookout health hubs. When disaggregated by health hub, survey results showed that 20.8% of respondents in the Red Lake health hub and 34.7% of respondents in the Sioux Lookout health hub said their ability to cope with unexpected or difficult problems was fair or poor. Males and females had similar response rates for this mental health indicator.
- Community Cohesion and Social Factors: In the NWHU overall, 73.8% of survey respondents reported their sense of belonging to their local community was somewhat strong or very strong. When disaggregated by health hub, survey results showed that 13.7% of respondents in the Red Lake Health Hub, and 18.2% of respondents in the Sioux Lookout Health Hub reported a very weak to somewhat weak sense of community belonging, compared to 24.6% of NWHU respondents overall. In addition, survey results showed that 10.0% of respondents in the Red Lake Health Hub, and 25.6% of respondents in the Sioux Lookout Health Hub reported the availability of dependable people as being rarely or never, compared to 14.8% of NWHU respondents overall. Results among both indicators (i.e., availability of dependable people and sense of belonging to local community) were not significantly different between health hubs and NWHU overall. In addition, males and females had similar response rates for both indicators.
- Family Wellness and Relationships: In the NWHU overall, 33.0% of survey respondents reported they have lived with a problem drinker or street drug user. In comparison, 40.7% of respondents in the Red Lake health hub and 48.4% of respondents in the Sioux Lookout health hub reported they have lived with a problem drinker or street drug user (results could not be statistically validated for comparison).
- Substance Use: Rates of substance use (i.e., cannabis, heavy drinking, psychoactive substances) were similar in the Red Lake and Sioux Lookout health hubs in comparison to NWHU overall. Male respondents in the NWHU were more likely than females to report higher rates of cannabis use, use of psychoactive substances, and heavy drinking, however results could not be statistically validated for comparison.

Report on Child and Youth Mental Health Outcomes within the Northwestern Health Unit

A report published by the NWHU titled the Child and Youth Mental Health Report (NWHU and Yusuf 2023) examined mental health trends among individuals aged 10 to 24 within the NWHU from 2012 to 2021. According to NWHU & Yusuf (2023), data from this report were accessed through IntelliHealth Ontario, which was in turn sourced from databases such as the National Ambulatory Care Reporting System (NACRS), the Discharge Abstract Database and the Ontario Mental Health Reporting System (OMRHS).

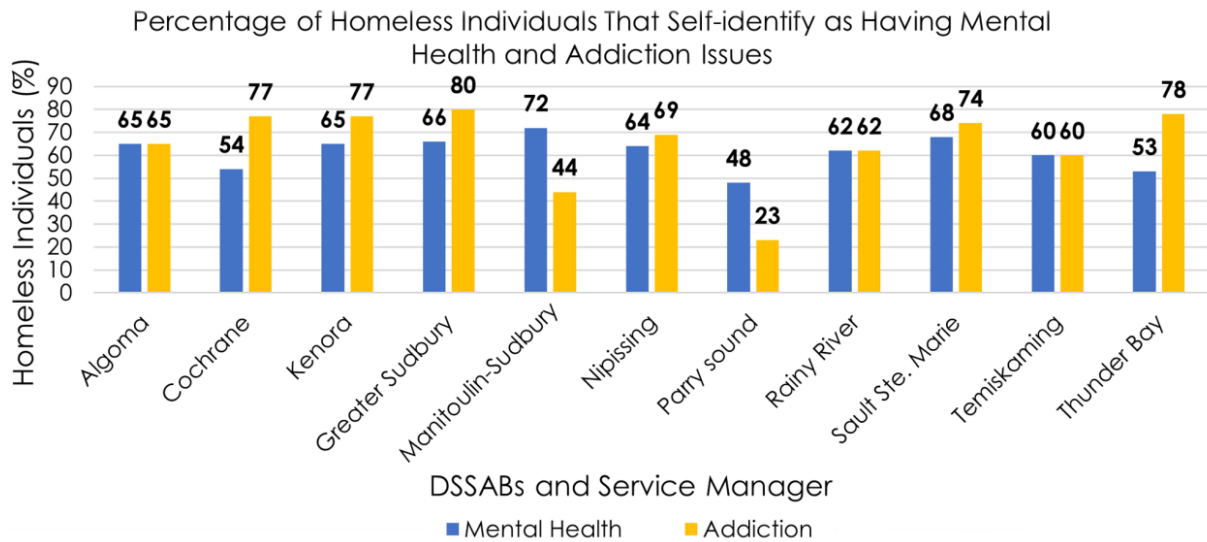
Across all mental health indicators analyzed in this report (e.g., rates of emergency department visits, hospitalizations, self-harm, suicide), the NWHU experienced notably higher rates of mental health issues compared to Ontario overall. The burdens were not evenly distributed, with females consistently showing higher rates of mental-health-related emergency room visits and hospitalizations than males, including those related to substance-use.

These results diverge from typical patterns published in the literature, as previous research has shown males to have higher rates of substance use disorders (CAMH n.d.) and substance-use related emergency department visits (NIH 2020), yet in the NWHU data, females either match or surpass male rates across substance-related indicators (NWHU and Yusuf 2023). As indicated by NWHU and Yusuf (2023) this trend might be influenced by rates of mental health challenges among males in the region increasing with age, as this report focuses specifically on youth. When results were disaggregated by health hub, Sioux Lookout emerged as the local health hub with the highest incidence rates across the majority of mental health indicators (NWHU and Yusuf 2023).

More than Just a Number: Addressing the Homelessness, Addiction, and Mental Health Crisis in the North

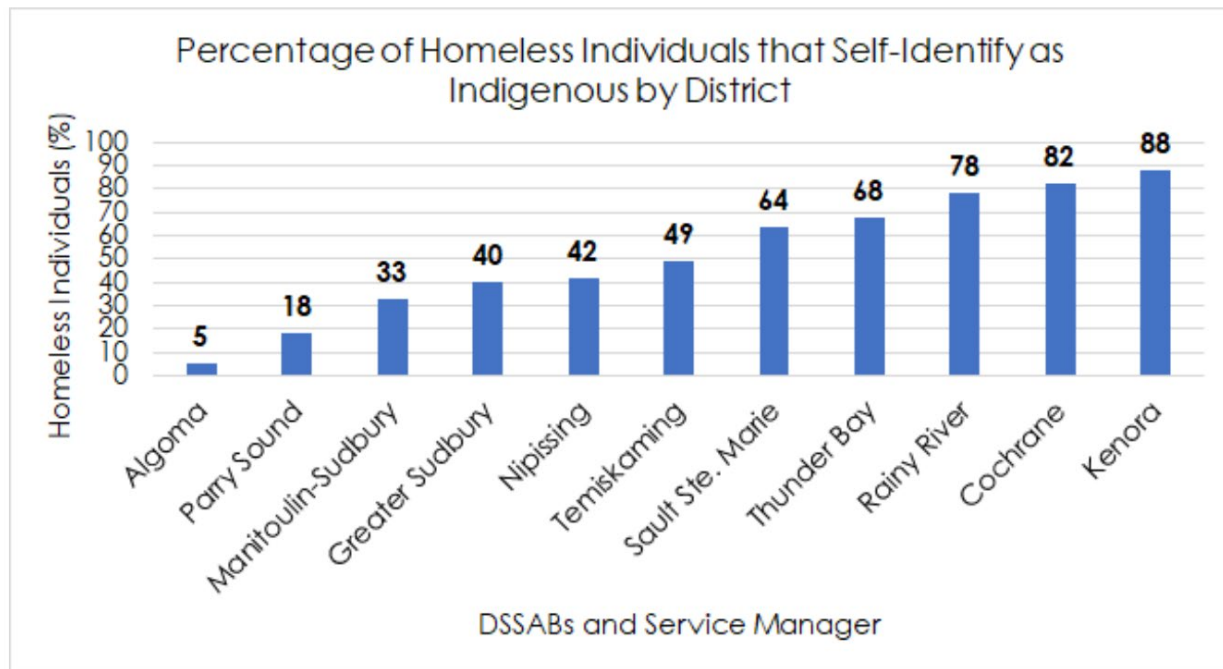
A report published by the Northern Policy Institute and authored by Parsons (2022) titled the More than Just a Number: Addressing the Homelessness, Addiction, and Mental Health Crisis in the North examines the homelessness, addiction, and mental health crisis in northern Ontario. The report uses data from district social services administration boards (DDSABs) in northern Ontario communities and regions. DDSABs are required to conduct detailed enumerations of their homeless populations every two years, in accordance with a new requirement that began in 2018 under the *Housing Services Act* (Parsons 2022). The report highlights how the rising rates of homelessness and substance use in northern Ontario suggest a growing trend of mental health crises among vulnerable populations (Parsons 2022). In 2021, the District of Kenora region reportedly had 3.1 homeless individuals per 1,000 persons, which was the third highest of the regions included in the study and represent larger homeless populations than some of the most populous cities in Ontario (Parsons 2022). Figure 5-23 presents the percentage of homeless individuals in northern Ontario communities that self-identify as struggling with mental health and addiction problems from Parsons (2022). In the District of Kenora 65% and 75% of homeless individuals in 2021 reported they struggled with mental health and addiction, respectively (Parsons 2022). Figure 5-24 presents the percent of homeless individuals in northern Ontario communities that self-identify as Indigenous. As presented in the figure, 88% of homeless individuals in the District of Kenora self-identified as Indigenous in 2021 (Parsons 2022). Given the high percentage of homeless individuals reporting to be struggling with addiction, it is noteworthy that opioid-related emergency department visits and deaths between 2017 and 2021 more than doubled in in the NWHU (Parsons 2022).

Figure 5-23: Percent of Homeless Individuals in Northern Ontario Communities Experiencing Mental Health and Substance Use Problems, 2021. Source: (Parsons 2022)



Source: 2021 enumeration reports from DSSABs and City of Greater Sudbury.
 Note: Thunder Bay is based on 2018 data.

Figure 5-24: Percent of Homeless Individuals in Northern Ontario Communities that Self-Identify as Indigenous, 2021. Source: (Parsons 2022)



Source: 2021 enumeration reports from DSSABs and City of Greater Sudbury.
 Note: Thunder Bay is based on 2018 data.

5.7 MATERNAL AND REPRODUCTIVE HEALTH

This section provides an overview of maternal and reproductive health statistics in the NWHU compared to provincial averages.

Figure 5-25 presents the birth rate per 1,000 persons in NWHU and Ontario between 2012 and 2021, which showed a downward trend during this period.

Figure 5-25: Birth Rate, Northwestern Health Unit and the Province of Ontario, 2012-2021. Source: (Ontario Agency for Health Protection and Promotion, 2023f)

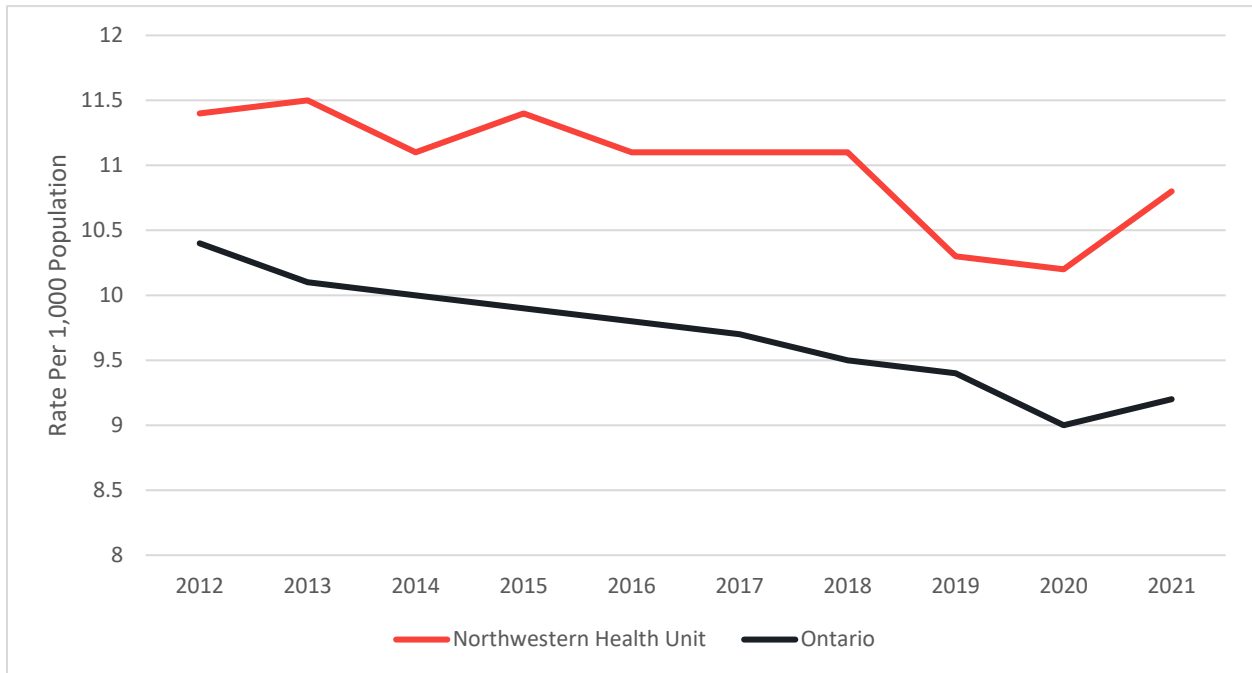


Figure 5-26 presents the rate of preterm births per 100 live births in NWHU and the province between 2012 and 2021. The rates in NWHU were notably lower than the provincial average (Ontario Agency for Health Protection and Promotion, 2023f). However, the rate of preterm births in NWHU shows an increasing trend, particularly from 2017 onwards.

