



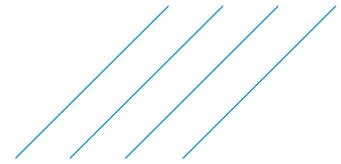
**SNC • LAVALIN**

# Webequie Supply Road

## Human Health Work Plan

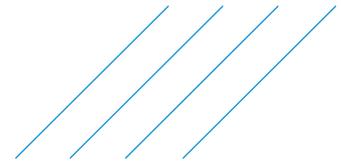
Webequie First Nation

May 2021  
661910



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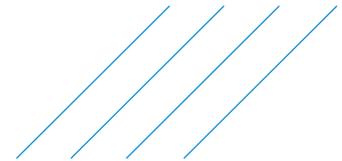
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# 1. Introduction

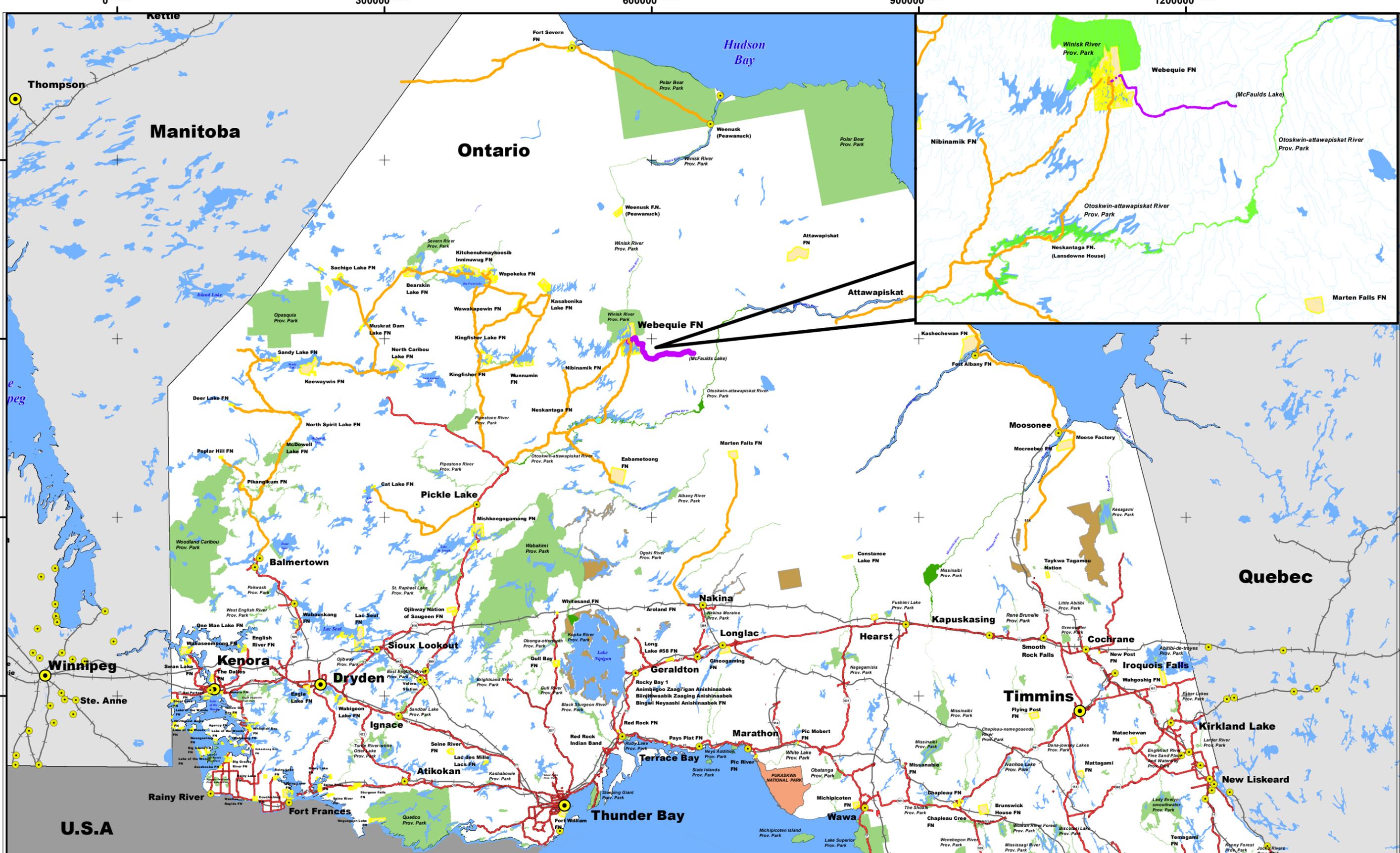
The proposed Webequie Supply Road is a new all-season road of approximately 107 km in length extending from Webequie First Nation (WFN) to the mineral deposit area near McFaulds Lake (also referred to as the “Ring of Fire”). A Location Plan for the Project is shown on **Figure 1**. The preliminary corridor for the road consists of a northwest-southeast segment running 51 km from Webequie First Nation to a 56 km segment running east before terminating near McFaulds Lake. A total of 17 km of the corridor is within Webequie First Nation Reserve lands.

The goals and objectives of the Webequie Supply Road Project (WSR, the Project) are as follows:

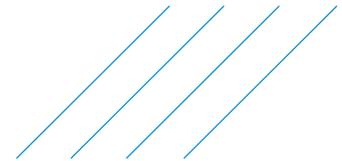
- › To facilitate the movement of materials, supplies and people from the Webequie Airport to the area of existing mineral exploration activities and proposed mine developments in the McFaulds Lake area;
- › To provide employment and other economic development opportunities to WFN community members and businesses that reside in or around the community’s reserve and traditional territory, while preserving their language and culture; and
- › To provide experience/training opportunities for youth to help encourage pursuit of additional skills through post-secondary education.

On May 3, 2018, the Ontario Minister of the Environment, Conservation and Parks (MECP) (then Minister of the Environment and Climate Change) signed a voluntary agreement with the WFN to make the WSR Project subject to an Individual Environmental Assessment (EA) under Ontario’s *Environmental Assessment Act*. The Project is also subject to meeting the requirements of the federal *Impact Assessment Act*. For the purposes of this work plan, the term “EA/IA” or “assessment process” is meant to include both the provincial environmental assessment and the federal impact assessment processes.

This Human Health Work Plan is being submitted to the Impact Assessment Agency of Canada (IAAC, the Agency) and the Ontario MECP, requesting that a coordinated review be undertaken with the objective to provide technical guidance in meeting the requirements of the federal Tailored Impact Statement Guidelines (TISG) and the provincial Terms of Reference (ToR) for the Project and areas of provincial mandate. It should be noted that Ontario’s review of the work plan is preliminary and secondary to any further review and decisions related to a final ToR.



<b>Legend</b> Proposed Preliminary Corridor for the Webeque Supply Road City/Town Airports Winter Roads All-Season Roads Rail First Nation Reserve Federal National Park Provincial Park Conservation Reserve Waterbody		  Canada Lambert Conformal Conic Projection	<b>Webeque Supply Road</b> <b>Project Location</b> Date: 2020/01/22 Figure Number: <b>1</b> File Number: 649920 Sub Code: 0000 Rev: <b>0</b>
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## 2. Human Health Work Plan

Intrinsik Corp. (Intrinsik) has been retained by SNC-Lavalin (SLI) to complete the Health Impact Assessment (HIA) for the WSR. The detailed HIA study plan prepared by Intrinsik is presented in **Appendix A** with select elements summarized in the proceeding sections of this human health work plan. SLI will be conducting the Human Health Risk Assessment (HHRA) and Country Foods Assessment for the Project, both of which are components of the human health work plan feeding into the HIA. The following sections provide an overview of the Human Health Work Plan that is intended to address the requirements in the TISG (Sections 9 and 16), and those in Section 6.3.4 of the ToR as set out by MECP, with respect to the characterization of baseline human health conditions within WFN, as well as the assessment of human health impacts to WFN due to the Project. Note that this Human Health Work Plan is a living document whose content and implementation will be dependent upon ongoing engagement with Indigenous communities potentially impacted by the Project.

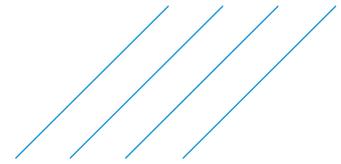
The HIA consists of a series of steps that are intended to provide a structural framework around which the assessment will be conducted. Although guidance documents from around the world have slight variations on these steps, the process is fundamentally the same: screening, scoping, assessment, recommendations, reporting, monitoring and evaluation, and are described in detail in **Appendix A**.

The overall objective of the HIA for the Project is to develop a baseline community health profile of the WFN, and other potentially affected Indigenous communities, and to evaluate the potential positive and negative impacts on the health and well-being of WFN and other Indigenous communities that may result from the Project. In addition, the HIA will also propose measures to mitigate potential harmful effects and to enhance potential positive effects.

A HHRA in support of the HIA will be conducted to evaluate the potential impacts to human health associated with changes in air quality, noise, water for drinking, recreational and cultural uses, and impacts to country foods, from the Project. The objective of the HHRA will be to determine the potential for unacceptable health risks in each of the study areas within each of the Project Phases (i.e., construction and operations). Results from each study area and Project Phase will be compared to community perceived risks either with or without implementation of the project.

### 2.1. Indigenous Communities and Municipalities

Although the HIA will primarily focus on the potential health impacts to WFN, the Project Team will engage with other potentially affected Indigenous communities to discuss the HIA and receive input and feedback regarding health issues and potential indicators, approaches to health baseline information collection, impact assessment, mitigations, and monitoring. The Project Team will engage with the Indigenous communities as identified in both the MECP ToR and the IAAC TISG, and more specifically those listed in the Indigenous Engagement and Partnership Plan, as well the public and interested stakeholders. **Table 1** below identifies the 22 Indigenous communities that are to be consulted as part of the EA/IA process. These communities have been identified by the MECP and IAAC as communities whose established or asserted Aboriginal and Treaty rights may be adversely affected by the Project and/or may have interests in the Project. Communities marked with an asterisk are those whose Aboriginal and Treaty rights may be affected by the Project.



WFN further reviewed the lists of identified communities and assessed them based on the following criteria:

- › Geographically closer to the project area than others;
- › Known to have traditionally used some of the potentially affected lands in the past, or currently;
- › Downstream of the Project and may experience impacts as a result of effects to waterways;
- › Considered to have closer familial/clan connections to the members of WFN; and/or
- › Have been involved in all-season road planning in the Region, either directly with the WFN, or in consideration of all-season road planning that the WFN has been involved with in recent years.

Based on these factors, the communities identified by WFN will be offered the deepest or most intensive consultation/engagement.

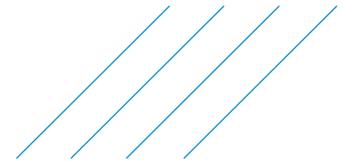
**Table 1: Indigenous Communities to be Consulted**

Indigenous Community	Identified by WFN	Identified by MECP	Identified by IAAC
Webequie First Nation	✓	✓*	✓*
Aroland First Nation		✓*	✓*
Attawapiskat First Nation	✓	✓*	✓*
Constance Lake First Nation		✓*	✓
Eabametoong First Nation	✓	✓	✓*
Fort Albany First Nation		✓*	✓*
Ginoogaming First Nation		✓	✓
Kasabonika First Nation	✓	✓*	✓*
Kaschechewan First Nation		✓*	✓
Kitchenuhmaykoosib Inninuwug		✓*	✓
Kingfisher Lake First Nation		✓*	
Long Lake #58 First Nation		✓	✓
Marten Falls First Nation	✓	✓*	✓*
Mishkeegogamang First Nation		✓	
Neskantaga First Nation	✓	✓*	✓*
Nibinamik First Nation	✓	✓*	✓*
North Caribou Lake First Nation		✓	
Wapekeka First Nation		✓*	
Wawakapewin First Nation		✓*	
Weenusk (Peawanuck) First Nation	✓	✓*	✓*
Wunnumin Lake First Nation		✓*	
Metis Nation of Ontario – Region 2		✓	

\* *Communities whose Aboriginal and Treaty rights may be affected by the Project.*

As noted in the ToR, municipalities to be included in the EA/IA were identified based on their proximity to the proposed Webequie Supply Road, and include:

- › City of Thunder Bay
- › Municipality of Greenstone
- › Township of Pickle Lake
- › City of Timmins



- › Municipality of Sioux Lookout

As noted in IAAC's *Public Participation Plan* dated February 24, 2020, the following participants will be engaged:

- › General public (individual residents)
- › Canada Chrome Corporation
- › Canadian Environmental Law Association
- › City of Thunder Bay
- › Geraldton Chamber of Commerce
- › Leuenberger Air Service
- › Longlac Chamber of Commerce
- › Mining Watch
- › Municipality of Greenstone
- › Municipality of Sioux Lookout
- › Mushkegowuk Council
- › Noront Resources Ltd.
- › Osgoode Hall Law School's Environmental Justice and Sustainability Clinic
- › Township of Pickle Lake
- › Wilderness North
- › Wildlife Conservation Society

Comments received from these participants during consultation activities will be addressed and included in the assessment, where possible.

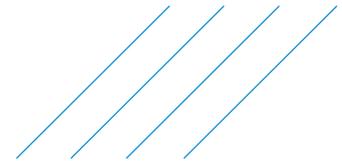
Further discussion on engagement and consultation with Indigenous communities, the public and stakeholders as a component of the EA/IA is described in Section 3.

## 2.2. Spatial Boundaries

Spatial boundaries define the geographic extent within which the potential environmental effects of the Project are considered. As such, these spatial boundaries define the study areas for the effects assessment. Spatial boundaries are to be established for the EA and will vary depending on the valued components and will be considered separately for each. The spatial boundaries to be used in the EA/IA will be refined through input from federal and provincial departments and ministries, Indigenous groups, the public and other interested parties.