Figure 5-26: Preterm Birth, Northwestern Health Unit and the Province of Ontario, 2012-2021. Source: (Ontario Agency for Health Protection and Promotion, 2023f)

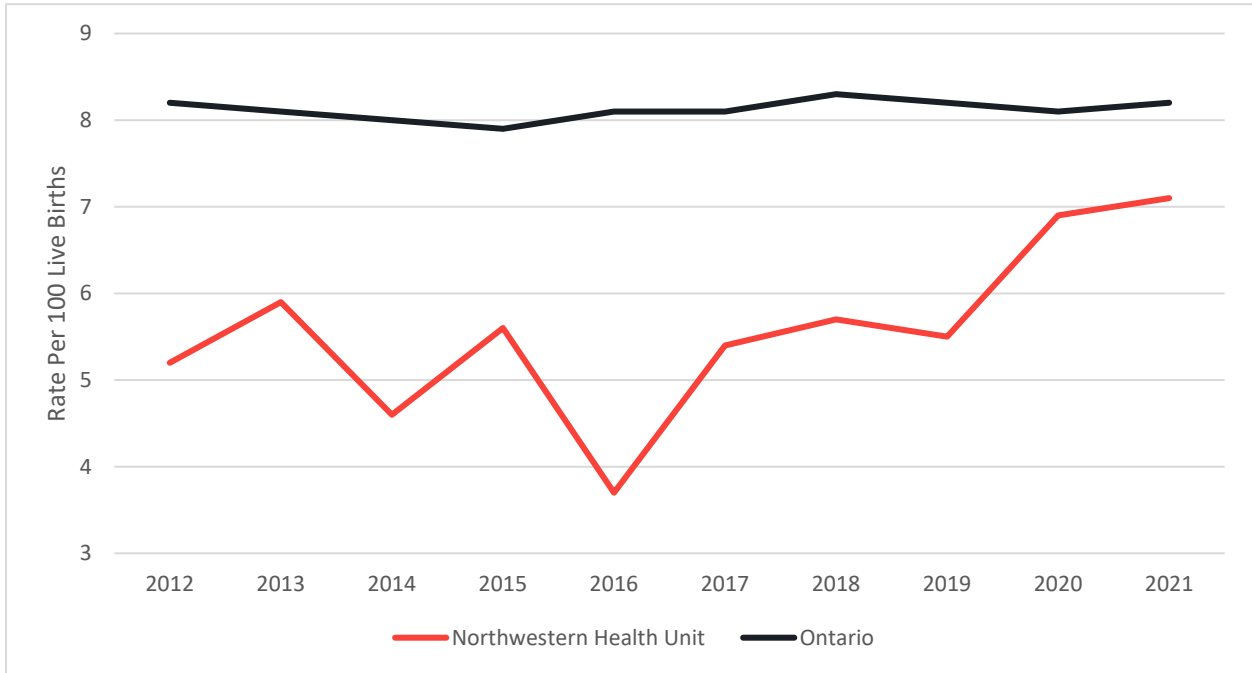
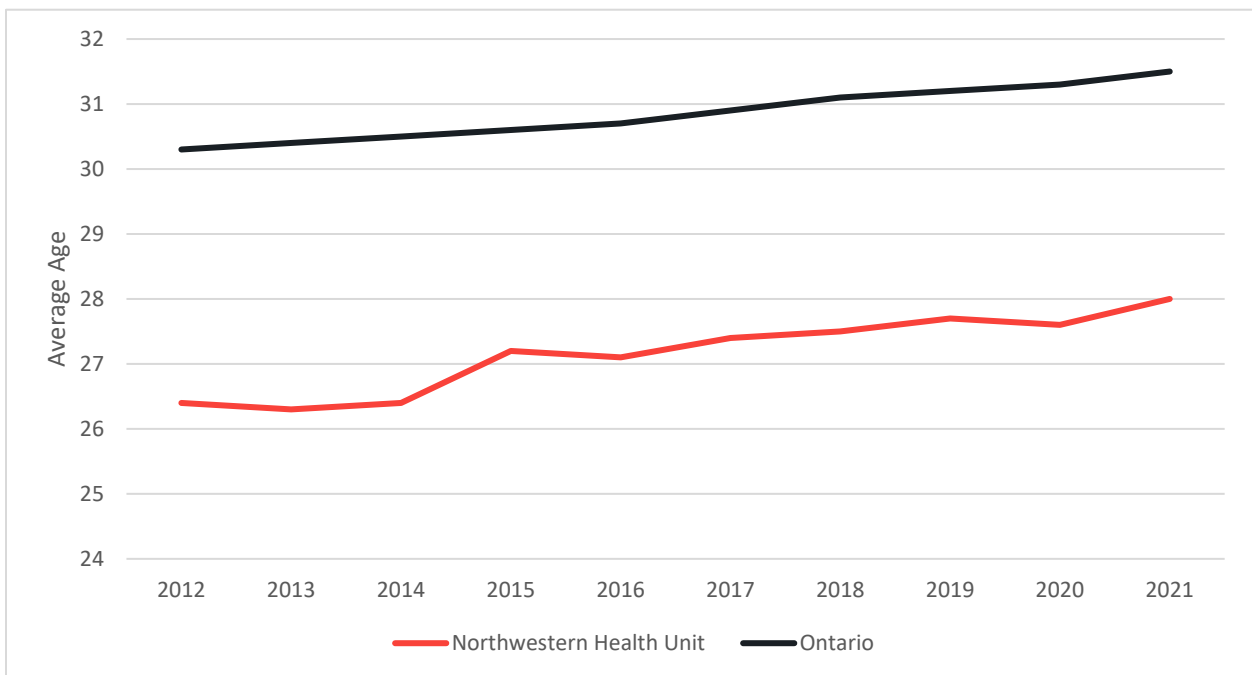


Figure 5-27 presents the average age of the mother at the birth of first infant in NWHU and the province between 2012 and 2021. The average age of the mother at the birth of first infant in NWHU is notably lower than the provincial figure during this period and has been increasing over time (Ontario Agency for Health Protection and Promotion, 2023f).

Figure 5-27: Average Age of Mother at Birth of First Infant, Northwestern Health Unit and the Province of Ontario, 2012-2021. Source: (Ontario Agency for Health Protection and Promotion, 2023f)



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Figure 5-28 presents the rate of infants' mothers being a single parent in NWHU and the province between 2016 and 2021. Figure 5-29 presents rates of alcohol or drug use during pregnancy with rates in the NWHU being significantly higher than Ontario rates. Figure 5-30 presents maternal mental health concern during pregnancy with rates in the NWHU being significantly higher than Ontario. Figure 5-31 presents rates of post-partum depression rates in the NWHU in comparison to Ontario rates. Rates of post-partum depression in the NWHU were similar to those in Ontario, with the exception of 2017 where the rates in NWHU were significantly higher than Ontario.

Figure 5-28: Infant's Mother is a Single Parent, Northwestern Health Unit and the Province of Ontario, 2016-2021. Source: (Ontario Agency for Health Protection and Promotion, 2023g)

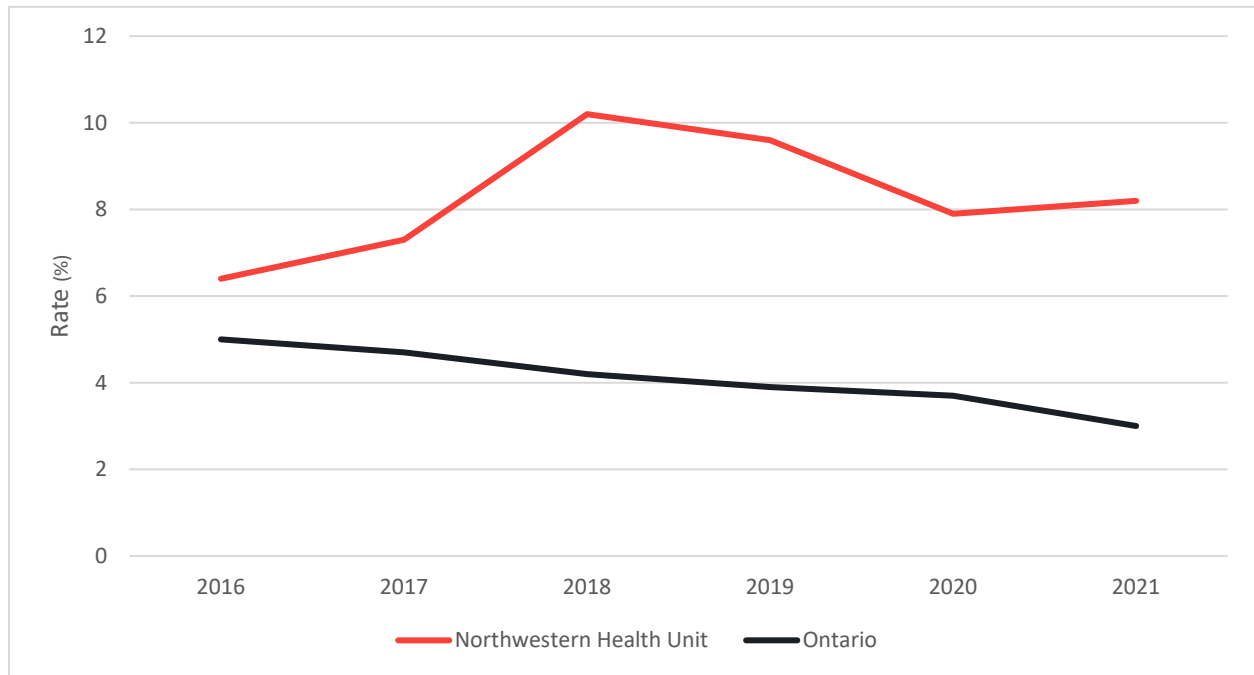


Figure 5-29: Alcohol or Drug Use During Pregnancy, Northwestern Health Unit and the Province of Ontario, 2013-2020. Source: (Ontario Agency for Health Protection and Promotion, 2023h)

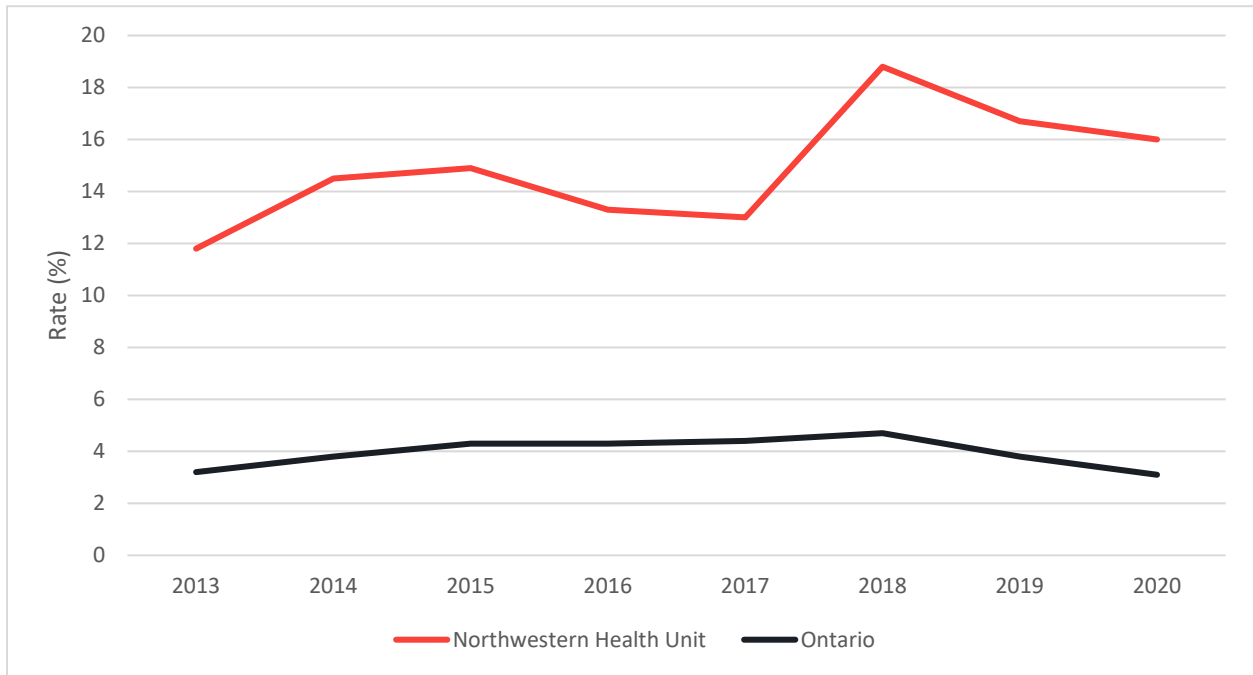


Figure 5-30: Maternal Mental Health Concern During Pregnancy, Northwestern Health Unit and the Province of Ontario, 2013-2020. Source: (Ontario Agency for Health Protection and Promotion, 2023h)

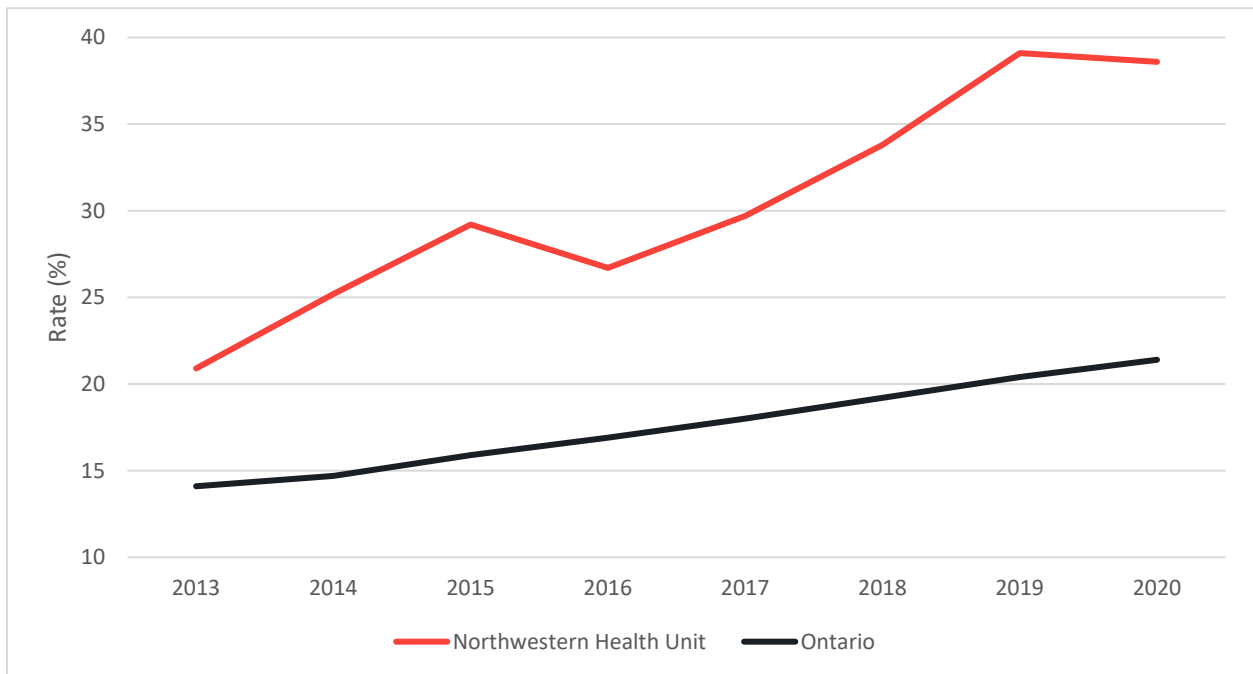
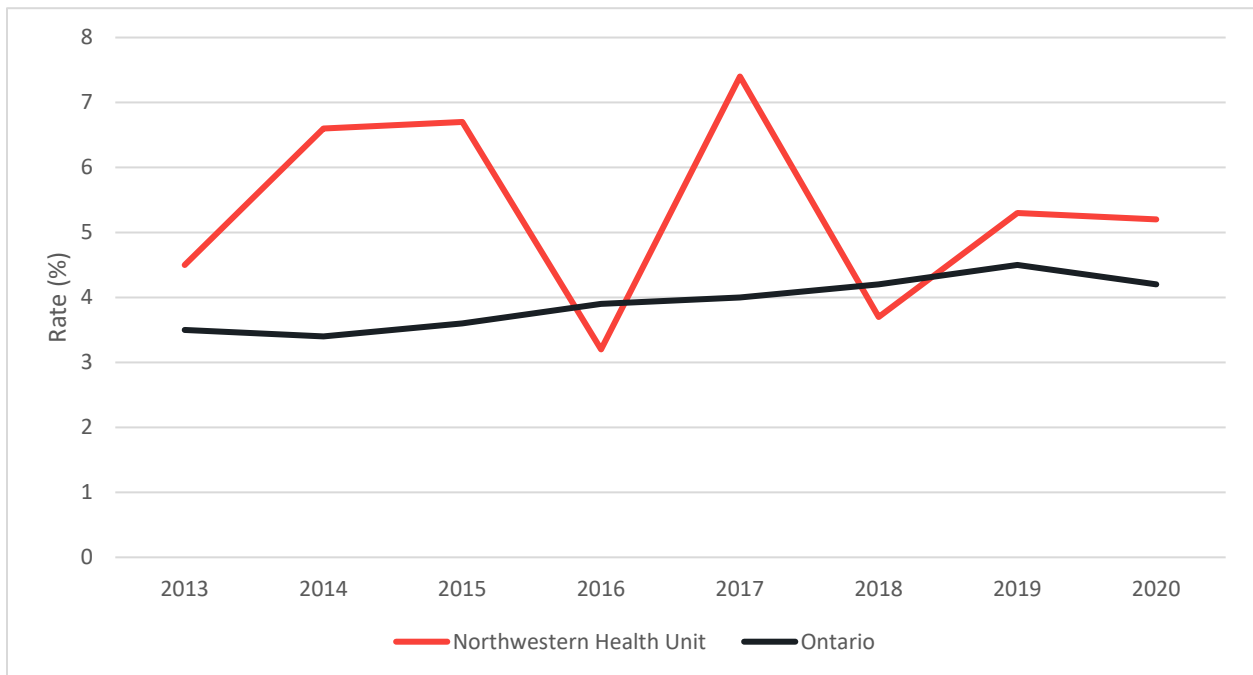


Figure 5-31: History of Post-Partum Depression, Northwestern Health Unit and the Province of Ontario, 2013-2020. Source: (Ontario Agency for Health Protection and Promotion, 2023h)

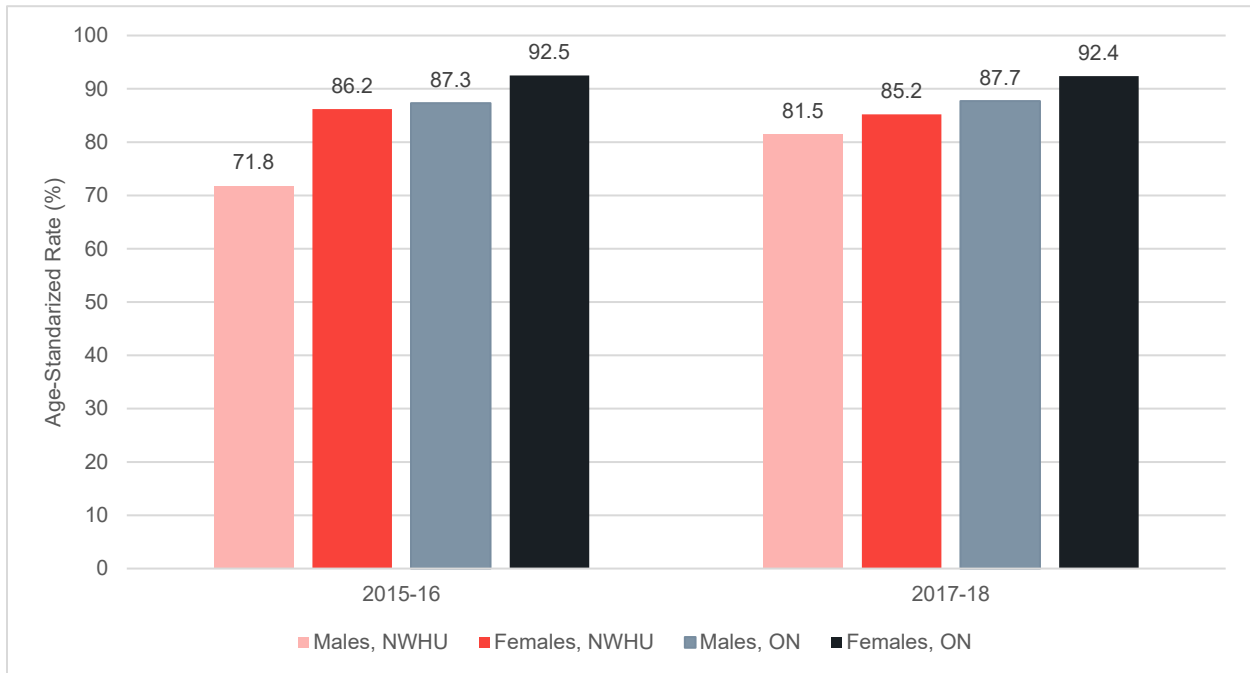


5.8 HEALTH SERVICES

Information on health and social services for Indigenous communities is summarized in Section 3 and is also included in the Project's Socio-economic Baseline Study (Impact Statement Appendix O-1; WSP 2024).

Figure 5-32 presents the age-standardized rates of respondents to the CCHS from NWHU and the province who reported having a regular medical provider. The rates of having a regular medical provider among males and females in NWHU increased between 2015-16 and 2017-18, but remained lower than the respective rates for males and females in the province (Statistics Canada 2022b). The rates of males who reported having a regular medical provider were lower than those for females in NWHU in both years, although the gap decreased between 2015-16 and 2017-18.

Figure 5-32: Has a Regular Medical Provider, Northwestern Health Unit and the Province of Ontario, 2015-2018. Source: (Statistics Canada 2022b).



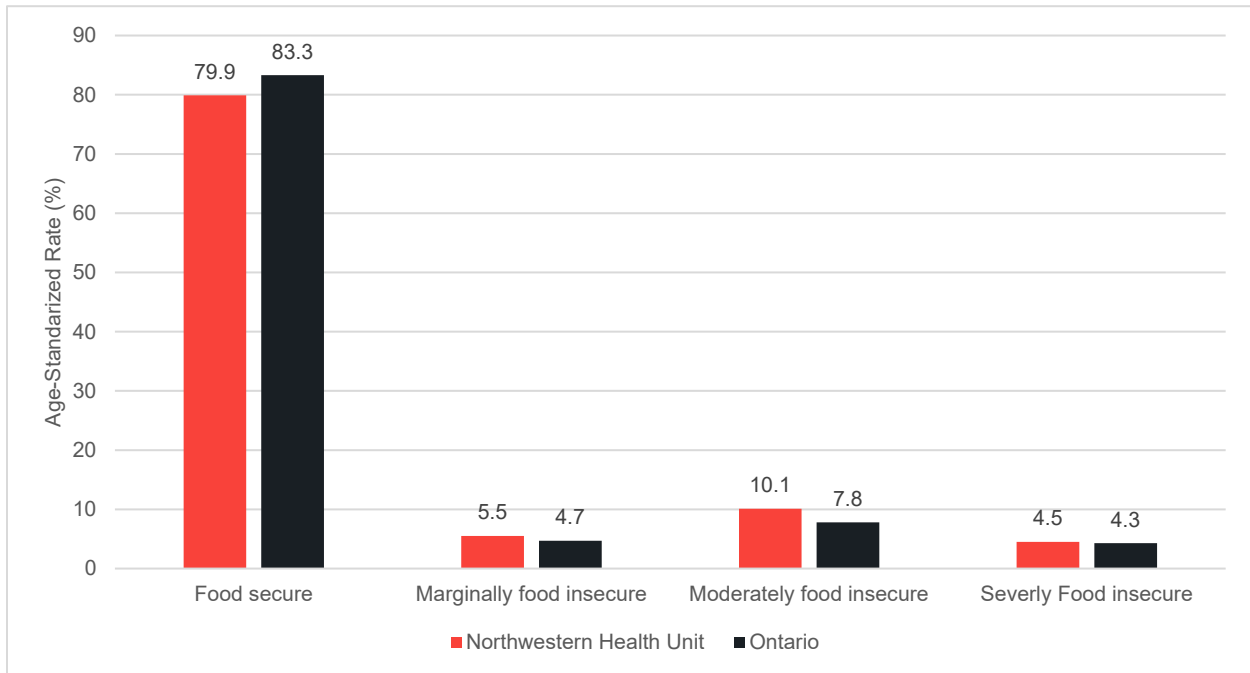
5.9 FOOD AND DRINKING WATER ACCESS

5.9.1 FOOD SECURITY

This section provides information on food security within the NWHU. Public Health Ontario’s health snapshots provide insight into food security and nutrition, for specific health units and for the Province of Ontario as a whole. These data were originally sourced from the CCHS and the Canadian Income Survey.

Figure 5-33 shows household food insecurity in the NWHU compared to the province in 2018-2020. Rates of food insecurity in the NWHU were higher than provincial averages, with 79.9% of households in the NWHU being food secure compared to 83.3% of households in the province.

Figure 5-33: Household Food Insecurity, Northwestern Health Unit and the Province of Ontario, 2018-2020.
Source: (Ontario Agency for Health Protection and Promotion, 2023n)



More recent data shows approximately 24% of households in the Kenora-Rainy River Districts are facing food insecurity, relative to 24.2% of households in Ontario as a whole, as of 2023 (NWHU 2024).

5.9.2 DRINKING WATER QUALITY AND ACCESS

Ontario municipalities own or have water supplied to them through drinking water systems. These drinking water systems are regulated by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) (MECP 2025). The Ministry ensures that all municipal drinking water systems are registered; all system owners are licensed; all system operators are authorized to run and maintain drinking water systems; and drinking water works permits are issued to modify, repair, or extend drinking water systems (MECP 2025). The Ministry also ensures that all drinking water systems meet Ontario’s Drinking Water Quality Standards, and that drinking water tests are conducted by licensed, accredited laboratories (MECP 2025). All adverse drinking water tests are reported to the Ministry and the local medical officer of health (MECP 2025). Provincial water quality standards are set out in the *Safe Drinking Water Act, 2002*; *Ontario Regulation 169/03* (water quality standards); and *Ontario Regulation 170/03* (drinking water systems). Information on drinking water sources within the local Indigenous communities is presented above in Section 4.9.2.

6 GREAT BEAR COMMUNITY HEALTH SURVEY RESULTS

To help inform the Project, a community feedback survey was conducted from May 13 to June 19, 2024, focusing on residents of Red Lake, Ear Falls, and surrounding areas. The objectives of the survey were to better understand local residents' priorities for consideration of health and wellbeing in the HIA; the current self-reported health status (physical, mental, spiritual) of survey respondents; and some of the local practices and land use activities near the Project location and surrounding areas.