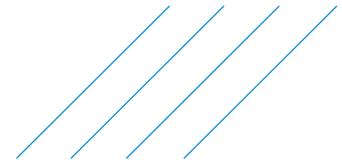
Spatial boundaries will be defined taking into account the appropriate scale and spatial extent of potential effects of the Project; community knowledge and Indigenous Knowledge; current or traditional land and resource use by Indigenous communities; exercise of Aboriginal and Treaty rights of Indigenous peoples, including cultural and spiritual practices; and physical, ecological, technical, social, health, economic and cultural considerations.

At this stage in the EA process, the spatial boundaries for the EA/IA will include the following three (3) study areas to capture the potential direct and indirect effects of the Project for each valued component and are described below specifically for the health component:



- › **Project Footprint (PF)** - is the identified area of direct disturbance (i.e., the physical area required for Project construction and operation). The PF is defined as the 35 m right-of-way (ROW) width for the WSR and temporary or permanent areas needed to support the Project, including laydown/storage yards, construction camps, access roads and aggregate extraction sites.
  
- › **Local Study Area (LSA)** – is the area within which the Project is expected to interact with and potentially have direct and/or indirect effects on health criterion. This area will include the Indigenous communities identified by WFN that have the potential to experience the greatest impacts. The Indigenous communities include the following:
  - Webequie First Nation
  - Attawapiskat First Nation
  - Eabametoong First Nation
  - Kasabonika First Nation
  - Marten Falls First Nation
  - Neskantaga First Nation
  - Nibinamik First Nation
  - Weenusk (Peawanuck) First Nation
  
- › **Regional Study Area (RSA)** - encompasses the area outside of the LSA used to measure broader-scale existing health conditions and provide regional context for the maximum predicted geographic extent of direct and indirect effects of the Project. The RSA will also encompass the area within which net effects of the Project on a health criterion could overlap with the net effects of other existing or reasonably foreseeable projects and activities on the same criterion and is in the area where cumulative effects assessment will be conducted at a larger spatial scale.

Overall, the spatial and temporal boundaries of the health effects will be based on the understanding of the impacts on physical, mental and social well-being of the potentially affected Indigenous communities. The spatial and temporal boundaries will be defined based on the interactions of the health and socio-economic impacts, including the consideration of the extent to which the project potentially affects community well-being, culture, food security water quality, air quality, etc., during each phase of the Project. These will be determined through a '*pathways of effects analysis*' to determine the potential impacts and the communities who could be affected by those impacts. The Project Team will consult and engage with Indigenous communities and stakeholders early in the EA/IA process and with guidance from HIA Steering Committee (refer to Appendix A) to determine/adjust the appropriate study areas, as well as the spatial and temporal boundaries for the HIA. Once the study areas and spatial and temporal boundaries are established, the Project Team will work with IAAC and MECP to ensure that the areas and boundaries are sufficient for the HIA.



### 2.3. Webequie First Nation Proxy Approach

The HIA will specifically focus on the potential health impacts to WFN. Although there are other Indigenous communities in proximity to the WFN as identified in the LSA, the Project Team believes that due to proximity of the project, the community of Webequie will most likely experience the bulk of the Project impacts and can be considered to be representative of the greatest magnitude and extent of potential health impacts from the Project. However, it is acknowledged and recognized that extrapolating the health impacts predicted for WFN members to other communities may result in the assumption that other communities experience an equivalent degree of impact, which may not be the case. Therefore, the HIA will consider how other communities in the LSA may experience, and to what extent, either direct or indirect effects of the Project on their health and well-being. For example, harvesting and consumption of country foods is an integral component of the assessment and there may be differences between communities who have asserted or established shared territory with WFN (e.g., Marten Falls First Nation) in terms of the amount of country foods that are harvested and consumed. In addition, other communities may also have different harvesting locations than Webequie members, which will need to be considered in assessing health effects or specific mitigation measures to address. As part of the proxy approach where unique health effects are identified by other communities that differ from WFN, the WPT will carry the issue/concern forward for consideration in the HIA.

### 2.4. Health Impact Assessment Approach

The HIA approach is detailed in Appendix A by the Intrinsic HIA Team, while this section provides only a high-level overview.

#### 2.4.1. Screening

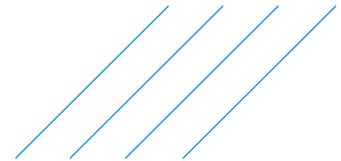
The first step of an HIA is screening, where project information is reviewed to identify whether HIA is a useful and appropriate tool for assessing health. In the context of the Project, since it is on the federal designated projects list, it is subject to the IAA. As such, and as per the TISG, an HIA is an integral part of the EA/IA of the Project.

#### 2.4.2. Scoping

The HIA scoping process is intended to provide the blueprint for the HIA. It involves identifying the populations that might be affected, identifying which health issues will be evaluated within the HIA, and specifies the data and methods to be used and alternatives to be assessed. The HIA Team will conduct a comprehensive and well-facilitated scoping process to ensure that the HIA considers those issues that are important to WFN, the proponent, and other potentially affected Indigenous communities.

To produce a complete list of issues to be scoped into the HIA, the HIA Team will evaluate all potential health-related issues relevant to the Project and then will narrow down the list to include only those issues being carried forward for assessment in the HIA, as per the final TISG. The list of health issues to be included in the assessment will also be determined based on the issues that are important to WFN (as per the TISG, Section 16.2) through a meeting of the HIA Steering Committee (see paragraph below), results of the Community Health Survey, interviews and focus groups, as well as the results of the socio-economic survey with health related questions that will be administered to the broader list of Indigenous communities (refer to section 2.1) for the Project.

The Intrinsic HIA Team will start by holding a virtual half-day Scoping Workshop. This workshop will be conducted with the HIA Steering Committee, which will aim to include diverse representatives from the



WFN community and other potentially affected communities (e.g., youth, Elder, mother, traditional land user), community health representatives, and local public health unit representatives (see Appendix A for further details). The HIA Steering Committee will help to provide input into the scope of the HIA, which will be in addition to information collected via the human health survey, focus groups and key informant interviews. Following the completion of the scoping workshop, it will become clearer as to which issues are proposed to be addressed in the HIA. Where identified, information on unique health issues facing other potentially affected Indigenous groups will be included in the assessment. In addition, SLI will provide the Intrinsic HIA team with disaggregated data to enable the integration of a GBA+ lens and approach in the HIA.

A deliverable from the scoping step is a draft Scoping Report that will be prepared outlining (i) the health issues to be included in the HIA, with rationale; (ii) the spatial and temporal boundaries of the assessment; and, (iii) and information on the rightsholder/stakeholder engagement process and how it influenced the scope of the HIA.

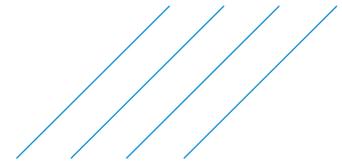
### 2.4.3. Engagement and Consultation

Engagement and consultation with Indigenous communities, the public, stakeholders and other interested parties is a key component of an HIA and further details are provided in Appendix A, Section 4.3. The Project Team will use a combination of qualitative and quantitative methods and engage with the Indigenous communities, the public and identified stakeholders (e.g., mining claim holders) on the HIA to seek information on current physical, mental and social well-being and to discuss potential impacts and risks. The Project Team will seek to gather information through engagement with community subgroups (e.g., women, youth and elders) in accordance with the GBA+ framework. The Project Team will work with the Indigenous communities to identify appropriate community members of those subgroups to engage with and gather well-being information from their perspectives (including how 'well-being' is defined and assessed in relation to the Project). Further discussion on the general approach to receiving input from the public, Indigenous communities and stakeholders is described in Section 3.

As noted in Section 2.4.2, the Intrinsic HIA Team will hold a remote half-day Scoping Workshop with the HIA Steering Committee. During the scoping workshop, the HIA Steering Committee will provide input into the scope of the assessment.

The scoping workshop with the HIA Steering Committee will be utilized to finalize a list of determinants of health to be assessed in the HIA. The TISG provides an initial list of health determinants to be considered, and this list will be finalized based on input from the Steering Committee, as well as responses received from the human health survey, focus groups, and interviews. The HIA Steering Committee will also be encouraged to identify other resources to inform the HIA. Determinants of health that are selected will be included in the HIA scoping report. The HIA Recommendations Workshop with the HIA Steering Committee will involve presentation of the preliminary findings and recommendations of the HIA to the steering committee with the opportunity for participants to suggest refinements to the recommendations and ensure the views of the community(ies) are represented.

As part of the collection of information and data for the HIA, other potentially affected Indigenous communities will be requested to complete the socio-economic survey with health-related questions. Through the survey and broader engagement and consultation program (refer to Section 3), the Project Team will ensure that potentially affected Indigenous communities will have the opportunity to bring their main health issues to the attention of the team, including any unique health issues facing their community.



This may also entail the use of key-person interviews and/or focus groups to supplement the survey and answer questions/provide information or answers to questions that surveys cannot provide.

### ***Indigenous Knowledge***

Through engagement activities that will include Indigenous Knowledge and Land Use information, the Project Team will collect Indigenous Knowledge in relation to physical, mental, spiritual and social well-being relevant to the study area, where available from and willing to be shared by Indigenous communities. Indigenous Knowledge and land use will assist in describing the community context of well-being and the health areas of concern. In addition, Indigenous Knowledge and land use engagement activities with communities will guide the team in identifying potential impacts to the rights of Indigenous peoples as a result of the Project. The Project Team will document efforts to obtain Indigenous Knowledge. It is recognized that each community may have its own protocols and procedures to be followed in transferring Indigenous Knowledge to outside parties such as WFN. The Project Team will ensure that protocols are respected and will work with the communities to understand how the information will be transferred, securely stored, and applied. Additionally, the Project Team will ensure that Indigenous Knowledge provided will be protected and kept confidential. Guidance will be sought from the community as to how the information will be used and published.

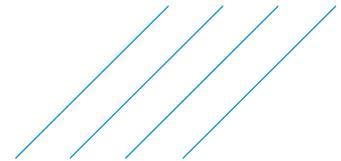
As Indigenous Knowledge is holistic, it can provide insights related to interrelationships between the natural, social, cultural, and economic environments, community health and well-being, Indigenous governance and resource use. Therefore, Indigenous Knowledge, where provided, will be included in all aspects of the technical assessments of potential impacts of the Project on Indigenous peoples, or, given its holistic nature, may be presented in one section of the EAR/IS. It will also be considered in technical sections or chapters of the documents (e.g., baseline data on human health gathered through collection of Indigenous Knowledge). It is recognized that it is important to capture the context in which Indigenous groups provide their Indigenous Knowledge and to convey it in a culturally appropriate manner. Indigenous Knowledge will only be incorporated in the EAR/IS where written consent has been granted.

## **2.5. Gender Based Analysis Plus (GBA+)**

This list of health issues to be included in the assessment will be determined based on the issues that are important to WFN and those broadly identified by other communities, scientific data, project information, and impact assessment findings. In addition, these health issues will also be characterized and assessed through a Gender Based Analysis Plus (GBA+) lens, where information will be collected and disaggregated by diverse subgroups (women, youth, Elders, etc.). The collection, analysis and reporting of data will adhere to relevant ethical and cultural protocols of WFN. Baseline information collected (through surveys, interviews, and focus groups) will include qualitative and quantitative data that characterizes and describes the community health profile of WFN, including data disaggregated by sex, age, and other identity factors. Consultation and engagement activities will also be conducted and describe the community health context and existing gender issues in the community in terms of health to capture the perspectives of the diverse subgroups.

## **2.6. Criteria and Indicators**

Criteria are components of the environment that are considered to have economic, social, biological, conservation, aesthetic or cultural value (Beanlands and Duinker, 1983). The assessment will focus on valued components, and applicable specific criteria, that have physical, biological, social, economic or

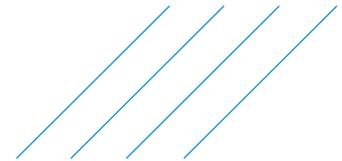


health importance to the public, Indigenous groups, federal and provincial authorities and interested parties, and have the potential for change as a result of the Project. Valued components have been identified in the federal TISG and by the Project Team and are, in part, based on what Indigenous communities and groups, the public and stakeholders identify as valuable to them in the EA process to date.

As a preliminary step, various criteria and indicators have been identified by the Project Team to describe, evaluate and measure the potential for impacts to human health. **Table 2** below presents a preliminary list of criteria and indicators that has been developed for biophysical determinants of health and are organized by the proposed tiered approach described in Section 2.4.2 (Levels 1, 2 and 3). Indigenous communities and the public will be consulted and will have the opportunity to provide input and feedback to help define the criteria and indicators. A more complete list of preliminary determinants that include potential social and cultural determinants of health are provided in Appendix A. A full comprehensive list is to be determined as part of the assessment process and will be documented in the EAR/IS. The table includes a preliminary list of sources that will be used in collecting baseline information for that particular criterion. Note that the sources listed in the table are not an exhaustive list of sources; this will be provided in the EAR/IS once baseline information collection is complete.