The intended audience for this survey included residents of Red Lake and Ear Falls. The survey was not designed to be focused on collection of IK since an online survey would not be the ideal format for this process. However, it was intended to be inclusive of residents who identify as Indigenous, should they wish to fill out the survey.

The survey consisted of 25 questions designed to take about ten minutes to complete and was distributed via QR codes, a newsletter sent to an existing list of public community contacts developed by Great Bear Resources, Facebook posts, and a link posted on the Great Bear Resources website. In total, 186 responses were received, with 12.5% (23 out of 184) of participants self-identifying as Indigenous.

The results of the survey are summarized below, with a focus on results for self-identified Indigenous respondents. Where applicable, results for non-Indigenous respondents are also presented for informational purposes. However, due to the small sample size of survey respondents, these results could not be statistically validated for comparison or used for statistical analysis. Therefore, it is important to note that the interpretability of this data for comparison is limited. In addition, it is important to note that these survey results may not be representative of the interests, opinions, and values of local Indigenous communities as a whole, or the interests, opinions, and values of individuals within those communities. Rather, the survey results are provided as a snapshot of information provided by some Indigenous survey respondents, specifically residing in the Red Lake and Ear Falls areas.

6.1 RESPONDENT DEMOGRAPHIC INFORMATION

Survey respondents were given the option to identify as Indigenous. 12.50% (23/184) of respondents identified as Indigenous, as outlined in Figure 6-1. Respondents were asked if they reside full time in Red Lake, Ear Falls, Dryden, the City of Kenora, Pickle Lake, Sioux Narrows-Nestor Falls, Sioux Lookout, Ignace, or Other. Most self-identified Indigenous respondents reported living full time in Red Lake, followed by Other, and Ear Falls, as outlined in Figure 6-2. In the Other category, six respondents stated they lived in Lac Seul, and one respondent each reported Balmertown, Fort Frances, and Stone Lake.

Figure 6-1: Indigenous Identity Responses from Survey Respondents (n=184)

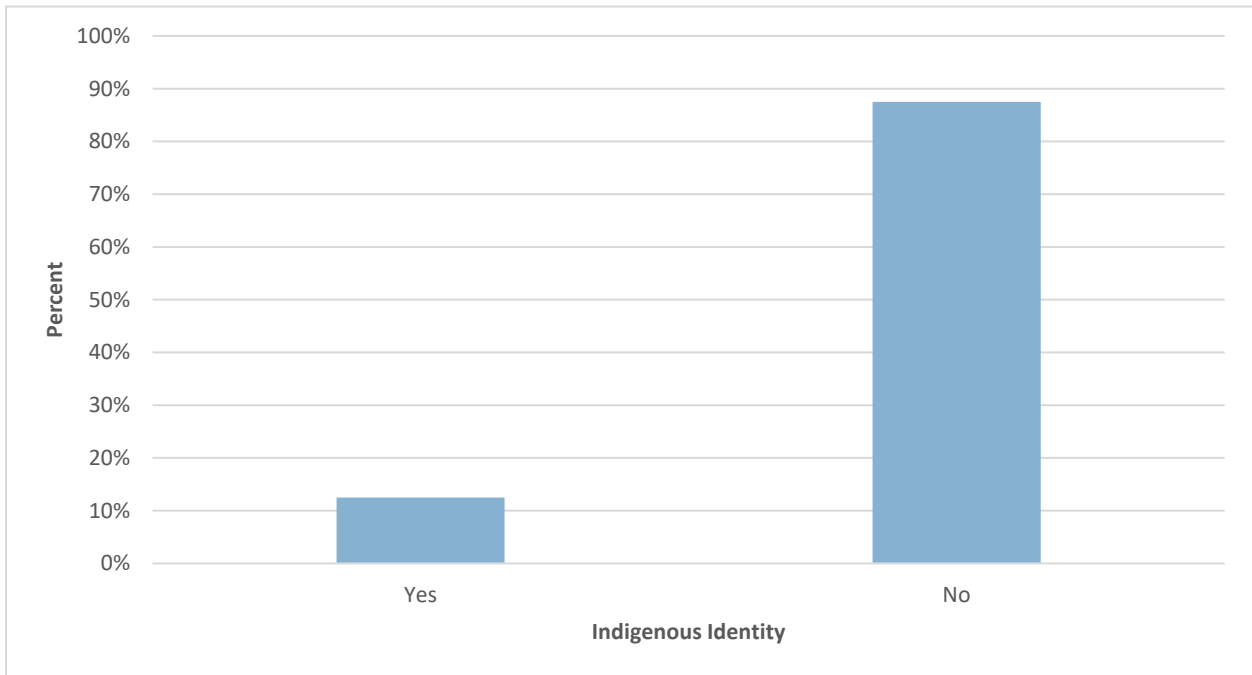
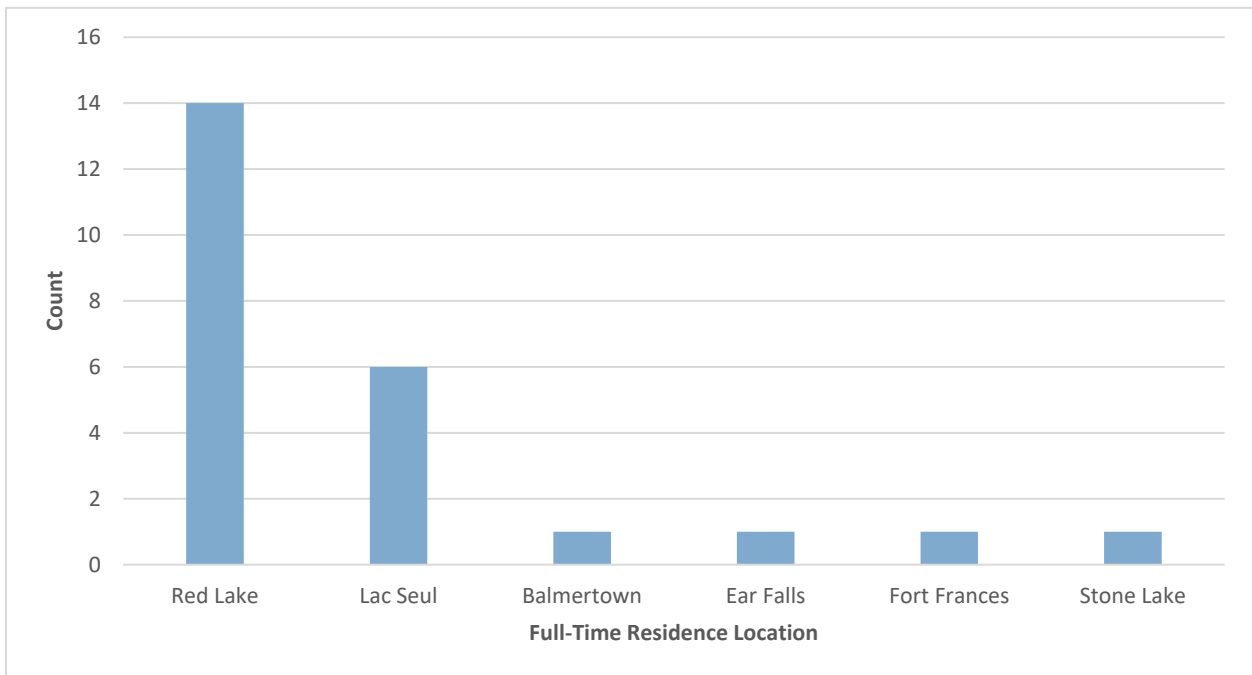
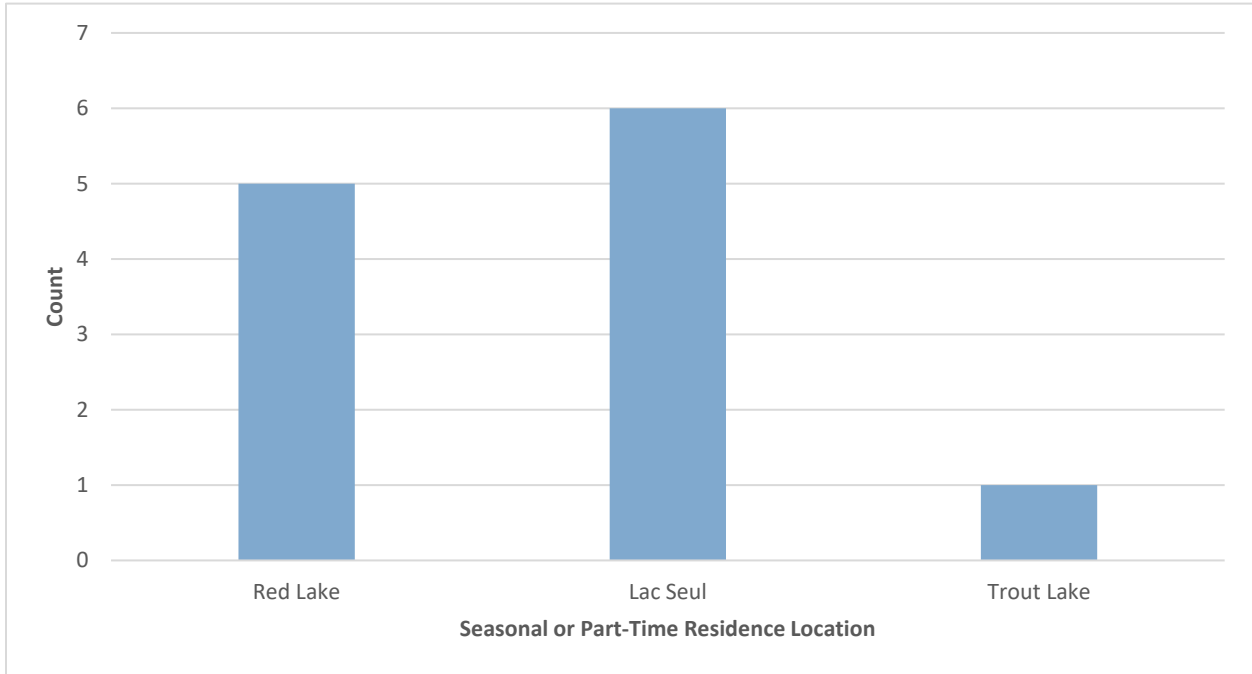


Figure 6-2: Full-Time Residence Location, Self-Identified Indigenous Respondents (n=23)



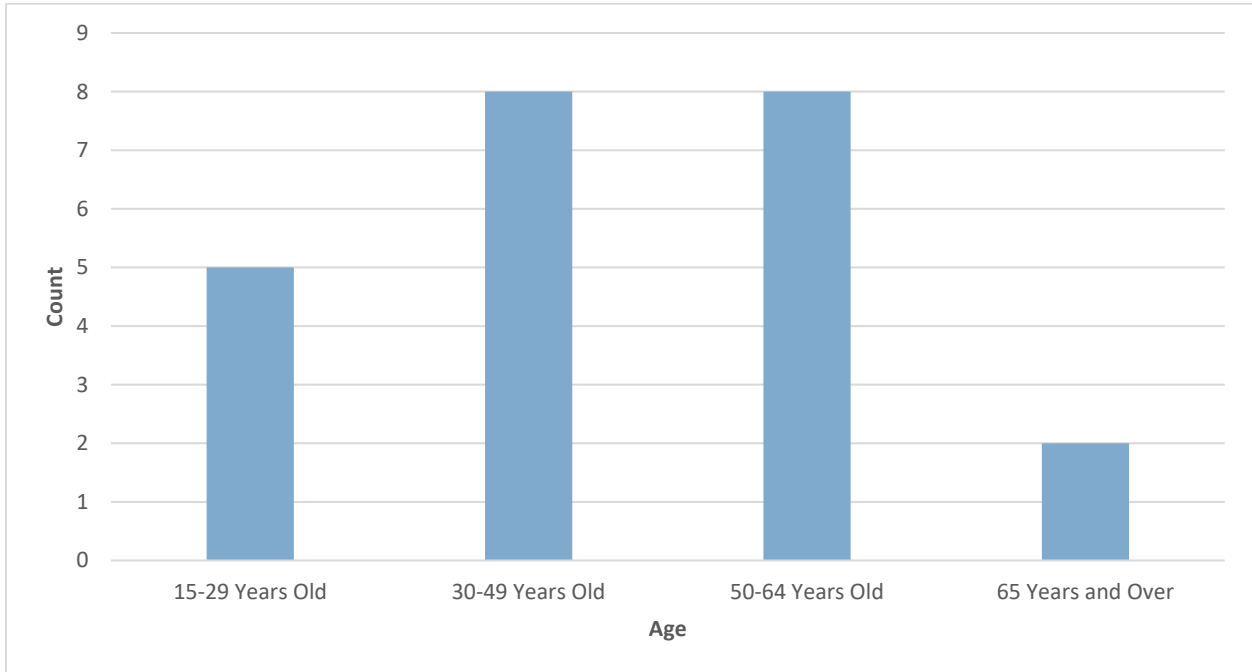
Respondents were asked if they reside seasonally or part-time (e.g., in a cottage) in Red Lake, Ear Falls, Dryden, the City of Kenora, Pickle Lake, Sioux Narrows-Nestor Falls, Sioux Lookout, Ignace, or Other. Most self-identified Indigenous respondents selected Other (7/12), followed by Red Lake (5/12), as outlined in Figure 6-3. In the Other category, four respondents stated Lac Seul, three stated Frenchmen’s Head-Lac Seul, and one stated Trout Lake.

Figure 6-3: Seasonal and / or Part-Time Residence Location, Self-Identified Indigenous Respondents (n=12)



Respondents were asked their age and provided with ranges between 0-14 years, 15-29 years, 30-49 years, 50-60 years, and 65 years old and above. Most self-identified Indigenous respondents reported being between 30-49 years old and 50-64 years old (8/23 respondents each), followed by 15-29 years old (5/23), as outlined in Figure 6-4. No respondents were 14 years old or younger.

Figure 6-4: Age Range, Self-Identified Indigenous Respondents (n=23)

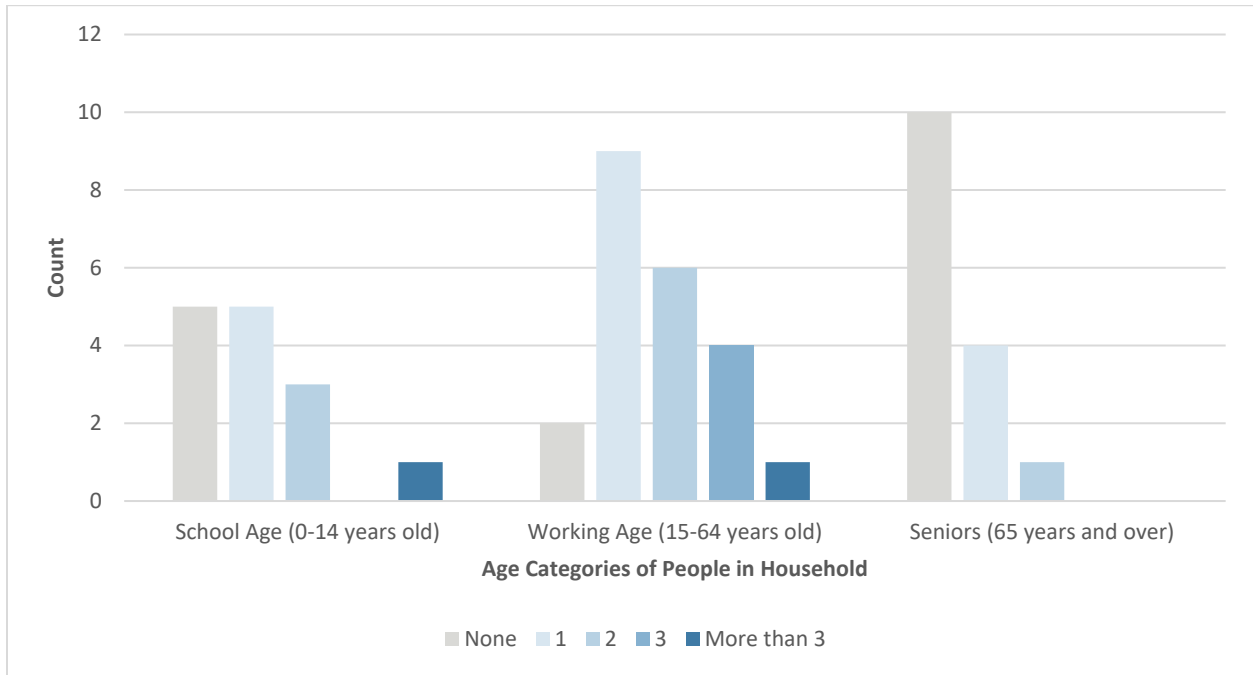


Respondents were asked how many people in their household belong to each age category: school age, working age, seniors. In terms of number of school-age children per household, most self-identified Indigenous respondents reported one or no school-age children (5/23 respondents each), as outlined in

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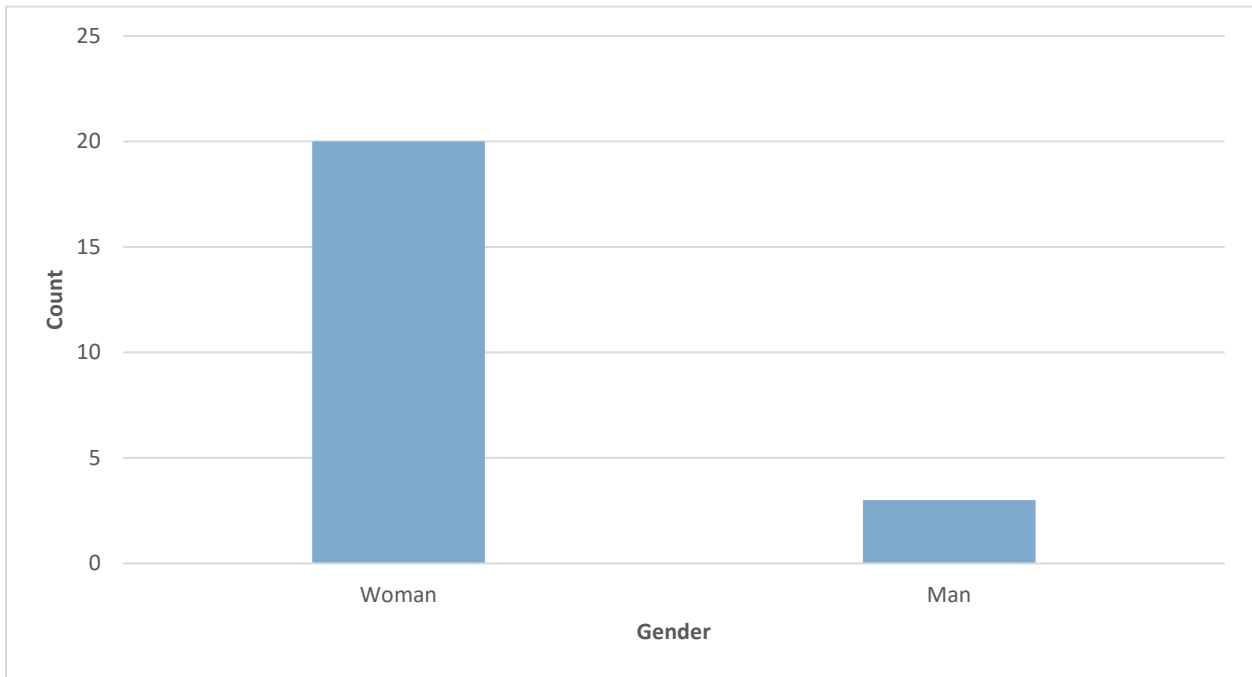
Figure 6-5. Most households reported one (9/23), followed by two (6/23), working age adults. Most households (10/23) reported no seniors.

Figure 6-5: Number of People in Household in Each Age Range, Self-Identified Indigenous Respondents (n=23)



Respondents were asked their gender identity. Most respondents identified as women (20/23), followed by men (3/23), as outlined in Figure 6-6. No respondents selected non-binary, prefer to self-describe, or prefer not to answer.

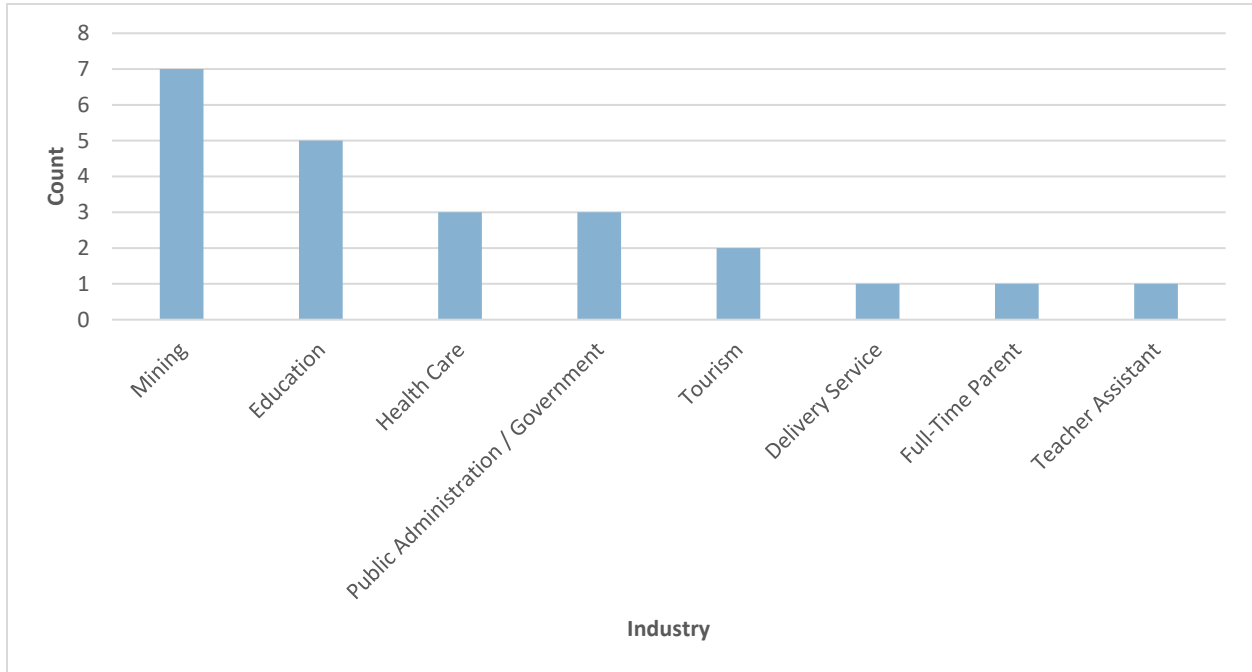
Figure 6-6: Gender Identity, Self-Identified Indigenous Respondents (n=23)



ATTACHMENT A: Baseline Health Profile

Respondents were asked which industry best describes their area of work. Most self-identified Indigenous respondents selected Other (8/23), followed by mining (7/23), health care and public administration / government (3/23 respondents each), and tourism (2/23), as outlined in **Figure 6-7**. Respondents who selected Other specified that they worked in education (5/23) and as a full-time parent (1/23).

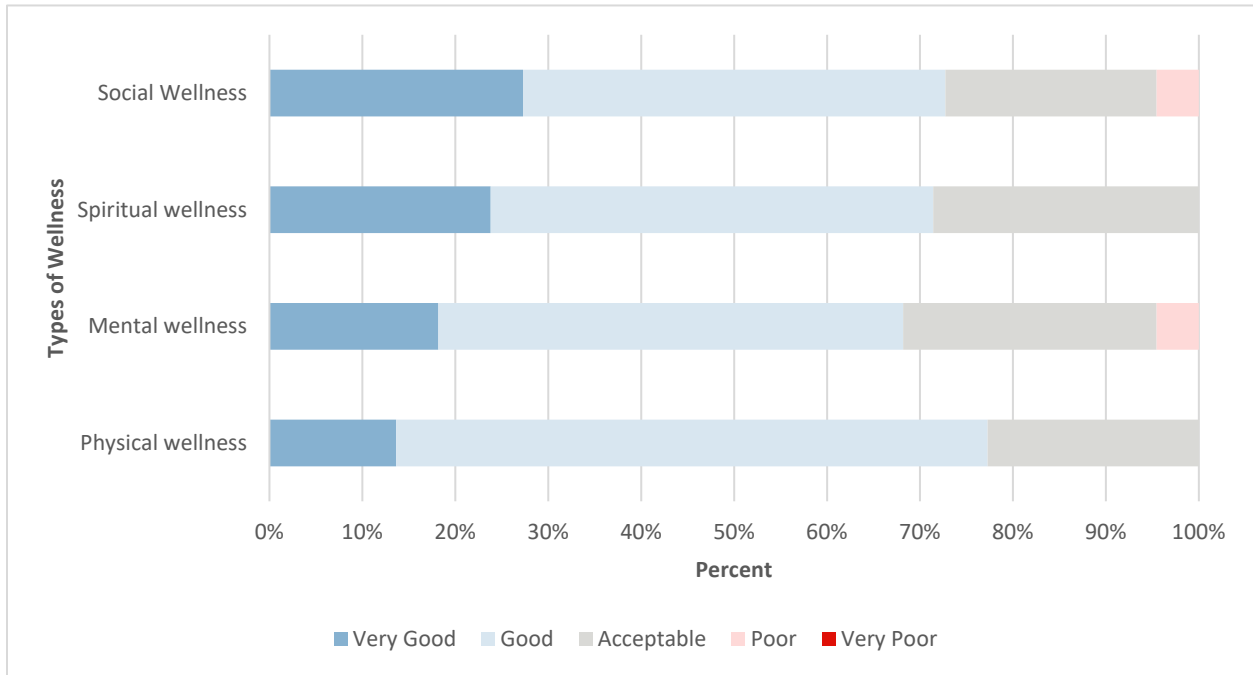
Figure 6-7: Employment by Industry, Self-Identified Indigenous Respondents (n=23).



6.2 HEALTH AND WELLNESS

Respondents were asked how they rate their current feelings of health and wellness for the following categories: physical, mental, spiritual, and social wellness on a scale from very good to very poor. Most self-identified Indigenous respondents selected positive answers (i.e., very good or good) across all categories, followed by neutral (i.e., acceptable), and negative (poor), as presented in Figure 6-8. No respondents selected very poor in any of the four categories. Most non-Indigenous respondents also selected positive answers across all categories, followed by neutral (i.e., acceptable), and negative (poor). No respondents selected very poor in any of the four categories.