**Table 2: Preliminary Criteria and Indicators for Evaluation of Impacts to Human Health**

Criterion	Indicator	Source
<b>Biophysical Determinants of Health</b>		
Air Quality	Qualitative and quantitative assessment of changes in ambient air quality between the Project Phases (i.e., construction and operations) Vehicle exhaust emissions Dust emissions Greenhouse gas emissions Nuisance exposure to air quality emissions during construction	Baseline measurements and estimated levels of key air quality parameters for each of the project phases will be compared to the CCME and MECP Air Quality Guidelines, where appropriate.
Noise	Changes to Noise levels – Qualitative assessment of changes to noise levels between the Project Phases (i.e., construction and operations) Nuisance exposure to noise during construction	Assessment of noise and vibration will be completed following Health Canada guidance. Other agencies including US EPA will be used as appropriate.
Vibration	Changes to ambient vibration between the Project Phases (i.e., construction and operations)	Assessment of noise and vibration will be completed following Health Canada guidance. Other agencies including US EPA will be used as appropriate.
Surface Water and Ground Water	Contamination/quality of water (specifically, metals and metalloids, including mercury) Quantitative assessment of changes in water quality with respect to potential	Baseline and estimated concentrations of key contaminants in both surface water and groundwater will be compared to the CCME Water Quality Guidelines, Health Canada Drinking Water Quality



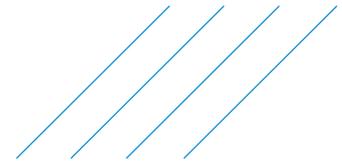
Criterion	Indicator	Source
	contaminants between the Project Phases (i.e., construction and operations) Quantity and availability of surface water	Guidelines and the FCSAP Groundwater Quality Guidelines, where appropriate.
Soil Quality	Changes to soil quality between the Project Phases (i.e., construction and operations)	Baseline concentrations of key contaminants in soil will be determined and changes resulting from deposition related to Project activities will be estimated. Estimated changes will be compared to Site background.
Country Foods	Contamination/quality of country foods (metals and metalloids, including mercury) Quantitative assessment of changes in quality of country foods with respect to potential contaminants between the Project Phases (i.e., construction and operations) Quantity/availability of country foods	Baseline and estimated concentrations of key contaminants in country foods will be used in the risk assessment to calculate exposures and risk. Acceptable levels of risk will be those accepted by Health Canada.

As per the TISG, a tiered approach to the assessment of determinants of health has been taken in the HIA. This is presented in detail in Section 4.2 of the HIA work plan in Appendix A.

In addition to the above, criteria and indicators specific to GBA+ and the safety of women and children will be addressed primarily through the socio-economic study, which will feed into the HIA. These criteria and indicators are identified in **Table 3** below.

**Table 3: Preliminary Criteria and Indicators for GBA+-Safety of Women and Girls**

Criterion	Indicator	Source
<b>GBA+ Determinants of Health-Safety of Women and Girls</b>		
Safety	Changes to rates of domestic violence	Key informant interviews with community social service and health service providers Social survey Health survey
	Changes to rates of sexual and physical assault	
	Changes to perceptions of safety	
	Changes to crime rates	
	Changes to rates of substance use	
	Changes to supply and demand of emergency services	



## 2.7. Effects Assessment

The approach for the assessment has been developed to satisfy regulatory requirements under the Environmental Assessment Act and is based on the MECP Code of Practice: Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario (MOECC, 2014), and the Terms of Reference for the Project that is currently pending approval from the MECP. The approach for the assessment has also been developed to meet the requirements of the federal TISG and specifically Section 13 – Effects Assessment. The approach has also taken into consideration the Ministry of Natural Resources and Forestry (MNR) Class Environmental Assessment for MNR Resource Stewardship and Facility Development Projects (MNR, 2003).

The first step in the health assessment is to establish a baseline community health profile to understand the current overall health status of the community and identify unique health issues, and also to provide a benchmark for the evaluation of potential positive and negative health impacts arising from project activities based on available data and information.

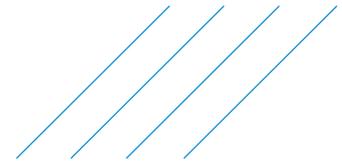
During the assessment of effects phase of the HIA, the Intrinsic HIA Team will use the information gathered through the screening, scoping and baseline processes, as well as the HHRA and the Country Foods Assessment (Refer to section 2.8.3), to develop a detailed description of the potential human health related impacts of the Project. The process will involve the consideration and evaluation of alternatives, the characterization of health effects. The steps related to the Assessment phase of the HIA are presented in the **Appendix A** (Intrinsic HIA Work Plan).

### 2.7.1. Baseline Data Collection

Baseline information and data will be gathered from sources such as: community documents, public documents (e.g. First Nations Food, Nutrition & Environmental Study), government reports, scientific and social scientific literature, assessments on similar projects, professional judgment, through consultation activities and social research methods (i.e., household surveys / questionnaires, key informant interviews, focus groups, HIA Steering Committee), including Indigenous Knowledge and Land Use studies. Additionally, to better understand the potential effects of the project on country foods (traditional foods), tissue samples will be collected from select wild game, waterfowl, fish and plants (i.e., roots, leaves, berries) and analysed for metals and inorganics (refer to Section 2.7.3 for further details). The selection of the traditional food items for analyses will be those that are typically eaten and those that hold medicinal value to the local Webequie community and/or as identified by other communities who have asserted or established shared territory with Webequie.

The collection, analysis and reporting of data will adhere to relevant ethical and cultural protocols of WFN. The Project Team will work with WFN to understand how the information obtained from WFN (Indigenous Knowledge, traditional food samples, etc.) will be transferred, securely stored, and applied. The Project Team will ensure that Indigenous Knowledge provided will be protected and kept confidential and that guidance is provided by the community as to how the information will be used and published.

Additionally, the collection of baseline information will be guided by the principles of Ownership, Control, Access and Possession (OCAP), the Canadian Institute of Health Research Guidelines, “Health Research Involving Aboriginal Peoples” and the Tri-Council Policy Statement, “Ethical Conduct for Research Involving Humans”.



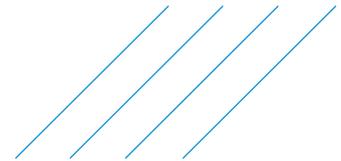
### 2.7.2. Baseline Community Health Profile

The Project Team will collect baseline information and Indigenous Knowledge on the health areas through Community Health Survey, qualitative methods, and engagement activities with Webequie community members to develop the community health profile to characterize the overall health of the community. Through the Community Health Survey, qualitative methods, and engagement activities, the community health profile will describe community history, including historical impacts on health, to provide a full characterization of the community’s current health and well-being. Information collected for the baseline community health profile will be validated by WFN to ensure the information and data is captured appropriately for the effects assessment. Where possible, the primary information will be supplemented with secondary information collected through desktop research using sources such as Indigenous Services Canada’s First Nations Inuit Health Branch, Public Health Agency of Canada, Statistics Canada, and provincial and municipal health authorities.

Previous health studies were conducted for WFN and will help to guide and possibly supplement collection of community baseline information. Specifically, this includes the WFN Community Well-Being Baseline Study (2014), funded by the Ontario’s Ministry of Northern Development and Mines and Public Safety Canada in the interest of identifying and profiling community well-being assets and strengths, as well as needs in community. **Table 4** below outlines the health areas where there is existing WFN data availability, but which requires updating and review in relation to the Project. Note that this is not an exhaustive list of health indicators for the baseline.

**Table 4: Health Areas for the Baseline Community Health Profile**

Health Area	Factors (based on availability of community-level data)
<b>Mental Health</b>	<ul style="list-style-type: none"> <li>› Stress</li> <li>› Depression</li> <li>› Anxiety</li> <li>› Self-Esteem</li> <li>› Inter-generational trauma (i.e., historical effects on health)</li> <li>› Suicide/Grief</li> <li>› Life changes (i.e., students going to Thunder Bay for high school, Elders moving to Thunder Bay for health care)</li> <li>› Community detachments (i.e., community members moving out of community)</li> </ul>
<b>Social Well-Being</b>	<ul style="list-style-type: none"> <li>› Feelings of isolation/remoteness</li> <li>› Concerns for future generations</li> <li>› Sense of physical and emotional safety</li> <li>› Sexual assaults on/sexual exploitation of women and girls</li> <li>› Accessibility of drugs and alcohol</li> <li>› Working Conditions</li> <li>› Overcrowding in housing</li> <li>› Poverty</li> </ul>
<b>Physical Well-Being</b>	<ul style="list-style-type: none"> <li>› Birth rates (health outcome indicator)</li> <li>› Death rates (health outcome indicator)</li> <li>› Chronic disease rates (health outcome indicator)</li> </ul>



Health Area	Factors (based on availability of community-level data)
<b>Health-related Behaviour</b>	<ul style="list-style-type: none"> <li>› Substance use</li> <li>› Diet</li> <li>› Physical activity</li> </ul>
<b>Spiritual Well-Being</b>	<ul style="list-style-type: none"> <li>› Spiritual practices</li> </ul>
<b>Community Well-Being</b>	<ul style="list-style-type: none"> <li>› Nature/number/frequency of communal activities</li> <li>› Cultural practices – type/participation levels by community members</li> </ul>
<b>Public Safety</b>	<ul style="list-style-type: none"> <li>› Indigenous women’s safety</li> <li>› Community safety</li> </ul>
<b>Health and Social Services</b>	<ul style="list-style-type: none"> <li>› Harm reduction programs</li> <li>› Existing capacity of facilities</li> <li>› Current programs</li> <li>› Projected demand based on population</li> </ul>

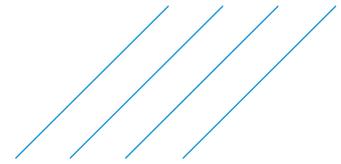
The list of health areas of focus for the baseline community health profile will be reviewed and refined through consultation and engagement activities to ensure that it captures all the pertinent health areas of concern. The completeness of the baseline health profile will also be dependent on completeness of data obtained through surveys, focus groups and key-person interviews.

### 2.7.3. Consideration and Evaluation of Alternatives

The EA process requires that two types of project alternatives be considered: “alternatives to” the Undertaking (i.e., functionally different ways of addressing an identified problem or opportunity to arrive at the preferred planning solution) and “alternative methods” of carrying out the Undertaking (options for implementing the preferred planning solution). The consideration and evaluation of alternatives to the Undertaking were documented in the federal Impact Assessment Detailed Project Description (November 2019) and the provincial Environmental Assessment draft Terms of Reference (September 2019) and concluded that developing a new all-season road between Webequie and the McFaulds Lake area is the preferred alternative. This analysis and conclusion are not proposed to be re-examined as part of the EA process but will be documented in the EAR/IS. Therefore, in keeping with the focussed approach the preferred planning alternative (developing a new all-season road) has been carried forward to the initial consideration of alternative methods of carrying out the Undertaking.

The consideration of alternatives methods will focus on the supply road conceptual alternatives within the proposed preliminary corridor, as identified in the Detailed Project Description (November 2019) and the draft Terms of Reference (September 2019). The HIA will evaluate these alternatives from a health standpoint. These alternatives include the WFN community’s preferred route for the supply road along the centreline of an approximately 2 km wide preliminary preferred corridor and the optimal geotechnical route within the same corridor. In addition, the following alternative methods related to supportive infrastructure and the preferred supply route will be examined.

- › Alternative sites for temporary and/or permanent aggregate extraction pits and production facilities needed for construction and operation of the road, including access roads to these sites;



- › Alternative sites for supportive infrastructure (i.e., temporary laydown and storage areas, construction camps, including access roads to these areas);
- › Watercourse crossing structure types (i.e., culverts, bridges), span length, lifecycle, and construction staging methods at waterbody crossings;
- › Road attributes, including roadbed foundation; horizontal alignment, vertical alignment (elevation/profile), and adjustments to the cross-section and right-of-way (ROW) width of the corridor.

The assessment of alternatives will include environmental, socio-economic, cultural, health and technical factors using criteria and indicators for the comparative analysis. This will also include specific consideration of community based Indigenous land and resource uses (e.g., fishing, hunting) and cultural (e.g., built; sacred or spiritual sites) criteria of value to Indigenous communities within the broader factors. As noted previously the criteria and indicators will be developed in detail as part of the EA through input from the engagement and consultation activities with Indigenous communities, the public and stakeholders. Both a quantitative and/or qualitative assessment of alternatives for each criterion will be conducted to allow for a comparison of the advantages and disadvantages and selection of a preliminary recommended route for the WSR and the sites/access routes for supportive infrastructure.

#### 2.7.4. Assessment of Net Effects

A step-wise process will be used to assess the health effects of the Project in a systematic and transparent manner once the relevant project elements and activities and their interactions, assessment boundaries, and relevant environmental criteria and indicators are identified and finalized through social research methods and the engagement and consultation process. The net effects assessment method will include the following primary steps:

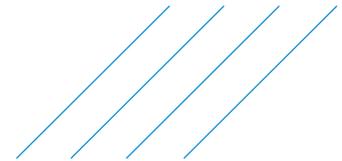
- › Identification of potential health effects;
- › Identification of technically and economically feasible impact management measures;
- › Prediction of net health effects following implementation of impact management measures; and
- › Evaluation of the predicted net health effects (i.e., describe and determine the magnitude, duration, extent, frequency, and significance of the predicted net effects).

##### 2.7.4.1. Identification of Potential Environmental Effects

The net effects assessment will consider the potential interactions between the project components and activities and the criteria within the identified spatial boundaries and phases of the Project (i.e., construction and operation). Potential effects of the Project on valued components will be determined by comparing baseline conditions to those expected to result from the construction and operation and maintenance of the Project. Potential effects will be described for each assessment criterion, including an indication of whether they are expected to be direct (i.e., as a result of a project component or activity affecting a valued component), or indirect (i.e., as a result of a change to one valued component affecting another valued component). Relevant project works and activities will be analysed individually to determine if there is a plausible pathway for an effect on valued components.