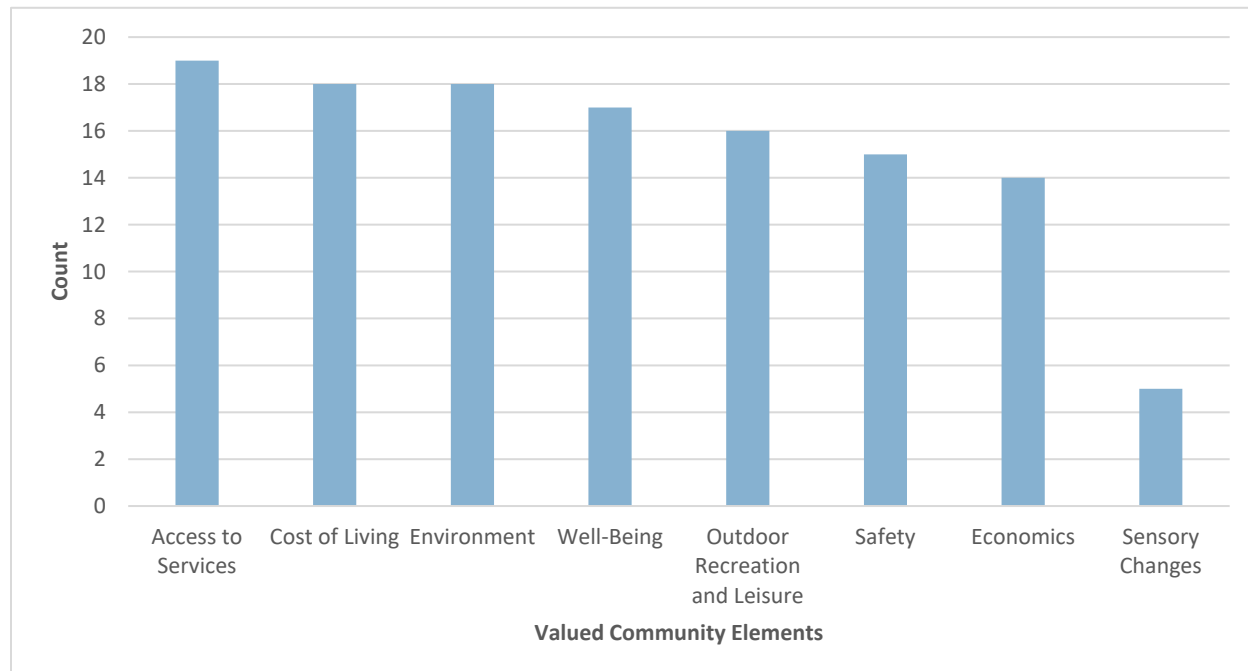
Figure 6-8: Current State of Health and Wellness Self-Identified Indigenous Respondents (n=22)



6.3 COMMUNITY VALUES

Respondents were asked to select what matters most to them in their community from the following answers: access to services, environment, cost of living, safety, well-being, economics, sensory changes, and outdoor recreation and leisure. Most self-identified Indigenous respondents (19/23) selected access to services, followed by cost of living and the environment (18/23), well-being (17/23), outdoor recreation and leisure (16/23), safety (15/23), economics (14/23), and sensory changes (five of 23), as outlined in Figure 6-9.

Figure 6-9: Community Values and Issues of Importance, Self-Identified Indigenous Respondents (n=23)

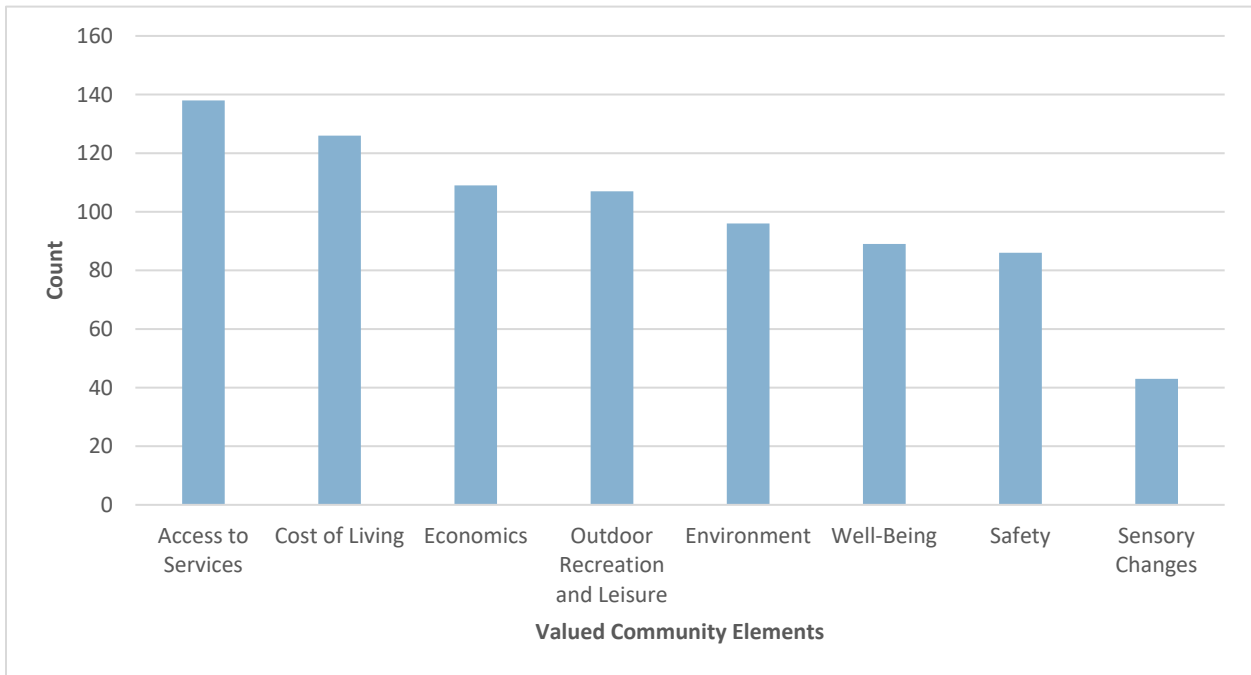


To clarify the categories presented to respondents, WSP provided illustrative examples for each community value and issue of importance. These are summarized as follows:

- **Access to services** (e.g., social services, hospitals, clinics, pharmacies, shelters)
- **Cost of living** (e.g., property value, food prices)
- **Economics** (e.g., employment, income, local business and revenue)
- **Environment** (e.g., climate change, water quality, air quality)
- **Outdoor recreation and leisure** (e.g., swimming, fishing, cottages, hunting)
- **Safety** (e.g., protections from accidents, community safety)
- **Sensory changes** (e.g., noise and vibration, light)
- **Well-being** (e.g., physical, mental, spiritual, social).

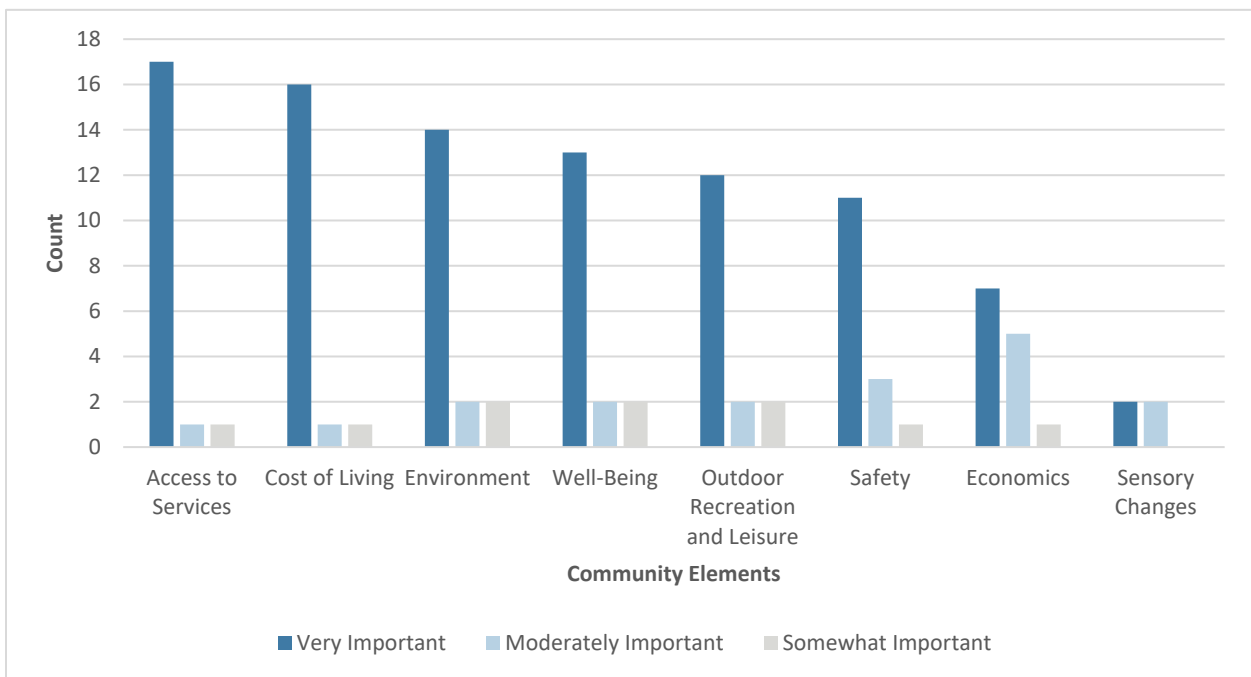
Self-identified Indigenous respondents placed different values on community elements when compared to non-Indigenous respondents, as outlined in Figure 6-10. For example, more non-Indigenous selected economics as an element of value compared to self-identified Indigenous respondents.

Figure 6-10: Community Values and Issues of Importance, Non-Indigenous Respondents (n=182)



After selecting the elements that matter most to them in their community, the survey populated a customized ranking question to determine how important the elements respondents selected in the previous question were to them. Most self-identified Indigenous respondents across categories noted that their selected elements were very important, followed by moderately important, then somewhat important, as outlined in Figure 6-11. Interestingly, when sorted by percentage of respondents who selected very important, the ranking remained the same as in the previous question.

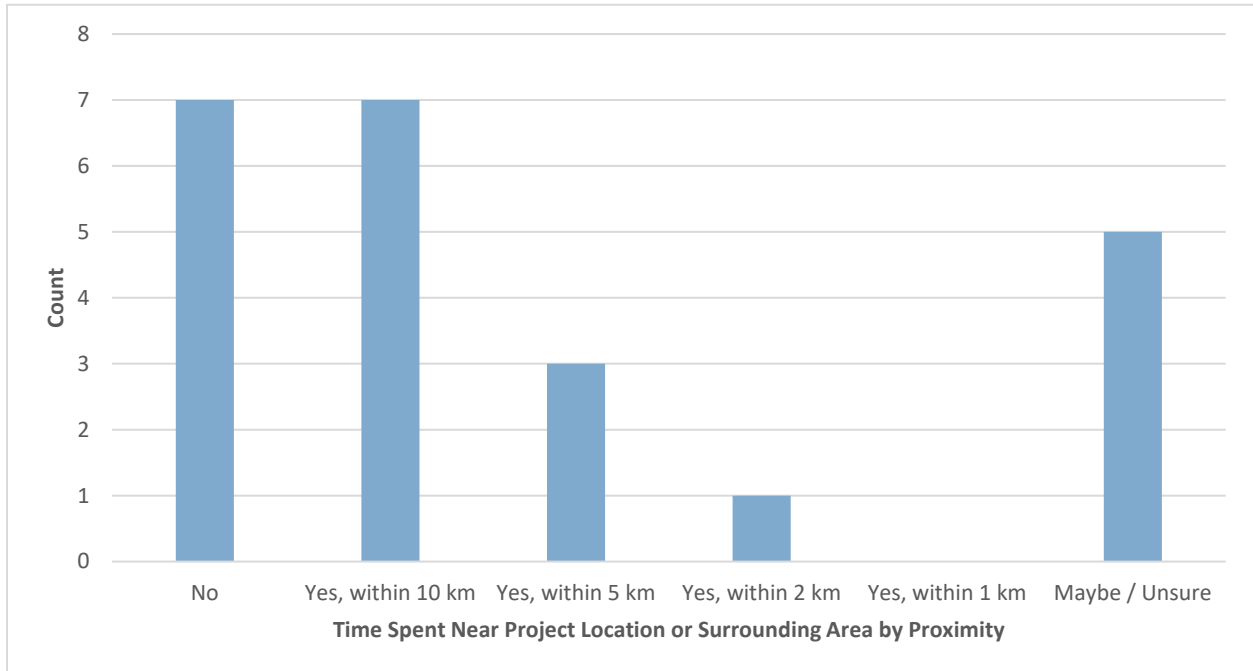
Figure 6-11: Importance of Community Values, Self-Identified Indigenous Respondents (n=23)



6.4 LAND USE AND ACTIVITIES NEAR PROJECT AREA

Respondents were asked if they spend time near the Project location and surrounding area (i.e., for recreational or residential activities). Note, spending time does not include driving through the surrounding area. Most self-identified Indigenous respondents selected yes, within 10 km and no (7/23 respondents each), followed by maybe / unsure (5/23), yes, within 5 km (3/23), and yes, within 2km (1/23). No respondents selected yes, within 1 km, as outlined in Figure 6-12.

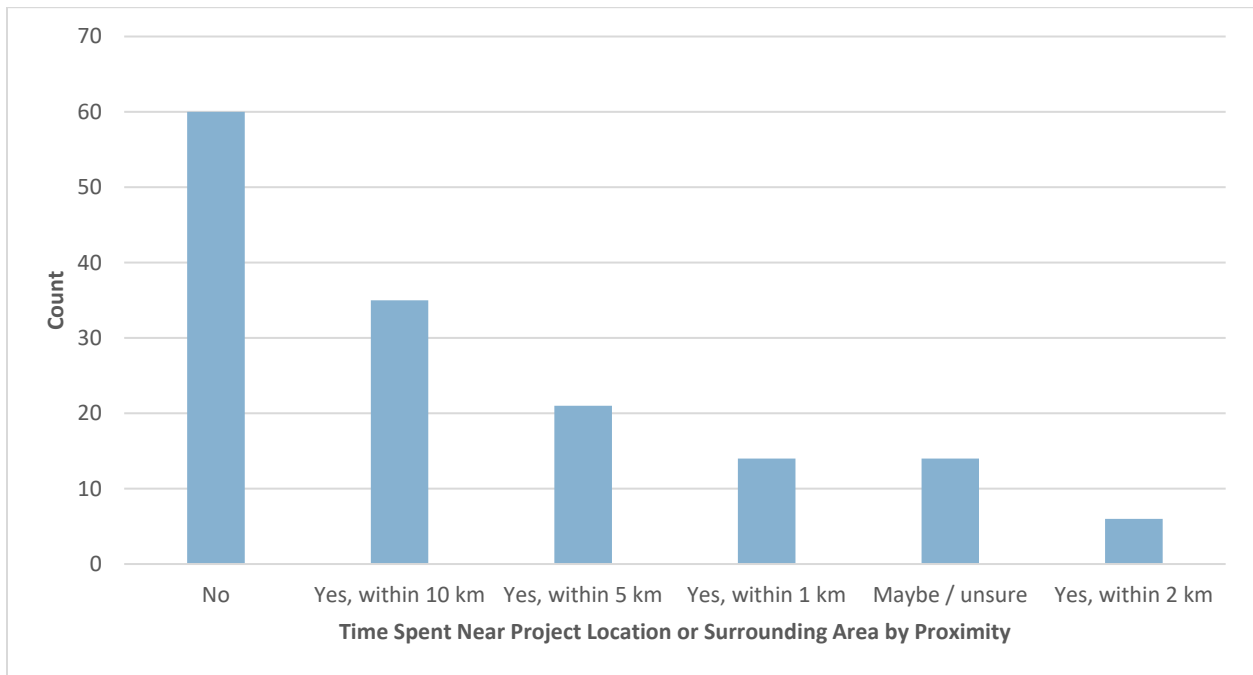
Figure 6-12: Time Spent Near Project Location and Surrounding Area by Proximity, Self-Identified Indigenous Respondents (n= 23)



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Self-identified Indigenous respondents responded no less frequently than non-Indigenous respondents, as outlined in Figure 6-13.

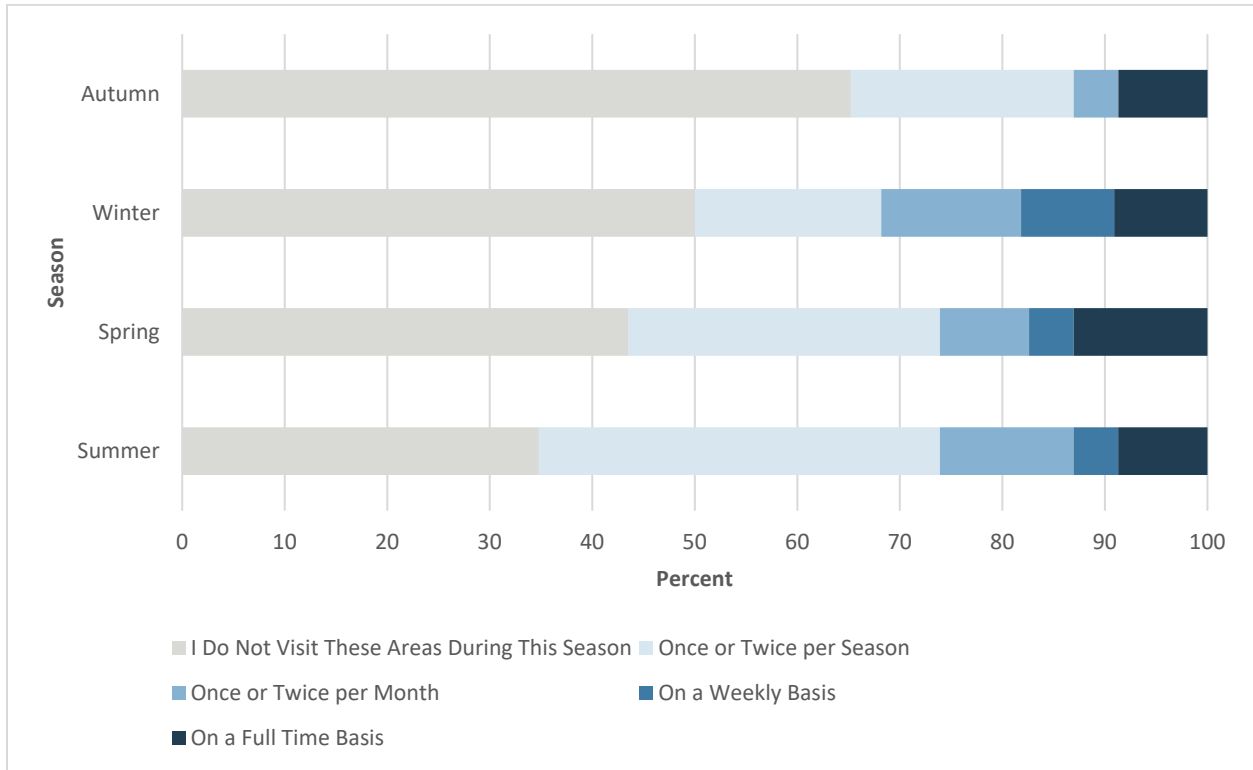
Figure 6-13: Time Spent Near Project Location and Surrounding Area by Proximity, Non-Indigenous Respondents (n= 150)



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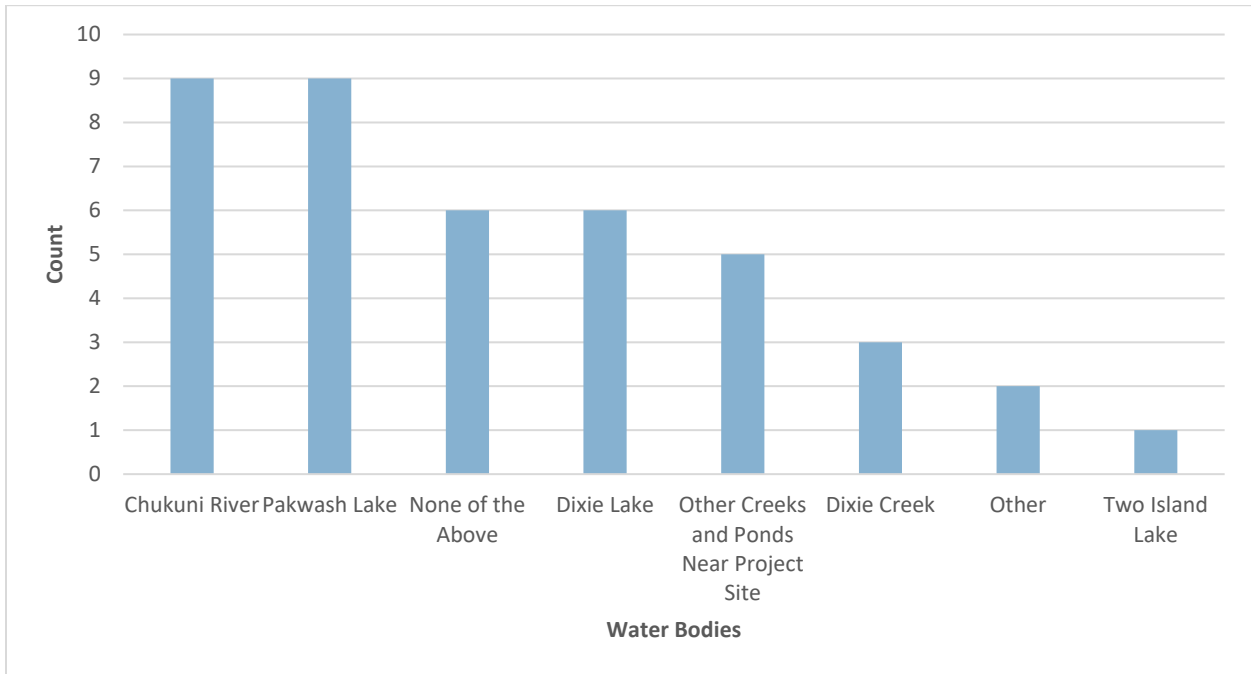
Respondents were asked to quantify how frequently they spend time near the Project location and surrounding area during summer, spring, autumn, and winter. Of the self-identified Indigenous respondents who spent time near the Project location and surrounding area, most visited once or twice per season, and most often in the summer, as outlined in Figure 6-14.

Figure 6-14: Time Spent Near Project Location and Surrounding Area by Seasonal Frequency (100% Stacked Bar), Self-Identified Indigenous Respondents (n=23)



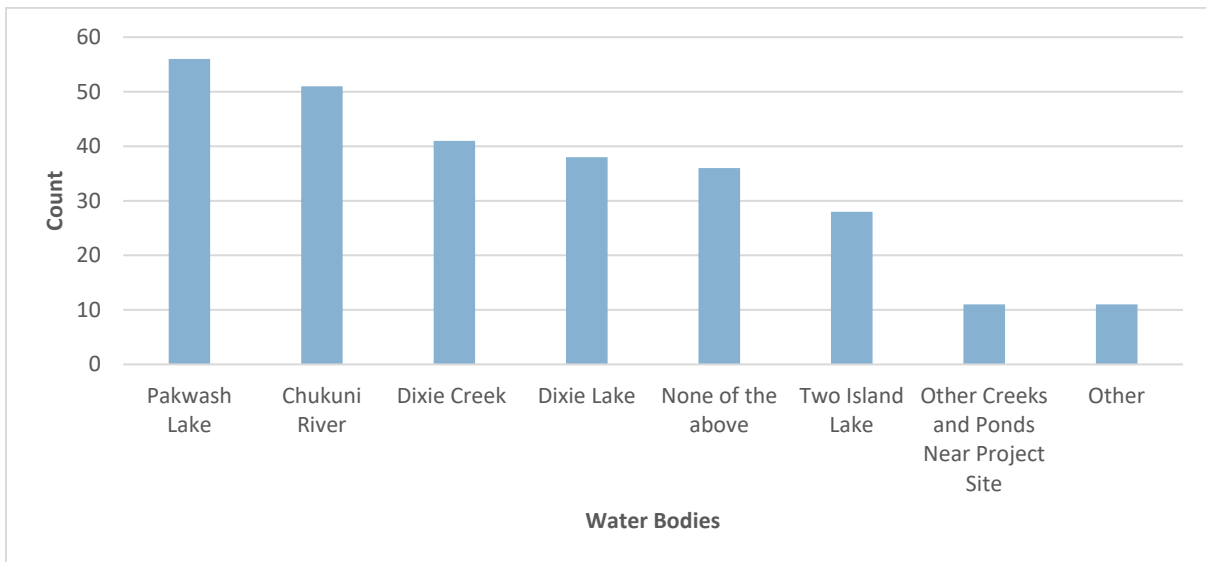
Respondents were asked to select all bodies of water near the Project location and surrounding area that they use for fishing and / or recreation. Most self-identified Indigenous respondents selected Chukuni River and Pakwash Lake (9/18 respondents each), followed by none of the above and Dixie Lake (6/18 respondents each), as outlined in Figure 6-15.

Figure 6-15: Body of Water Recreation or Fishing Use Near Project Location and Surrounding Area, Self-Identified Indigenous Respondents (n=18)



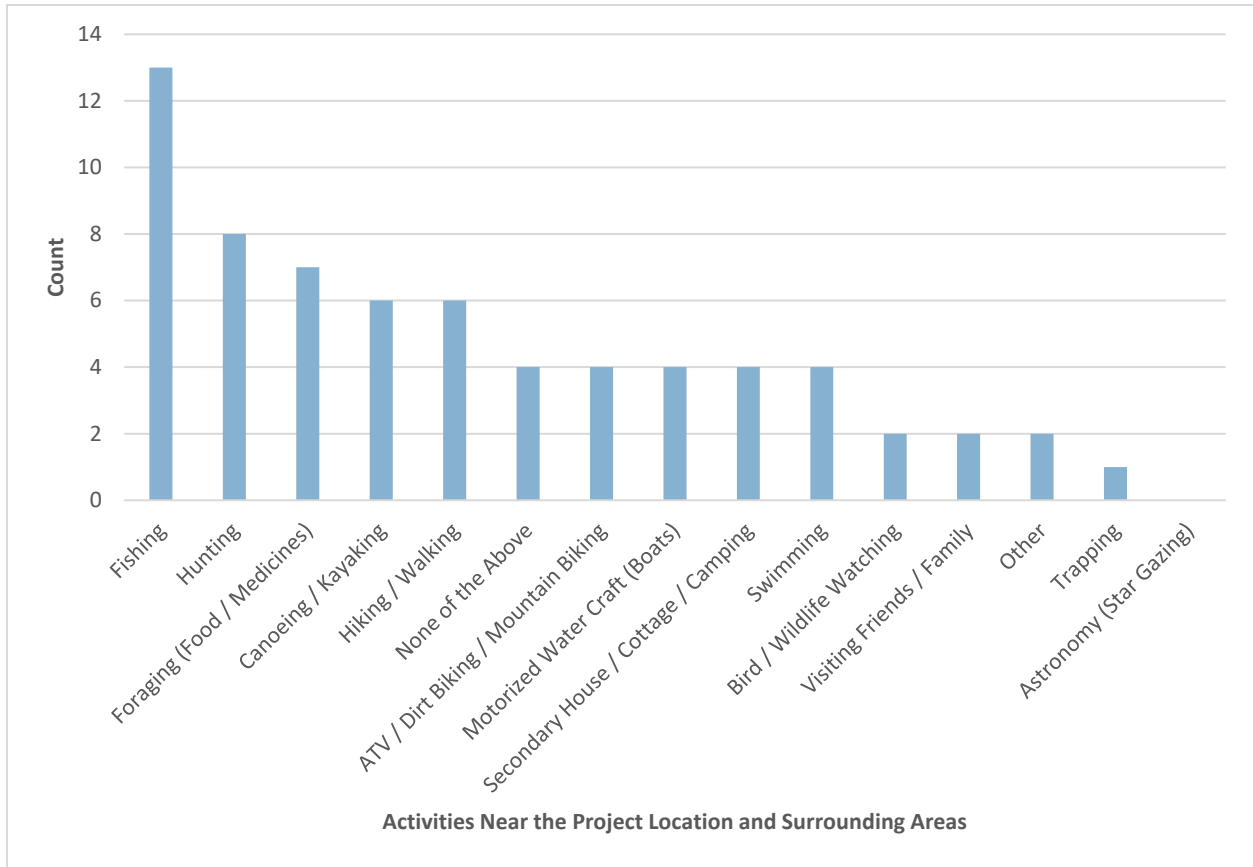
Self-identified Indigenous respondents reported using different water bodies than non-Indigenous respondents, as outlined in Figure 6-16.