##### 2.7.4.2. Identification of Impact Management Measures

Once potential effects are identified, technically and economically feasible impact management measures (or “mitigation measures”) to avoid and minimize potential adverse effects will be identified for each phase of the Project. Design considerations and impact management measures will be identified to offset or eliminate potential adverse effects and will be described in the EAR/IS. Refinements to these measures



may also be made in the future detail design phase of the Project. Impact management measures will be developed for the Project based on:

- › Knowledge and experience of the Project Team with linear infrastructure developments;
- › Industry best management practices and applicable agency requirements and guidance; and
- › Measures identified by Indigenous communities, the public and stakeholders through feedback received as part of the engagement and consultation program.

It is understood that impact management measures are not always fully effective, therefore, WFN will identify a compliance monitoring and effects monitoring program as part of the EA for implementation during the project phases (refer to section 2.6.4.6).

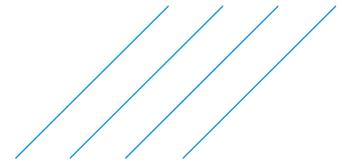
#### 2.7.4.3. Prediction of Net Effects

A net effect, or the alternative term residual effect, is considered an environmental (biophysical), social, economic or health effect from the Project and its related activities that is predicted to remain after the implementation of impact management measures. A potential health effect is considered to occur where anticipated future conditions resulting from the Project differ from the conditions otherwise expected from natural change without the Project. In some situations, the recommended impact management measures will eliminate a potential adverse effect, while in other situations impact management measures may reduce, but not eliminate the effect. Impact management measures may also enhance positive effects. A potential effect that will be eliminated, or considered unlikely after impact management measures, will be identified as not resulting in a net effect (i.e., no net effect) and will not be considered further in the net effects assessment. An effect that may remain after the application of impact management measures will be identified as a net effect and will be further considered in the effects assessment. Positive effects will also be considered further in the effects assessment, including means of enhancing benefits of the Project. Neutral changes will not be carried forward for the characterization of net effects, but where identified will be characterized in terms of the confidence in the predictions and the likelihood of the effect.

#### 2.7.4.4. Characterizing the Net Effects

The characterization of net effects will provide the foundation for determining the significance of incremental and cumulative effects from the Project for each assessment criterion. The HIA will also utilize the results of the Human Health Risk Assessment and country foods assessment (refer to Section 2.8) and other impact assessment studies/disciplines to characterize health impacts to the WFN. The objective of the method is to identify and predict net adverse and positive effects that have sufficient magnitude, duration, and geographic extent to cause fundamental changes to the self-sustainability or ecological function of a valued component, and therefore, result in significant combined effects.

The magnitude of the potential effect will be qualitatively and quantitatively assessed by inferring the anticipated changes relative to baseline conditions using the identified preliminary health criteria and indicators. In general, the magnitude is the intensity of the effect or a measure of the degree of change from existing conditions and will be defined by each discipline assessment. If a significant effect is identified, the contribution of the Project to the combined effect will be described. The assessment of significance of the net effects of the Project on the health valued component, and overall potential health outcome, will be informed by the interaction between significance factors (as defined below), in addition to those concerns raised by Indigenous groups, interested agencies, and individuals during the consultation and engagement for the EA/IA. Therefore, predicted net effects, where identified, will be described in terms of the following significance factors (MNRF, 2003), with integration of the assessment methodology identified in the federal TISG, as required.



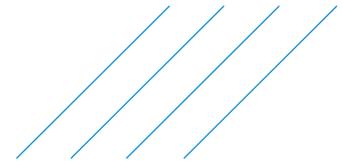
- › **Direction** - The direction of change in effect relative to the current value, state or condition, described in terms of Positive, Neutral, or Negative.
- › **Magnitude** - The measure of the degree of change from existing (baseline) conditions predicted to occur in the criterion.
- › **Geographic Extent** - The spatial extent of which an effect is expected to occur/can be detected and described in terms of the PF, LSA and RSA.
- › **Severity** - The level of damage to the valued component from the effect that can reasonably be expected; typically measured as the degree of destruction or degradation within the spatial area of the PF, LSA and RSA. Severity would be characterized as: Extreme; Serious, Moderate or Slight.
- › **Duration/Reversibility** - Duration is the period of time over which the effect will be present between the start and end of an activity or stressor, plus the time required for the effect to be reversed. Duration and reversibility are functions of the length of time a valued component is exposed to activities. Reversibility is an indicator of the degree to which potential effects can be reversed and the valued component restored at a future predicted time. For effects that are permanent, the effect is deemed to be irreversible. Duration/Reversibility would be characterized for each adverse effect as: Short-Term (0- 5 years), Medium-Term (6-20 years), Long-Term (21 to 100 years) or Permanent (>100 years).
- › **Frequency** – Is the rate of occurrence of an effect over the duration of the Project, including any seasonal or annual considerations. Frequency would be characterized as: Infrequent; Frequent or Continuous.
- › **Probability or Likelihood of Occurrence** – Is a measure of the probability or likelihood an activity will result in an environmental effect. Probability or likelihood of occurrence would be characterized as: Unlikely, Possible; Probable and Certain.

The definitions and description of the above factors will be described in detail in the EAR/IS. An effort will be made to express expected changes quantitatively/numerically. For example, the magnitude (intensity) of the effect may be expressed in absolute or percentage values above (or below) baseline conditions (e.g., access health care services). Additionally, the definition of effect levels may vary from one valued component or criterion to another, recognizing that the units and range of measurement are distinct for each. Lastly, effects may impact communities, Indigenous groups and stakeholders in different ways, including through a gender-based lens and they may respond differently to them. Therefore, determining and characterizing effects will be based largely on the level of concern expressed through engagement with the Indigenous groups and community members.

#### 2.7.4.5. Assessment of Significance

MNRF's Class Environmental Assessment for MNR Resource Stewardship and Facility Development Projects (MNRF, 2003) require the assessment of significance of environmental effects and provides guidance for assessing the significance of potential environmental effects under individual criteria, for a project as a whole, and for alternatives.

In addition to the Class EA guidance, the determination of significance of net effects and cumulative effects from the Project and other previous, existing, and reasonably foreseeable developments will generally follow the guidelines and principles of the *Draft Technical Guidance Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the Canadian Environmental Assessment Act* (CEA Agency, 2017) and the *Operational Policy Statement: Determining*



*Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the Canadian Environmental Assessment Act, 2012 (CEA Agency, 2015).*

In general, the assessment of significance of net effects will be applied to each valued component for which net effects are predicted, and net adverse effects or positive effects will be classified as significant or not significant (i.e., binary response). Additional details on the application of biophysical, cultural, socio-economic and health criteria and definitions that would describe “significant” and “not significant” will be provided in the EAR/IS.

#### 2.7.4.6. Identification of a Monitoring Framework

Webequie First Nation will develop a monitoring framework during the EA process for each project phase (construction and operation and maintenance). The two primary types of monitoring to be developed will include:

- › Compliance monitoring; and
- › Effects monitoring.

The compliance monitoring will assess and evaluate whether the Project has been constructed, implemented and/or operated in accordance with commitments made during the EA process, and any conditions of the federal IA and provincial EA approvals and other approvals required to implement the Project.

The effects monitoring will be designed to verify the prediction of the effects assessment, and to verify the effectiveness of the impact management measures. This would include construction and operational monitoring that would identify actual effects, assess the effectiveness of the measures to minimize or eliminate adverse effects, and evaluate the need for any additional action to ensure that socio-economic commitments and obligations are fulfilled and mitigation measures are effective.

## 2.8. Human Health Risk Assessment

As part of the HIA, it is assumed that a Human Health Risk Assessment (HHRA) is required and will be comprised of the following components: Problem Formulation, Exposure Assessment, Toxicity Assessment, Risk Characterization and Uncertainty Analysis.

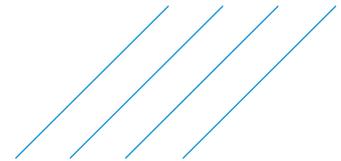
The HHRA will determine the potential for unacceptable health risks in each of the study areas within each of the Project Phases (i.e., construction and operations). Results from each study area and Project Phase will be compared to perceived risks either with or without implementation of the project.

A description of the general guidance documents and detailed scope of work for the HHRA are provided below.

The HHRA will support the overall HIA process and technical documentation for human health, and will be integrated into the overall EA/IA process and documented in the EAR/IS.

### 2.8.1. Guidance Documents

A HHRA in support of the HIA will be conducted to evaluate the potential impacts to human health associated with changes in air quality, noise, water for drinking, recreational and cultural uses, and



impacts to country foods, from the Project. The HHRA and broader HIA methods and approach will be in accordance with the requirements in the TISG (Sections 9 and 16), issued on February 24, 2020 by the IAAC, and the proposed ToR (August 2020).

The methods used to estimate human health risks will be based on risk assessment procedures commonly used by regulatory agencies such as the Ontario Ministry of the Environment, Conservation and Parks and Health Canada to assess adverse and positive effects of the Project on human health, particularly regarding the effects of the higher-level health determinants on well-being.

Specifically, the following guidance documents and tools will be referred to, in addition to those referenced in Sections 7.2, 9 and 16 and Appendix 1 of the TISG.

#### 2.8.1.1. Health Canada

- › Health Canada's Risk Assessment Guidance Parts I through VII. Health Canada. 2017.
- › Guidance for Evaluating Human Health Impacts in Environmental Assessments: Human Health Risk Assessment. 2019.
- › Evaluating Human Health Impacts in Environmental Assessments: Air Quality. Health Canada. 2017.
- › Evaluating Human Health Impacts in Environmental Assessments: Country Foods. Health Canada. 2017.
- › Evaluating Human Health Impacts in Environmental Assessments: Noise. Health Canada. 2017.
- › Evaluating Human Health Impacts in Environmental Assessments: Water Quality. Health Canada. 2017.

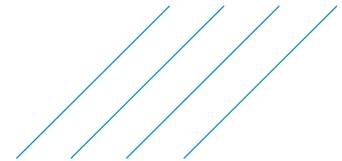
#### 2.8.1.2. Ontario

- › Rationale for the Development of Generic Soil and Groundwater Standards for Use at Contaminated Sites in Ontario. 2011.
- › Ontario's Ambient Air Quality Criteria. 2019.
- › Standards and Guidelines to Support Ontario Regulation 419/05 – Air Pollution – Local Air Quality. 2019.
- › Ontario – Air Contaminants Benchmarks List: Standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants.

The noted list of references is not exhaustive, and guidance from other jurisdictions (i.e., United States Environmental Protection Agency, California Office of Environmental Health Hazard Assessment, Agency for Toxic Substances and Disease Registry, World Health Organization, etc.) will be relied upon as appropriate and/or where Canadian and local guidance is not available. Any reliance on guidance sources outside of Canada will be applied in terms of acceptable endpoints and risk tolerance for Canadians. Additionally, reliance on primary and grey literature will be sourced and referenced to address data gaps.

## 2.8.2. Problem Formulation

The Problem Formulation will be conducted to characterize the study areas (i.e., Local Study Area and Regional Study Area, identify chemicals of potential concern (COPCs) and their sources (may vary between Project Phases (i.e., construction and operation), identify receptors of concern and the pathways



by which these receptors may potentially be exposed (i.e., inhalation of outdoor air/dust, consumption of country foods, drinking water, etc.).

COPCs to be evaluated in the HHRA include the criteria air contaminants (CAC) (i.e., PM<sub>10</sub>, PM<sub>2.5</sub>, CO, SO<sub>x</sub>, NO<sub>x</sub>, and ozone), diesel particulate matter (DPM), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs) (benzene and aldehydes), as well as metals/metalloids, including mercury. Additional COPCs will be considered if associated with project activities.

Receptors of concern in the study areas will be identified, with a focus on sensitive/vulnerable receptors (i.e., residential areas, schools, etc.). Additionally, areas of concern with known importance and value (i.e., harvesting vegetation for consumption/medicinal or cultural uses) will be considered.

All receptors will be considered in the problem formulation and, at a minimum, the most sensitive receptors (e.g., people that are expected to receive the greatest exposures and/or known sensitive subgroups of the population) will be retained for quantitative assessment. The following receptor age groups, as specified by Health Canada, will be considered in the HHRA: infants (0 to 6 months of age); toddlers (7 months to 4 years of age); children (5 to 11 years of age); teens (12 to 19 years of age); and, adults (20+ years of age).

Operable exposure pathways for the identified receptors of concern will be identified and are expected to include: inhalation of particulates and dust; inhalation of outdoor air, consumption of country foods (i.e., food that is trapped, fished, hunted, harvested or grown for subsistence, cultural or medicinal purposes) that may be contaminated through deposition; incidental ingestion of dust and soil particulates and dermal contact; and exposure to potable water sources (surface water and groundwater) for domestic purposes; and exposure to surface water through recreational activities. Additional operable exposure pathways will be identified through the qualitative information obtained from interviews, focus groups and observation.

As part of the Problem Formulation, a conceptual model will be developed to summarize the COPCs, the receptors of concern and the operable exposure pathways identified for each receptor group.

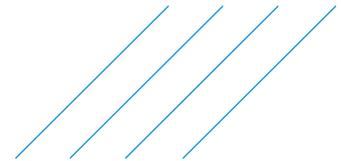
### 2.8.3. Exposure Assessment

The Exposure Assessment will include the estimation of exposure point concentrations (EPCs) (i.e., the concentrations receptors will be exposed to) for each of the identified COPCs within each of the study areas (i.e., local, regional, etc.) and project phases (i.e., construction and operations, etc.). Exposure will be based on worst case conditions for each project phase.

With respect to the baseline data, the HHRA will rely on the following information, which will be provided by the various study discipline team:

#### ***Atmospheric and Acoustics***

- › Baseline concentrations of the following key air quality parameters will be provided to the HIA team from the Climate Change and Air Quality Team: total suspended solids (TSS), fine particulates smaller than 2.5 microns (PM<sub>2.5</sub>), respirable particulates of less than 10 microns (PM<sub>10</sub>), carbon monoxide (CO), ozone, sulphur oxides (SO<sub>x</sub>), nitrogen oxides (NO<sub>x</sub>), volatile organic compounds (VOCs) (benzene and aldehydes), polycyclic aromatic hydrocarbons (PAHs), diesel particulate matter (DPM), and any other toxic air pollutants (mobile and stationary



sources). The data will come from existing monitoring stations in Northern Ontario (e.g., Thunder Bay, Noront EA; MECP Ring of Fire air station) and other remote locations. No modeling of a baseline scenario will take place.

- › With respect to noise levels, the Acoustics team will provide the HIA team with ambient noise levels at a key receptor point within the community of Webequie and one or more points outside the community. These data will be collected by the Acoustics Team over a period of one-week in the fall of Year 3 of the Project during a one-week site visit.

### **Water Quality**

- › Baseline surface water and groundwater quality data will be provided to the HIA team by the Groundwater and Surface Water Teams.
- › Baseline water quality will be determined from a review of the available secondary sources for background information for the area, as well as via field data collection.
- › With respect to groundwater, groundwater monitoring wells will be installed within the corridor of the WSR (refer to Groundwater and Surface Water Work Plan).
- › Sampling of surface water will occur at watercourse and waterbody crossings identified along the proposed WSR. Sampling has occurred at several locations in 2019, with additional sampling for baseline to take place in summer 2020.
- › Baseline data will be compared to the appropriate Ontario and Canadian Drinking Water Quality Standards.

### **Country Foods**

The Country Foods Assessment will identify all food that is trapped, fished, hunted, harvested or grown for consumption, medicinal purposes or has cultural value. This information will be collected via health (WFN) and socio-economic surveys (all other Indigenous communities) that will be administered to members of the WFN and other communities. Secondly, in conjunction with the Project Team and WFN community members, tissue samples from traditional food items will be analysed for contaminants of potential concern to determine baseline levels.

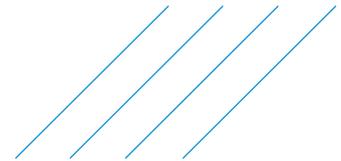
More specifically, the steps involved in the baseline assessment of country foods will be as follows:

#### Collection of Background Data

During this step, a comprehensive literature and data search will be undertaken to find additional resources to complement the key known data sources. A summary of community consumption rates, tissue concentrations and applicable local and regional statistics will be compiled in addition to a gap analysis, where key missing information will be identified. The results of the review and gap analysis will be presented to both the Webequie Project Management Team and key broader WFN community members to assess the need to collect additional primary data (either country food samples or consumption survey data).

#### Integration of the Country Foods Assessment into the Baseline Assessment of Human Health

As there are baseline biophysical and socio-economic environment studies being conducted as part of the EA, the HIA will integrate data and other information that will be provided via the various studies into the Country Foods Assessment.



The Country Foods Assessment will use community consumption rates of locally sourced country foods, in conjunction with measured tissue concentrations of key contaminants of potential concern (COPC) (metals and metalloids, including mercury) to estimate potential exposures. The primary assumption of the Country Foods Assessment will be that all community members consume country foods; therefore, benchmark consumption quantities will be identified for foods included in the assessment. To supplement primary data collection through surveys, the Project Team will gather information through Indigenous Knowledge and informant interviews for information such as food harvesting areas. The status of food security or insecurity in the community will be described considering both commercial and traditional foods.

### Country Foods Assessment

The Country Foods Assessment will be integrated into the HIA, where applicable, and will provide details regarding measured metal concentrations in local harvested and routinely consumed foods. The integration of the findings of the Country Foods Assessment into the HIA will inform impacts associated with changes in the social determinants of health, including traditional food security and connectiveness to the land.

Potential impacts from the development of the Webequie Supply Road may affect availability and quality of country foods. The potential issues identified through community consultation will be considered in the assessment of potential changes in country foods consumption.

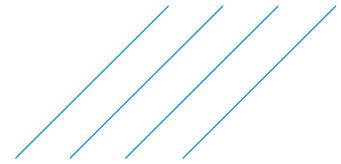
For all other exposure pathways relevant to the HHRA, the Health Canada equations for dose estimation will be used to estimate exposures for the identified receptors via the operable exposure pathways. The EPCs, along with the Health Canada recommended receptor characteristics (e.g., body weights, soil ingestion rates, inhalation rates, skin surface areas) and frequencies/durations, as well as information from the surveys and questionnaires to the community, will be used in the estimation of exposures. The 2013 Canadian Exposure Factors Handbook (Richardson, 2013) will be used as a secondary source for receptor characteristics not recommended by Health Canada.

Where appropriate, the HHRA will consider acute and sub-chronic exposures (where appropriate and on an as needed basis) as well as chronic exposures and associated health risks. For the HHRA, an acute exposure is defined as a single day exposure that lasts 1 to 24 hours, sub-chronic (1-89 days) and a chronic exposure is a multi-day exposure that lasts more than 90 days. Durations may be adjusted for consistency with regulatory frameworks.

### **2.8.4. Toxicity Assessment**

The Toxicity Assessment will include the compilation of toxicity reference values (TRVs) for the COPCs. Given that the Project falls under federal jurisdiction, where available and appropriate, Health Canada inhalation and oral TRVs will be used. In cases where a Health Canada TRV specific to a relevant route of exposure is not available, other international agency TRVs will be considered, including: World Health Organization, US EPA Integrated Risk Information System (IRIS), ATSDR, California Office of Environmental Health Hazard Assessment (OEHHA), and Netherlands National Institute of Public Health and the Environment (RIVM).

- › Where Health Canada TRVs are not available, a thorough review of the TRVs available from the above listed sources will be conducted to ensure that the most scientifically defensible TRV is identified; additional sources may also be considered. The HHRA will include a discussion of the



available TRVs for each of the identified COPCs, and the rationale for the TRV selected to assess human health risks.

- › Routes of exposure to the COPCs include inhalation, as well as oral and dermal exposures. Descriptions of the TRVs that will be considered in the HHRA are presented below.

Tolerable Concentrations (TCs) or Reference Concentrations (RfCs) - Where available, Health Canada Tolerable Concentrations (TCs) for the COPCs will be used for evaluation of non-cancer risks via the inhalation route of exposure. A TC, which is equivalent to a Reference Concentration (RfC), is developed for chemicals that are non-carcinogens (at least at low concentrations). Health Canada TCs represent air concentrations that a person can be exposed to continuously over a lifetime without deleterious effects and are typically developed considering sensitive subpopulations. Health Canada TCs are considered to be air concentrations protective of all life stages and no further adjustment is required.

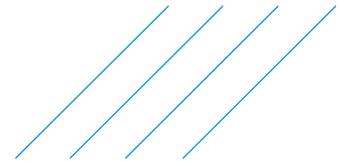
Other international health agencies may use different terms for expressing acceptable air concentrations. For example, US EPA uses the term RfC for estimation of air concentrations that will be protective of the general population from non-cancer effects. ATSDR uses the term Minimal Risk Level (MRL), while RIVM and WHO use the terms TC or TCA (Tolerable Concentration in Air). These other agencies typically derive TRVs based on the protection of the general population; however, this will be confirmed prior to using a TRV from another agency.

Tolerable Daily Intake (TDI) or Reference Dose (RfD) - Where available, Health Canada Tolerable Daily Intakes (TDIs) will be used to assess non-carcinogenic risks associated with oral (i.e., ingestion) and dermal exposures to the COPCs, in particular the metals/metalloids/PAH constituents generated from the construction and operations phases (i.e., earthworks, diesel emissions, etc.) that are deposited on soil and vegetation in the study area. A TDI, which is numerically equivalent to an Oral Reference Dose (RfDo), represents the maximum dose of a threshold substance to which an individual could be exposed daily over a lifetime without any expected deleterious effects. Acceptable daily intake (ADI) is another term used for TDI/RfDo.

Dermal TRVs are not typically available from the majority of substances. Instead, Health Canada relative dermal absorption factors ( $RAF_{DERM}$ ) will be used in the estimation of exposures and associated risks for dermal exposures to account for differences in the efficiency of chemical absorption from the dermal versus the oral exposure route.

Unit Risk Values - For non-threshold/carcinogenic chemicals, Health Canada uses the term “unit risk value” to estimate the cancer potency of such chemicals in air. A unit risk value represents the estimated cancer risk for a chemical at a specified air concentration (i.e., units of  $[\mu\text{g}/\text{m}^3]^{-1}$  or  $[\text{mg}/\text{m}^3]^{-1}$ ). More specifically, a unit risk value expressed in units of  $(\text{mg}/\text{m}^3)^{-1}$  represents the incremental lifetime cancer risk (ILCR) that would be estimated if a person were exposed to an air concentration of  $1 \text{ mg}/\text{m}^3$  of that COPC on a 24-hour continuous basis for every day of their life.

Unit risk values are most often developed using toxicological studies specific to the inhalation route and, thus, are considered to be more representative of health risks via the inhalation route than slope factors, which are often developed from the oral route of exposure. Consequently, unit risk values are most often recommended for use unless it is clear that the unit risk value may not account for all possible health endpoints.



**Slope Factors** - Where available, Health Canada Slope Factors will be used to assess carcinogenic risks associated with oral (i.e., ingestion) and dermal exposures to the COPCs. A slope factor (SF) relates the exposure dose of a non-threshold substance to the expected probability of developing cancer; a Slope Factor quantifies the number of predicted cancers per unit dose. Slope Factors are also referred to as cancer potency factors by some agencies.

### 2.8.5. Risk Characterization

The Risk Characterization will involve the estimation of chronic non-cancer hazards and cancer risks associated with exposures related to the Project.

Risks associated with exposures to non-carcinogenic chemicals are characterized by hazard quotients (HQ) values, which represent the ratio of the predicted level of exposure divided by the TRV (i.e., TC, TDI, etc.).

Non-cancer risks as a result of inhalation exposures will be estimated as HQ values according to the following formula:

$$HQ = \text{Estimated Exposure } (\mu\text{g}/\text{m}^3) / \text{TRV } (\mu\text{g}/\text{m}^3)$$

Non-cancer risks as a result of oral/dermal exposures will be estimated as HQ values according to the following formula:

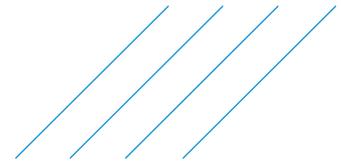
$$HQ = \text{Estimated Exposure } (\mu\text{g}/\text{kg of body weight}/\text{day}) / \text{Reference Dose } (\mu\text{g}/\text{kg of body weight}/\text{day})$$

Where applicable, a Hazard Quotient will be estimated for receptor exposure to non-carcinogenic COPCs as the sum of the individual HQs for the operable exposure pathways.

- ›  $\leq 0.2$  = negligible human health risks; and,
- ›  $> 0.2$  = potential for unacceptable risks – may require mitigation or more detailed assessment. Note, 0.2 is dependent on the soil allocation factor for a particular chemical/ chemical group. As such, the threshold of 0.2 may vary, as applicable.

Health Canada's negligible risk level of 0.2 (or 20% of the TRV) allows for 80% of the acceptable exposure level (the TRV) to come from other sources; this approach is based on the potential for exposures to a chemical in air, soil, water, food and consumer products (i.e., 20% of the acceptable exposure is allocated to each of these 5 media/sources). A HQ value that is greater than 0.2 indicates the potential for the estimated exposures to exceed the acceptable rate and, thus, may indicate potentially unacceptable risks. Under such circumstances, further evaluation that includes assessment of background exposures to determine if the total HQ value exceeds unity (1) should be considered. On the other hand, a HQ value that is less than 0.2 indicates negligible health risks based on the assumptions used in the HHRA.

In the case of carcinogens, carcinogenic TRVs (inhalation unit risks, slope factors) are used in conjunction with exposure estimates to predict incremental lifetime cancer risk (LCR) for comparison to an ILCR value of less than or equal to 1 in 100,000 ( $1 \times 10^{-5}$ ), the negligible cancer risk level defined by Health Canada. Ontario has defined an ILCR of 1 in 1,000,000 ( $1 \times 10^{-6}$ ). As this is a federal regulated project under the IAA, the ILCR value by Health Canada will be used.



For chemicals with cancer potency factors in units of  $(\mu\text{g}/\text{m}^3)^{-1}$  (i.e., inhalation unit risks), cancer risks will be estimated as ILCR values according to the following formula:

$$ILCR = \text{Predicted Concentration } (\mu\text{g}/\text{m}^3) \times \text{Fraction of Lifetime Exposed} \times \text{Inhalation Unit Risk } (\mu\text{g}/\text{m}^3)^{-1}$$

Fraction of lifetime exposed will be determined from information gathered in the socio-economic and human health surveys (i.e., number of hours worked outside, recreational time spent outdoors).

For chemicals with cancer potency factors in units of  $(\mu\text{g}/\text{kg bw}/\text{day})^{-1}$  (i.e., slope factors), cancer risks will be estimated as ILCR values according to the following formula:

$$ILCR = \text{Estimated Lifetime Daily Exposure } (\mu\text{g}/\text{kg bw}/\text{day}) \times \text{Cancer Potency Factor } (\mu\text{g}/\text{kg bw}/\text{day})^{-1}$$

According to Health Canada guidance, an ILCR greater than  $1 \times 10^{-5}$  may indicate unacceptable risk. If cancer risks in excess of  $1 \times 10^{-5}$  are predicted, a more detailed assessment of the overall risk assessment process and assumptions used will be conducted. Because the assumptions inherent in the risk assessment process tend, generally, to be conservative (risk averse), risk estimates which exceed the Health Canada negligible risk levels do not necessarily imply a risk but, rather, may indicate the need for a more detailed assessment.