Figure 6-16: Body of Water Recreation or Fishing Use Near Project Location and Surrounding Area, Non-Indigenous Respondents (n=149)



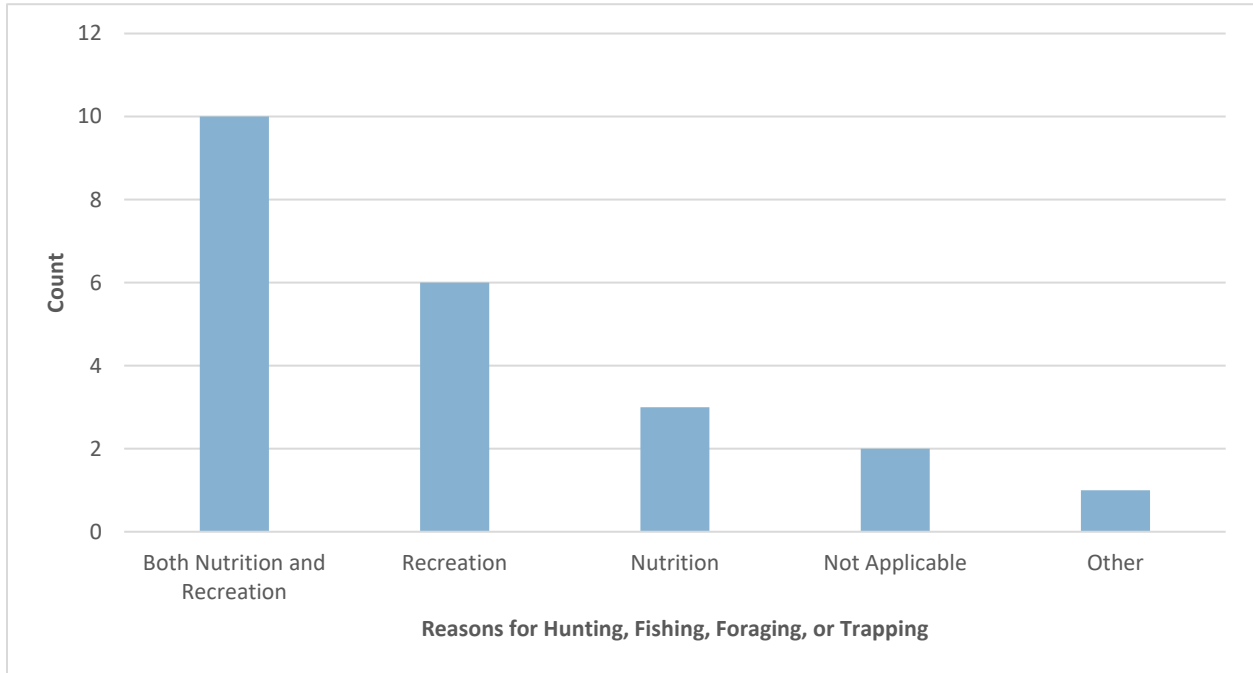
Respondents were asked to select any activities they participate in near the Project location and surrounding area. Most self-identified Indigenous respondents selected fishing (13/22), hunting (8/22), foraging (7/22), and canoeing / kayaking and hiking / walking (6/22 respondents each), as outlined in Figure 6-17. The respondents who selected Other specified that they engaged in camping and tourism.

Figure 6-17: Activities Near Project Location and Surrounding Area, Self-Identified Indigenous Respondents (n=22)



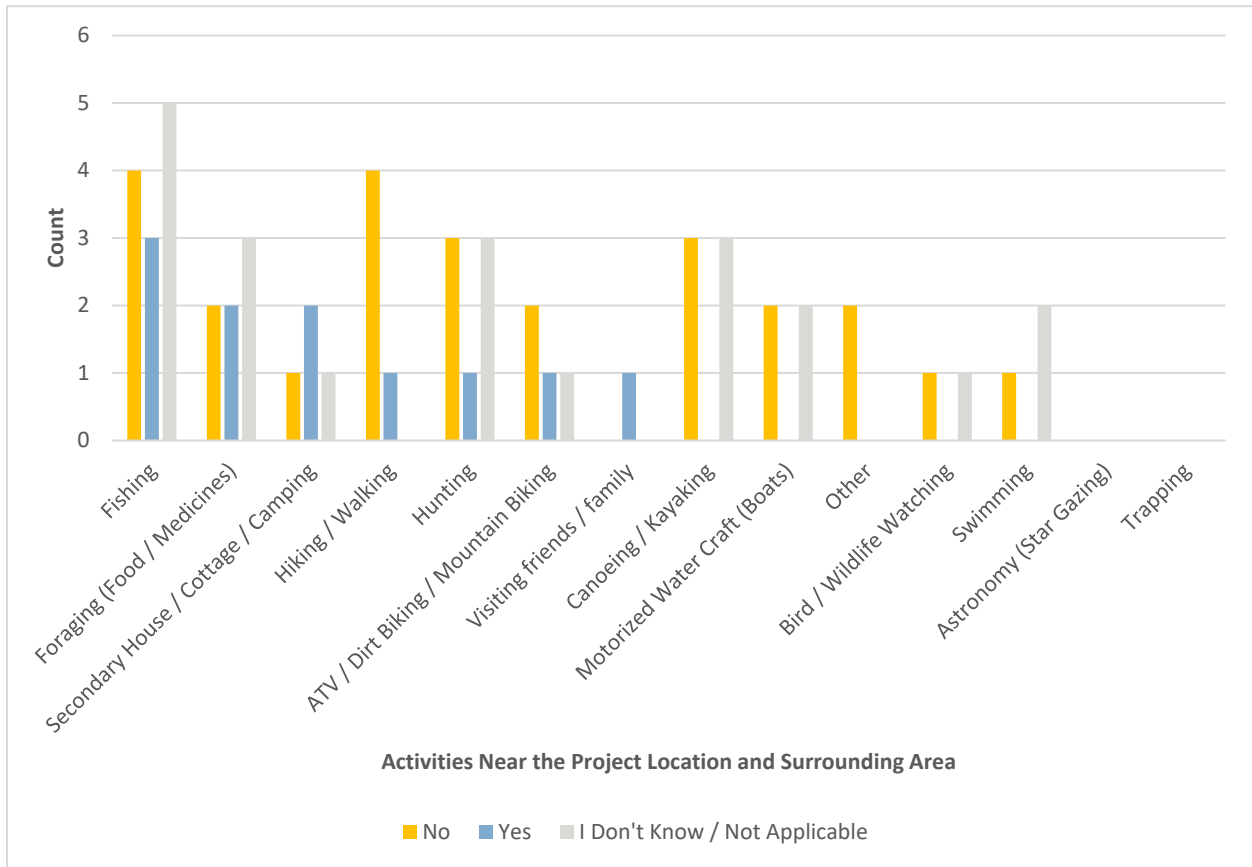
Respondents who hunt, fish, forage, or trap, were asked if their activities were for nutrition or recreation. Most self-identified Indigenous respondents noted their activities served both nutritional and recreational purposes (10/23), followed by recreational purposes (6/23), and nutrition (3/23), as outlined in Figure 6-18.

Figure 6-18: Hunting, Fishing, Foraging, Trapping Activities Purpose, Self-Identified Indigenous Respondents (n=23)



Respondents were asked whether they think the Project will have an impact on the activities they selected in an earlier question. The top activities self-identified Indigenous respondents identified as potentially being impacted by the Project are fishing, foraging, secondary house / cottage / camping, hiking / walking, hunting, ATV / dirt biking / mountain biking, and visiting friends and family, Figure 6-19. Respondents did not select any perceived potential impact option for astronomy or trapping.

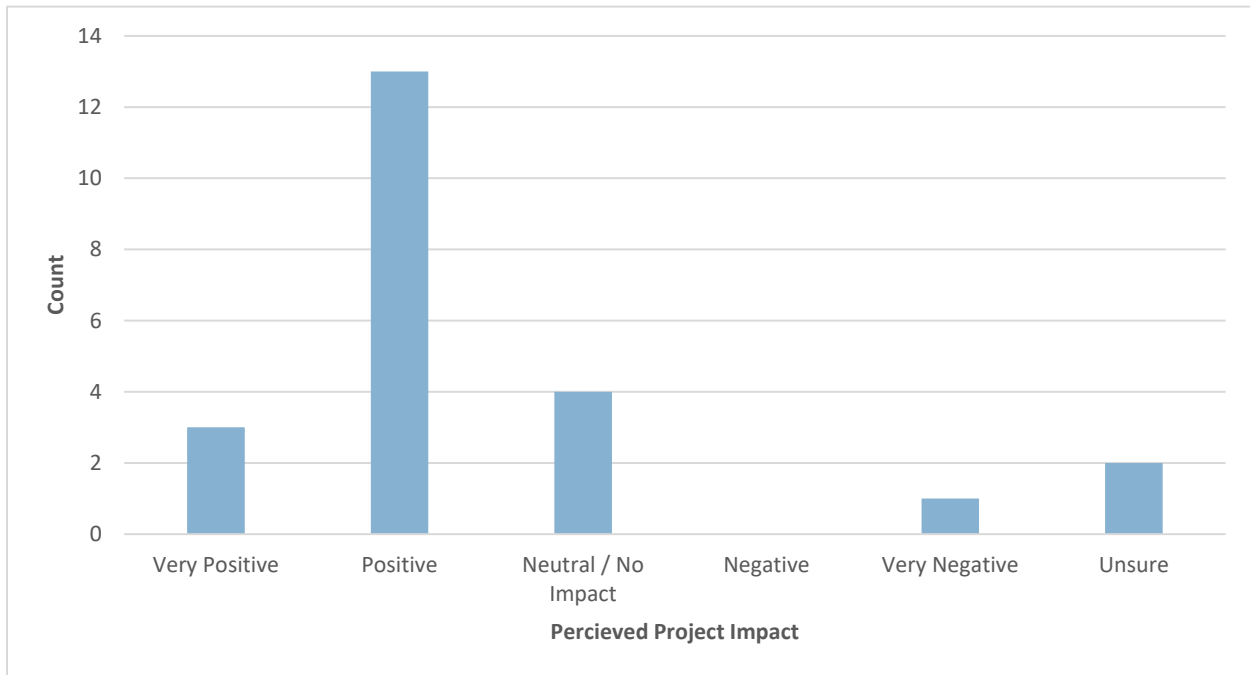
Figure 6-19: Perceived Potential Impact of Project on Activities, Self-Identified Indigenous Respondents (n=18)



6.5 PERCEIVED PROJECT IMPACT ON COMMUNITY

Respondents were asked to rate the type of impact the Project will have on their community from the following scale: very positive, positive, neutral / no impact, negative, very negative or unsure. Most self-identified Indigenous respondents (13/23) selected positive, neutral (4/23), very positive (3/23), unsure (2/23), and very negative (one respondent), as outlined in Figure 6-20. No respondents selected negative.

Figure 6-20: Perceived Project Impact on Community, Self-Identified Indigenous Respondents (n=23)



6.6 INDIGENOUS RESPONDENT INTERESTS AND CONCERNS

Respondents were asked to note one additional thing they would like Great Bear Resources to know about their interests or concerns regarding the Project if applicable. Answers from self-identified Indigenous respondents focused primarily on the environment (4/11) and local hiring (2/11). Other comments can be linked to well-being, engagement, and general positive or neutral sentiment.

6.6.1 ENVIRONMENT

Self-identified Indigenous respondents identified minimizing adverse effects from the Project to water as a priority:

“Clean puddle pond[s] that are made from roads and machinery.”

“That we continue to have clean drinking water.”

“Would like to know the watershed from project.”

One self-identified Indigenous respondent raised further concerns regarding the appropriate disposal of waste and garbage from the Project, removing trees or vegetation that is not necessary for Project construction or operation, and requested to see the natural environment in their Treaty area near the Project site and surrounding area *“kept in a respectful manor [for their] community and [for] the animals that [in]habit the forest and water ways.”*

6.6.2 EMPLOYMENT

Self-identified Indigenous respondents noted hopes that the Project would result in employment opportunities for Indigenous people and local residents near the Project site and the surrounding area.

“Hire local.”

“Will the Indigenous population be considered in hiring for project?”

6.6.3 OTHER

In addition to the environment and employment comments, one self-identified Indigenous respondent requested *“community members [of] all ages [be taken] to view site once in a while to see progress.”* The remaining Indigenous respondents noted general support for the Project / a lack of concerns.

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