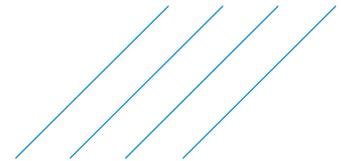
It is noted that the ILCR formulae provided above are exclusive of background air concentrations (in contrast to the Hazard Quotient approach). In other words, the focus of the risk assessment is based upon the amount of cancer risk that the Project poses, without the consideration of background (i.e., the incremental cancer risk above background).

### **Risks Posed by Chemical Mixtures**

As discussed in Health Canada guidance, for simultaneous exposure to multiple chemicals of potential concern, non-cancer HQs should be assumed to be additive for those substances determined by the risk assessor to have similar target/organs/effects/mechanisms of action. Similarly, for carcinogens with the same target organ and form of cancer, the risks should be assumed to be additive and, thus, should be summed.

Based on the principles above and application of toxicological understanding of the mechanism of action of the various COPCs, the following groups are considered to have additive potential:

- › PAHs – Health Canada recommends that risks associated with exposures to PAHs be assumed to be additive, and specifically, that carcinogenic PAHs are addressed using the toxic equivalency factors provided by Health Canada.
- › Common Air Contaminants – Health Canada has recognized the potential for CACs to interact in an additive manner to cause an increase in a population's non-accidental death rate. Consequently, the mortality risks from the individual substances will be summed to estimate a group total.



### **Risks Posed by Common Air Contaminants**

Where standard TRVs are not available for the CACs, and for select parameters, the air quality objectives, criteria or standards may not be protective of all potential health effects (e.g., the air quality objectives for PM<sub>2.5</sub> are based on a mortality endpoint).

For addressing CACs, the initial characterization of risks will be conducted by comparing the maximum concentrations at the sensitive receptors to the applicable air quality objectives (AAQO). Baseline conditions will be assessed using existing Ring of Fire air quality monitoring data, supplemented with CAC data from other National Air Pollution Surveillance (NAPS) stations situated in similar environments as WFN.

Project condition CAC exposure risk will be assessed in the HHRA using maximum concentration point estimates derived from hourly, daily and annual CAC concentrations obtained from dispersion modelling, using AIRMOD. The results of the AIRMOD based risk analysis will be compared to the results for baseline conditions to estimate the impact of the project phases on carcinogenic CAC exposure risk and non-carcinogenic hazard.

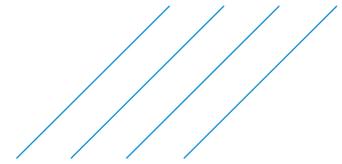
#### **2.8.5.1. Uncertainty Analysis**

Uncertainty is inherent in the HHRA; however, the conservative approaches recommended to estimate exposures and risks will ensure that health risks are not underestimated. The uncertainties in various components of the HHRA will be evaluated and discussed as part of the HHRA. The following are examples of areas in the HHRA where there may be associated uncertainty:

- › Estimation of exposure point concentrations;
- › Use of upper-bound exposure receptor characteristics and exposure frequencies/durations; and,
- › Inherent uncertainties in the TRVs.

The HHRA will include a thorough assessment of the overall uncertainty in the assessment and the resulting risk estimates, including, but not limited to the areas summarized above (refer also to section 4.0 - Contribution to Sustainability and application of the precautionary principle).

The results from the HHRA will flow into and inform the HIA during the characterization of health effects, as related to air quality, water quality, soil quality and quality/security of country foods, which are particularly important to WFN.



## 3. Consideration of Input from the Public and Indigenous Peoples

### 3.1. Public Participation

The Project Team will consult and engage with the public and Indigenous communities throughout the EA/IA process, including providing opportunities to provide feedback on the human health assessment. Participants as identified in the Agency *Public Participation Plan* dated February 24, 2020 for the WSR Project will be engaged and consulted. The Public Participation Plan was developed by the Agency to set out proposed opportunities for participation during the impact assessment process for Agency-led activities. The proponent, or its subject matter experts, may participate in activities as requested by the Agency.

To collect information necessary to support GBA+, engagement activities may include supporting arrangements for childcare at open houses if needed, which could include having a child station set up with a supervisor. Meetings will take place when it is most convenient for the majority of participants, which could be in the evening due to work and school obligations.

The draft ToR, and the final ToR to be submitted, provides a plan for engaging and consulting government agencies, the public and stakeholders, based on EA study milestones similar to those for Indigenous communities.

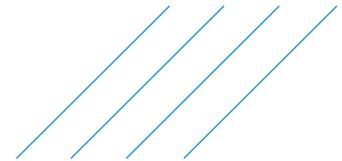
All identified affected and/or interested stakeholders and members of the public will be notified at the EA/IA study milestones. The public and stakeholders will have the opportunity to attend two (2) open house sessions that will be held in the City of Thunder Bay, focusing on:

1. Project and EA/IA process overview; baseline data collection; spatial and temporal boundaries for assessment; criteria and indicators; and identification and preliminary evaluation of alternatives; and
2. Presentation of the selected preferred alternatives/the Project, including potential effects, mitigation, net effects and their significance and follow-up monitoring.

The virtual open houses will include display materials and handouts containing information on the Project, the EA/IA study process, known existing environmental conditions, the results of studies that have been conducted to date; the development and evaluation of alternatives, including the rationale for use of criteria and indicators; the project schedule; and the results of the consultation program. The Webequie Project Team will be available to receive and respond to questions and have an open dialogue regarding the EA process. Written comments may be prepared and left at the open house venue or sent to the Project Team within a specified period following the event.

The public and stakeholders will be notified regarding the commencement of the assessment processes and submission of the Draft and Final EAR/IS. The EAR/IS will be available for review on the Project Website, and at municipal office or nearby public libraries in:

- › City of Thunder Bay



- › Municipality of Greenstone
- › Township of Pickle Lake
- › City of Timmins
- › Municipality of Sioux Lookout

In summary, the methods and activities for engagement and consultation with the public will include:

- › Notification letters
- › Public notices and newspaper advertising at key assessment milestones – Notice of Commencement; Notice of Open Houses; Notices for Draft and Final EAR/IS
- › Open houses
- › Communication materials for use at meetings such as slide decks, project fact sheets, handouts, etc.
- › Project Website
- › Opportunities to review and provide comments on the Draft and Final EAR/IS

All comments received from the public engagement and consultation activities will be tracked (i.e., Record of Consultation) and considered by the Project Team with the objective that the public be provided meaningful opportunities to participate, including in meaningful discussions in the EA process.

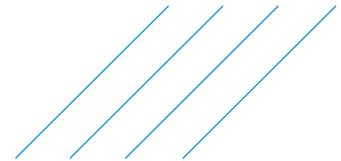
### 3.2. Indigenous Engagement and Consultation

It is important that the EA/IA process is capturing the information provided by Indigenous communities and the public accurately and appropriately. As such, Indigenous communities will have the opportunity to provide input and feedback through consultation and engagement activities during the following steps of the health impact assessment:

- › Defining the health study areas and criteria and indicators;
- › Collection of baseline information;
- › Validation of how baseline information is collected and used in the EA/IA;
- › Identification of effects pathways;
- › Determination of potential impacts on health and Aboriginal and Treaty rights; and,
- › Identification of mitigation measures.

A variety of activities and materials will be used to provide information and receive input from Indigenous communities during the EA/IA process. These are outlined and detailed in the provincial ToR which include the mechanisms, activities and events that are planned for various stages throughout the EA process and used at milestone points to ensure optimal engagement with Indigenous communities. In summary this includes the following:

- › Notification letters sent by registered mail to all of the identified Indigenous communities and groups (i.e., Tribal Councils inform them at key milestone (e.g., Commence of provincial EA; Submission Draft EAR/IS and Submission of Final EAR/IS;
- › Community visits throughout for those communities identified by IACC and MECP whose established or asserted Aboriginal and/or Treaty rights may be adversely affected by the Project;
- › Meetings (2) with off-reserve community members of the 22 Indigenous communities to be consulted as part of the EA/IA;
- › Information meetings with Métis Nation of Ontario;



- › Engagement with Tribal Councils and Nishnawbe Aski Nation, with meetings held upon request;
- › Communication materials for use at meetings such as slide decks, project fact sheets, handouts, etc., including where requested translation to native language;
- › Audio and visual products for those Indigenous communities who have the capability, community meetings and presentations will be live-streamed through local community media to allow for a wider audience to participate in the meetings;
- › Administration of health, socio-economic and country foods surveys, community workshops, interviews, focus groups, community meetings and HIA Steering Committee to obtain information (e.g., socio-economic, human health, etc.) and identify concerns from Indigenous people;
- › Project Website ([www.supplyroad.ca](http://www.supplyroad.ca)) for the public to review project related information and documents, including informative video tutorials (e.g. EA/IA studies); and
- › Project Newsletter letters.

Engagement with Indigenous groups has been undertaken as part of the Draft ToR phase and included components of the work plan (e.g., baseline studies for valued components, spatial and temporal boundaries, criteria and indicators, alternatives, etc.) and will continue as part of the planned EA/IA engagement activities for the Project.

In order to address GBA+, Engagement activities may include supporting arrangements for childcare if needed. Project materials including information sheets and communication materials will be translated to Ojibway, Cree, or Oji-Cree and translators will be used to help translate surveys and focus groups as required. Meetings and focus groups will take place when it is most convenient for the majority of participants, which could be in the evening due to work and school obligations. Meetings with the community and information collection using surveys, focus groups, and interview tools will not be undertaken during hunting seasons, or when individuals are unavailable to participate due to hunting, fishing, trapping, or gathering activities. Schedules will be designed to work around these key periods. health and socio-economic survey data will be disaggregated by gender and age and focus groups and interviews will be conducted with female and male youth, adult women (e.g. mothers, single mothers), Elders, and land users as part of the health, socio-economic, and Indigenous Knowledge and Land Use studies where the latter two will feed into the HIA study.

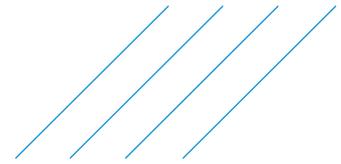
All outreach efforts and consultation activities will be recorded as part of the Record of Consultation to allow for validation by the Agency and the MECP. The EAR/IS will also describe how input from Indigenous communities and public will be incorporated into the health impact assessment.

### 3.3. Aboriginal and Treaty Rights

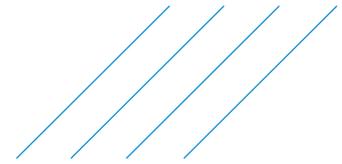
The Webequie Project Team will engage with Indigenous communities regarding potential impacts of the project on the exercise of rights, and where possible, the Project's interference with the exercise of rights. Potential effects to be considered will include both adverse and positive effects on the current use of land and resources for traditional purposes, physical and cultural heritage, and environmental, health, social and economic conditions of Indigenous peoples impacted by the Project. For example, this will include such effects as reductions in the quantity and quality of resources available for harvesting (e.g., species of cultural importance, including traditional and medicinal plants; or interference with the current and future availability and quality of country foods (traditional foods). Webequie First Nation and the Project Team will discuss with Indigenous communities their views on how best to reflect and capture impacts



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on the exercise of rights in the EAR/IS. Should impacts on the exercise of Aboriginal and Treaty rights be identified, Webequie First Nation and the Project Team will work with Indigenous communities to determine appropriate mitigation measures to reduce or eliminate such impacts. Where no mitigation measures are proposed, or mitigation is not possible, the Project Team will identify the adverse impacts or interference to the exercise of Aboriginal and Treaty rights and this will be described (e.g., level of severity) and documented in the EAR/IS. Webequie First Nation and the Project Team will advise Ontario and the Government of Canada on concerns Indigenous communities may have in relation to their exercise of Aboriginal and Treaty rights and whether their concerns cannot be addressed or mitigated by the Project Team.



## 4. Contribution to Sustainability

### 4.1. Overarching Approach

As recognized in the Agency's current guides to considering how a project will contribute to sustainability, it is not until baseline information has been collected and the potential effects of the Project are assessed that a full understanding or determination of the project's contribution(s) can be achieved/made. However, information and data requirements for sustainability have been considered from the outset of the WSR Project for planning purposes. In the absence of the potential effects assessment, this section outlines the general approach to determining sustainability contributions for the health valued component.

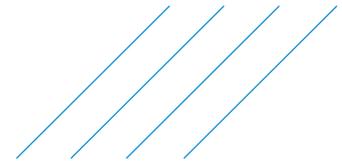
The approach is based on the goal of providing a broad or holistic description of the project's potential positive and negative effects, including the interactions among those effects and the long-term consequences of the effects. In the context of the IAA requirements, sustainability means "the ability to protect the environment, contribute to the social and economic well-being of the people of Canada and preserve their health in a manner that benefits present and future generations", with the aim of "protecting the components of the environment and the health, social and economic conditions that are within the legislative authority of Parliament from adverse effects caused by a designated project", recognizing that the Minister's or the Governor in Council's public interest determination must include sustainability as one of five factors to be considered in rendering a final decision.

The approach also considers the level of effort required to assess a project's contribution to sustainability to be scalable, depending on the phase of the process and the context of the project, and can/will be adjusted/scoped as the impact assessment proceeds. For example, effects on future generations requires temporal scoping (i.e., consideration of next generation to "seventh generation"), based on expectations as to how many generations it will take for effects to become fully apparent, including return to VC baseline conditions; resilience of the VC; and whether a VC is expected to recover from effects.

As part of the public participation and Indigenous peoples' engagement programs described in Sections 3.1 and 3.2, the Project Team has (and will continue to) facilitate early identification of values and issues to better inform the assessment of the project's contribution to sustainability; and identify VCs that should be carried forward into that assessment, scoping related criteria and indicators to reflect the project context. As part of sustainability considerations, this information has also been used (with regard to which VCs are considered most important to Webequie First Nation) to identify alternative means of carrying out the Project and select alternatives to be carried forward for an assessment of sustainability contributions. Ultimately, with the appropriate input from the engagement and consultation program, the sustainability assessment will culminate with the development of commitments to ensuring the sustainability of Indigenous livelihood, traditional use, culture and well-being.

In identifying and scoping key VCs for sustainability contributions, the Project Team will consider VCs that:

- › could experience long-term effects, including how those effects could change over time, and how they could affect future generations;
- › may interact with other VCs;
- › may interact with potential effects of the designated project; and/or
- › may interact with project activities.



## 4.2. Assessment of Contribution to Sustainability

During preparation of the Impact Statement, the four (4) Sustainability Principles identified in the Agency's guides and the TISG will be applied as follows:

### **Principle 1 - Consider the interconnectedness and interdependence of human-ecological systems**

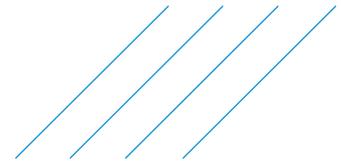
A systems approach will be used to determine/express VC interconnectedness. The degree of interconnectedness within systems and/or subsystems may vary greatly (may be characterized as very intricate and tight/direct, or quite loose and indirect). The focus will be on those aspects that are most important to communities, the social-ecological system and to the context of a project. All interactions, pathways and connections among effects to the environment, and to health, economic and social conditions will be described, as will how these interactions may change over time. The Project Team will ensure that the description of systems and the direct and indirect relationships are guided by input from Indigenous Knowledge. It is expected that a graphic with simple pictorial images will be developed to visually represent the connections between human and ecological systems to facilitate comprehension and encourage input/feedback.

### **Principle 2 - Consider the well-being of present and future generations**

The long-term effects on the well-being of present and future generations will be assessed. To conduct an analysis on future generations, the Project Team will first determine the potential long-term effects on well-being. This will entail consideration of the elements of environmental, health, social and economic well-being, across a spectrum of VCs, that communities identify as being valuable to them. In the context of the health VC, well-being could include community cohesion, protection of the environment, culture, stress, or livelihoods. Available Comprehensive Community Plans (CCP) will be consulted to determine whether sustainability is a CCP central theme. How the environmental, health, social and economic effects on well-being could change over time will also be assessed, as information permits. Although effects on future generations could include effects beyond the lifecycle of a project, this is not expected to be major consideration for the WSR Project, as no expected decommissioning or abandonment timeframe has been identified. With respect to temporal scoping, there is still a need to determine what the "future generation" is (i.e., how far into the future the project effects will be considered). Predicted potential effects on future generations will be assessed based on the supporting data or uncertainty; any uncertainty will be documented.

### **Principle 3 - Maximize overall positive benefits and minimize adverse effects of the designated project**

The Impact Statement will include a consideration of ways to maximize the positive benefits of the Project and consider mitigation measures that are technically and economically feasible and would mitigate any adverse effects of the Project. Sustainability considerations will include: whether additional mitigation measures are required; have additional benefits been identified and, if so, how can they be maximized; does the direction of the impact (i.e., positive or negative) shift between different groups and sub-populations; are there particular strengths or vulnerabilities in the potentially affected communities that may influence impacts; do the impacts cause regional inequities; and do the near term benefits come at the expense of disadvantages for future generations.



#### **Principle 4 - Apply the precautionary principle and consider uncertainty and risk of irreversible harm**

The precautionary principle states that “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”. All uncertainties and assumptions underpinning an analysis will be described. A precautionary approach will be applied in cases where there is risk of irreversible harm (irreversible harm refers to project-related effects from which a VC is not expected to recover; reversibility is influenced by the resilience of the VC). Taking such a conservative approach may include setting out worst-case scenarios for decision-makers to consider, particularly when there is uncertainty about the significance or irreversibility of potential effects. As appropriate, the precautionary approach may be extended to commitments regarding the project’s design (to prevent adverse effects, prevent pollution, deal with unplanned events) and the development of monitoring and follow-up programs to verify effects predictions, or gauge the effectiveness of mitigation measures. Uncertainty may be characterized quantitatively (e.g., description of confidence levels of modelled predictions) or qualitatively (e.g., through descriptors such as “high”, “medium”, and “low”). Qualitative descriptions of uncertainty will explain how the level of uncertainty was determined, identify sources of uncertainty and data gaps, and describe where and how professional judgment was used.

## **5. Schedule and Reporting**

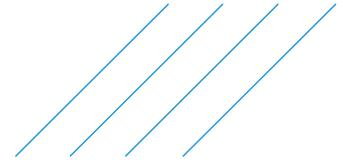
As discussed previously and highlighted in the Intrinsic HIA work plan (Appendix A), several studies conducted as part of the EA/IA process feed into and inform the HIA. As such, the schedule of the HIA will be dependent on the availability of data and information from other studies including air quality, water quality, noise and vibration, visual (landscape), social, economic, Indigenous knowledge and land use, HHRA and country foods assessment. A tentative schedule for the deliverables from the HIA is provided below, and is subject to change dependent on the availability of other studies:

- › Desktop research – January to March 2021;
- › HIA Scoping Workshop with HIA Steering Committee – beginning of May 2021;
- › Data collection: Health Survey, interviews, and focus groups – March to June 2021;
- › Engagement and consultation with WFN/WPT, HIA Steering Committee; other Indigenous communities to confirm scoping and health issues of concern – May to June 2021);
- › HIA Scoping Report – July 2021;
- › Advise and consult with other discipline teams for information to be included in the HIA/HHRA – ongoing throughout EA/IA process;
- › Consultation and engagement activities to provide opportunity for WFN, other Indigenous communities and interested parties to review the HIA and supportive HHRA and country foods assessment results and recommendations – January to April 2022); and
- › HIA Technical Report – June 2022.

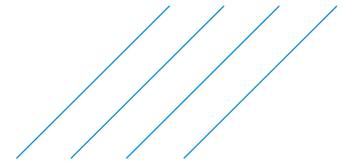
The Project Team understands that given the uncertain times around the COVID-19 pandemic, Indigenous communities are presently in a state of emergency and are not in the position to be engaging with the Project Team and providing baseline data information. As such, the Project Team will adopt trauma-informed and healing-centred approaches and methods for obtaining primary baseline information which will be guided by Indigenous communities. Surveys will be particularly helpful in



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collecting baseline data where social distancing is required. The Project Team will offer other avenues to engage with Indigenous communities that are appropriate and feasible for them during the COVID-19 pandemic.



## 6. Closure

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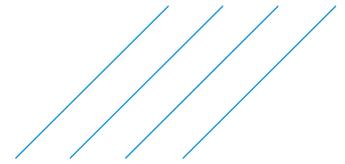
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# Appendix A

## Intrinsic Health Impact Assessment Work Plan



# **WEBEQUIE SUPPLY ROAD PROJECT HEALTH IMPACT ASSESSMENT (HIA)**

## **FINAL WORK PLAN FOR AN HIA AND SENIOR ADVISORY SERVICES FOR COMPLETION OF A COUNTRY FOODS ASSESSMENT**

April 2021

**Prepared For:** **SNC-Lavalin**  
195 The West Mall  
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## **DISCLAIMER**

Intrinsik Corp. (Intrinsik) provided this Final Work Plan for SNC-Lavalin and Webequie First Nation (WFN) solely for the purpose stated in the document. The information contained in this work plan was prepared and interpreted exclusively for SNC-Lavalin and WFN and may not be used in any manner by any other party. Intrinsik does not accept any responsibility for the use of this work plan for any purpose other than as specifically intended by SNC-Lavalin and WFN. Intrinsik does not have, and does not accept, any responsibility or duty of care whether based in negligence or otherwise, in relation to the use of this work plan in whole or in part by any third party. Any alternate use, including that by a third party, or any reliance on or decision made based on this work plan, are the sole responsibility of the alternative user or third party. Intrinsik does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this proposal.

Intrinsik has reserved all rights in this work plan, unless specifically agreed to otherwise in writing with SNC-Lavalin and WFN.

## 1.0 INTRODUCTION

This work plan for a Health Impact Assessment (HIA) and Senior Advisory services for the Country Foods Assessment of the Webequie Supply Road (WSR) Project (the Project) was developed by Intrinsik Corp. (Intrinsik) for SNC-Lavalin and Webequie First Nation (WFN).

Webequie First Nation, the proponent, is proposing a 107-kilometre all-season road connecting Webequie Airport and the McFaulds Lake area in northern Ontario (the Webequie Supply Road). The proposal includes the construction, operation and maintenance of the corridor, which would be approximately 35 metres wide and accommodate a two-lane gravel surface industrial supply road and potentially allow future infrastructure development, including transmission lines and broadband.

The Project would connect the WFN to existing mineral exploration activities and potential future mineral development within the Ring of Fire area of Ontario. The Project could also become part of a future all-season road network connecting the WFN and the Ring of Fire area to the provincial highway system in Nakina and/or Pickle Lake.

As a federal designated project, the *Impact Assessment Act* (IAA) is applicable to the Project, which includes the preparation of an Impact Statement as per the requirements laid out in the Tailored Impact Statement Guidelines (TISG) prepared by the Impact Assessment Agency of Canada (the Agency). This HIA work plan aims to address the requirements in the TISG with respect to the characterization of baseline human health conditions within the WFN as well as the assessment of human health impacts to the WFN due to the Project. Also included in this work plan are Senior Advisory services to be provided to SNC-Lavalin for the completion of a Country Foods Assessment (**Appendix A**).

## 2.0 HEALTH IMPACT ASSESSMENT

The World Health Organization (WHO) defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1948)<sup>1</sup>. This definition identifies the holistic nature of health and expands the definition to include physical, mental, social and economic factors. This definition is considered an ideal to strive for and it forms the basic principle upon which HIA is based.

Historically, health was considered secondary in development projects, if considered at all; however, there has been increasing interest in HIA and how it can be a useful tool to promote sustainable and responsible development. The WHO (1999)<sup>2</sup> defines HIA as:

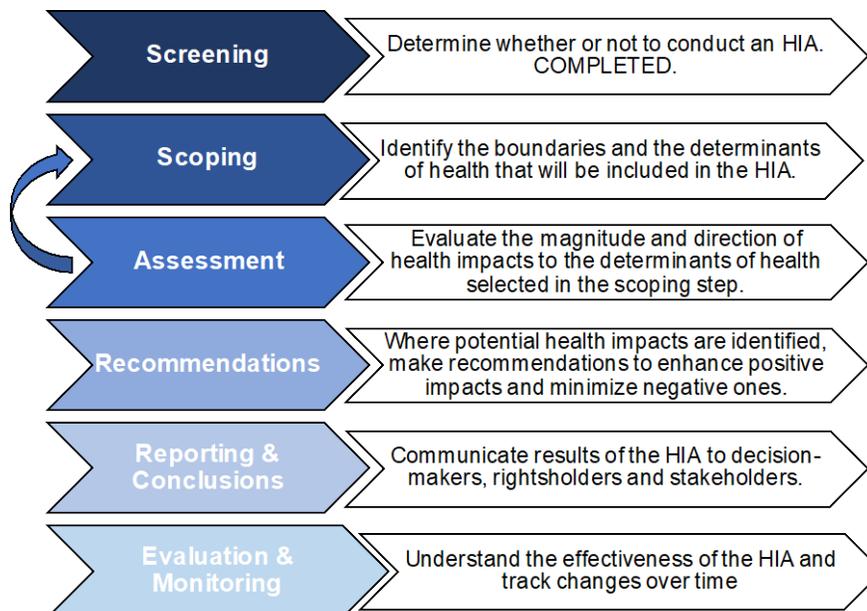
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<sup>1</sup> WHO (World Health Organization). (1948). Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.

<sup>2</sup> WHO (1999). Gothenburg consensus paper. Health Impact Assessment: main concepts and suggested approach, World Health Organization.

*“A combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population.”*

An HIA typically consists of a series of steps that are intended to provide a structural framework around which the assessment will be conducted. Although guidance documents from around the world have slight variations on these steps, the process is fundamentally the same: screening, scoping, assessment, recommendations, reporting, monitoring and evaluation (**Figure 1**).



**Figure 1 Health Impact Assessment Process**

Note: The arrow indicates the sometimes-iterative nature of the scoping and assessment steps.

The Intrinsic HIA Team recently prepared an HIA Guidance document for Health Canada to be applied to federal designated projects (March, 2020). Intrinsic developed this HIA Guidance not only in keeping with best practices in HIA methodology, but also as a framework that integrated within the IA process. As such, in conducting the HIA for the WSR Project, Intrinsic will use the HIA framework developed for Health Canada.

### 3.0 OBJECTIVES OF THE HIA

The purpose of the HIA is to develop a baseline health profile of the WFN, and other potentially affected Indigenous communities, and to evaluate the potential positive and negative impacts on health and well-being of the WFN that may result from the Project. In addition, the HIA will also propose measures to either reduce or mitigate potential harmful effects and to enhance potential positive effects.

There are several benefits to conducting an HIA, including:

- i. Highlights Positives: Unique in its ability to highlight the positive aspects of a project

- Typical assessments tend to focus only on the absence or presence of negative effects.
- ii. Addresses Rightsholders/Stakeholder Concerns: Addresses rightsholders/ stakeholder/ community concerns in an upfront and transparent manner.
  - iii. Efficient Process: The HIA can be completed independently, while relying on data and information collected for several of the studies conducted as part of the IA (e.g., air quality, noise, visual, etc.) to achieve maximum efficiency in terms of time and budget.
  - iv. Feasible Recommendations: Following the assessment, the HIA will make targeted recommendations that are feasible and effective, to mitigate potential adverse impacts and to enhance the positive impacts.
  - v. Enhanced Communication: The HIA process is based on open and transparent communication of issues and concerns with the proponent as well as key rightsholders/stakeholders. By identifying these early in the process, and addressing them through the HIA in an open and transparent manner, the likelihood of last-minute setbacks is minimized.

In order to achieve the HIA objectives, while obtaining benefits of the process as a whole, Intrinsik has put together the following work plan, organized by the steps involved in the HIA process: Screening; Scoping; Assessment; Recommendations; Reporting; Monitoring and Evaluation. In addition, the three phases in the HIA work plan also provide a breakdown and alignment with the IA process.

#### **4.0 PROPOSED HIA WORK PLAN – PHASE I**

The following work plan is an estimate of the work required to conduct an HIA for the Project, specifically focusing on potential health impacts to the WFN. Although there are other communities around the WFN, the Project Team believes that since the Project is within the territory of the WFN, the WFN community will experience the bulk of the impacts due to the Project and can be considered to be representative of overall health impacts due to the Project. However, during the course of engagement (**Section 4.3**) unique health issues identified by other potentially affected communities will be included and assessed in the HIA.

The first phase of the HIA work plan includes an initial estimate of the scope of issues to be considered and a preliminary community engagement plan.

#### **4.1 Screening**

The first step of an HIA is screening, where project information is reviewed to identify whether HIA is a useful and appropriate tool for assessing health. In the context of the Project, since it is on the federal designated projects list, it is subject to the IAA. As such, and as per the TISG, an HIA is an integral part of the Impact Assessment of the Project. Hence, since the HIA was triggered due to requirements of the IAA, the screening step is complete for this Project.

## 4.2 Scoping

The HIA scoping process is intended to provide the blueprint for the HIA. It involves identifying the populations that might be affected, identifying which health issues will be evaluated within the HIA, and specifies the data and methods to be used and alternatives to be assessed. Intrinsic's HIA Team will conduct a comprehensive and well-facilitated scoping process to ensure that the HIA considers those issues that are important to the proponent, WFN, and other potentially affected Indigenous communities, as identified by SNC-Lavalin.

The initial task in scoping is to conduct a review of all project related information to characterize the key issues around potential health impacts. This information can be gathered from several sources. Primarily, for this Project, the TISG and the rightsholder/stakeholder engagement will inform the scope of the assessment. Other sources relied upon include the scientific literature, assessments on similar projects, and professional judgment (based on previous experience with HIAs on transportation projects).

There are several potential health areas that could be considered in the scope of this HIA. As described in the TISG, a tiered approach to the social determinants of health will be taken, where:

- **Level 1 health determinants** include health-related behavioural and biological factors;
- **Level 2 health determinants** include physical environments, employment, education, service access and social, cultural and economic factors; and
- **Level 3 health determinants** include structural and equity factors, including racism and colonialism.

These three levels of health determinants can also be referred to as the proximal, intermediary, and distal determinants of health, respectively (Reading and Wien, 2009)<sup>3</sup>. Although distinct categorizations of health determinants have been made in the list below, it should be noted that these determinants are connected, where, for example a level 2 determinant may cause or play a role in shaping a level 1 determinant. Where such connections exist, they will be highlighted during the assessment step of the HIA.

The following is a collection of assessment focus areas identified during a review of the TISG (Section 16.2):

### Level 1 Determinants of Health

- Biological factors and health behaviours
  - Mental well-being, including prevalence of depression and anxiety
  - Health-related behaviour
    - Level of physical activity

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<sup>3</sup> Reading, C., & Wien, F. (2009). Health inequalities and social determinants of Aboriginal Peoples' health. Prince George, BC: National Collaborating Centre for Aboriginal Health. Available: [https://www.nccah-ccnsa.ca/docs/social%20determinates/nccah-loppie-wien\\_report.pdf](https://www.nccah-ccnsa.ca/docs/social%20determinates/nccah-loppie-wien_report.pdf)

- Substance use, including alcohol, smoking and drugs
- Consumption of country food

### Level 2 Determinants of Health

- Physical environment
  - Air quality
  - Noise levels and vibration
  - Water quality, including drinking water quality
  - Light pollution, including visual impact
  - Housing, including access and quality
- Employment and income, including poverty
- Education
- Food insecurity, including quality and availability of country foods
- Childhood development
- Social and cultural well-being
  - Social cohesion and cultural continuity
  - Sense of physical and emotional safety
  - Safety of women and girls
  - Traffic volume and safety
- Access to healthcare and other services
  - Access to a family doctor or specialist care provider
  - Access to social, mental health and family services
  - Access to transportation services
  - Access to emergency services
  - Access to education

### Level 3 Determinants of Health

- Worker accommodation
- Racism and social exclusion
- Local economic growth
- Self-determination and governance

It should be noted that this list is not exhaustive and does not represent the final list to be included in the HIA; instead, it is a starter list of determinants of health that will be considered. The final list of health determinants to be included in the assessment will be identified based on the issues that are important to the WFN, starting from the TISG, Section 16.2, and further developed following an analysis of rightsholder engagement from the community health survey as well as the HIA Scoping Workshop to be conducted with the HIA Steering Committee (**Section 4.3**). In addition, the HIA Team will also endeavour to collaborate with the Gender Based Analysis Plus (GBA+) team (where possible), to characterize and assess these health determinants through a GBA+ lens, in consultation with the GBA+ team.

In order to get feedback and input from the WFN on the scope of the HIA, the HIA Team will work with SNC-Lavalin, our primary liaison with the community(ies), to ensure that the Community Health Survey is designed to ask all the relevant questions from community members, with respect to the overall health of the community, as well as identifying the key health issues and the spatial boundaries of the assessment. As mentioned, the HIA Team will also hold a half-day scoping workshop, during which representatives from the HIA Steering Committee (see **Section 4.3** below) will be invited to provide input into the scope of the assessment. Following the completion of the scoping workshop, the list of health determinants to be assessed in the HIA will be finalized.

Overall, the HIA will utilize the results of the Human Health risk assessment (HHRA), the country foods assessment and other impact assessment studies/disciplines to characterize health impacts to the WFN due to changes in:

- Air quality and climate change
- Noise exposure and vibration
- Availability and quality of medicinal plants
- Availability and quality of country foods
- Availability and quality of water for:
  - Drinking
  - Recreational use
  - Cultural/spiritual use
- Social and economic conditions
- Visual (or landscape) conditions

A deliverable from the scoping step is a draft scoping report that will be prepared outlining (i) the health issues to be included in the HIA, with rationale; (ii) the spatial and temporal boundaries of the assessment; and, (iii) information on the rightsholder/stakeholder engagement process and how it influenced the scope of the HIA. The draft HIA Scoping Report will be prepared following the completion of the HIA Scoping Workshop. Any data and information gaps noted up to this point in the HIA process will be noted in the draft Scoping Report.

### **4.3 Rightsholder/ Stakeholder Engagement**

Engagement and collaboration with rightsholders and stakeholders is a key component of HIA. As discussed above, the Project Team believes that since the Project is within the territory of the WFN, the WFN community will experience the bulk of the impacts due to the Project and can be considered to be representative of overall worst-case potential health impacts due to the Project. SNC-Lavalin will lead the rightsholder/stakeholder engagement, for the collection of information and data for the Intrinsic HIA and Country Foods Assessment teams. At this time, Intrinsic understands that the proponent wishes to focus the scope of the assessment on the WFN, however, where available, information on unique health issues facing other potentially affected Indigenous groups will be taken into the assessment. The HIA Team will ensure that other potentially affected Indigenous communities, to whom the Community Health Survey will be administered, also have the opportunity to bring their main health issues to the attention of

the Team. As such, the rightsholder/stakeholder engagement component of this HIA will likely consist of three major components: (I) the WFN, (II) other potentially affected Indigenous groups facing unique health issues not affecting the WFN, and (III) an HIA Steering Committee.

Where possible, the Intrinsic HIA team will endeavour to utilize health-related information gained from engagement sessions with the WFN and other potentially affected Indigenous communities. However, as part of a comprehensive HIA process, Intrinsic will conduct a virtual scoping workshop as well as a recommendations workshop, preferably with the HIA Steering Committee and other key community members. Dependent on public health restrictions due to the COVID-19 pandemic, the recommendations workshop could potentially be held in-person at the WFN offices.

The HIA Steering Committee will consist of the following rightsholders and stakeholders:

- Intrinsic HIA Lead and other HIA Project Team members (as required)
- WFN representatives (including Elder, youth, women, etc.)
- Community Health Representative from the WFN Nursing Station
- Other community representatives (if applicable)
- Local Public Health Unit representative (if applicable)
- Members from other potentially affected Indigenous groups (if applicable)

It is anticipated that WFN representatives as well as a representative from each of the other organizations will formulate the HIA Steering Committee. Although separate engagement will be occurring with the WFN, representatives, to be selected by the WFN, will be invited to sit as members of the HIA Steering Committee as well.

The Intrinsic HIA Team will not directly administer the Community Health Survey to the WFN, or other potentially affected Indigenous groups. The Team will provide input and feedback to SNC-Lavalin on the contents of the Survey from an HIA perspective. SNC-Lavalin will clearly identify and indicate to Intrinsic, if, and how many, other potentially affected Indigenous communities will be involved in the Community Health Survey, and in the rightsholder engagement, overall. Some of the ways in which Intrinsic will participate in the engagement sessions (led by SNC-Lavalin) with the WFN and other potentially affected Indigenous groups include:

- Ensuring that the Community Health Survey is designed to ask the right questions with respect to what's required for an HIA, keeping in mind that excessive survey length can lead to possible survey fatigue;
- Provide input into engagement via focus groups and key-person interviews;
- Ensuring that other potentially affected Indigenous groups, to whom the Community Health Survey is administered by SNC-Lavalin, also have the opportunity to raise health concerns that are unique to them;
- Lead and conduct the Scoping Workshop with the HIA Steering Committee;
- Lead and conduct the Recommendations Workshop with the HIA Steering Committee;

- Communicate with SNC-Lavalin, WFN and the Agency, as and when necessary, where HIA-related issues are raised as a result of the rightsholder/stakeholder engagement.

The purpose of the HIA Steering Committee is for its members to be involved in, and to inform, the HIA process. Intrinsik proposes that the Committee meet a minimum of two (2) times during the HIA process (virtually or in-person, dependent on public health restrictions): once during scoping; and, once during the development of recommendations. During the recommendations workshop, the HIA Team will present the preliminary findings of the HIA to the WFN/Steering Committee and solicit their feedback on the proposed recommendations resulting from the findings of the HIA. Additional HIA Steering Committee meetings can be requested with the approval of the WFN. It is currently assumed that the HIA Steering Committee will meet virtually while public health restrictions are in place due to the COVID-19 pandemic.

## **5.0 PROPOSED WORK PLAN - PHASE II**

The second phase of the proposed work plan is largely based on the outcome of Phase I (scoping, data review and WFN engagement). The specifics of this undertaking will be finalized upon completion of Phase I and finalization of the scope of work in consultation with WFN.

### **5.1 Assessment of Effects**

The assessment step of the HIA first establishes a baseline community health profile not only to understand the current overall health status of the community and identify unique health issues, but also to provide a benchmark for the evaluation of potential positive and negative health impacts arising from project activities based on available data and information. These steps are described below.

#### **5.1.1 Baseline Community Health Profile**

The first component of the HIA assessment step is to compile a baseline community health profile to understand current conditions related to the health and well-being of the impacted community(ies). Wherever possible, information will be extracted from the relevant IA studies to avoid any duplication of effort; this will be achieved through consultation with SNC-Lavalin. The results and analysis of the Community Health Survey, which will be administered by SNC-Lavalin with input from Intrinsik, together with information from focus groups and key-person interviews, will be critical to developing the baseline health profile of the community. Based on our initial review, there also appears to be a significant quantity of information available from previous health studies conducted for the WFN community. Hence, the baseline health profile will be based on collating data and information gained from the community health survey, focus groups and key-person interviews, as well as from identification and analysis of existing health data and information for WFN, where available.

Following completion of the baseline health profile, a data gap analysis will be conducted to identify areas where additional information could be useful or where existing information is not available/sufficient to provide a clear picture of current community health status. In the event that this information cannot be made available, it will be carried forward and identified as an area of uncertainty (or data gap) in the final HIA report. A discussion regarding data gaps and their potential impacts on the HIA process, findings or recommendations will be included.

### Webequie First Nation

The HIA will primarily focus on potential health issues and effects identified by the WFN, and a baseline community health profile will be developed to better understand the current health-status of the WFN. Unique health issues raised by other potentially affected Indigenous communities, as identified by SNC-Lavalin, will also be included in the baseline community health profile and carried into the HIA for further assessment. Although some data is available through Statistics Canada (e.g., population, age distribution, marital status, family characteristics, household characteristics, and language), there is also information available from previous health studies conducted for the WFN community. As mentioned, the Community Health Survey, focus groups and key-person interviews will serve as important sources of data and information. The Intrinsic HIA Team will gain approval from the WFN before using any health-related data and information. The WFN Community Health Representative will also be consulted for guidance and information on WFN health status.

If separate stand-alone baseline community health profiles are to be prepared for other potentially affected Indigenous communities, as identified by SNC-Lavalin, the timeline and budget for these tasks will be discussed separately with SNC-Lavalin/WFN. Intrinsic will submit a proposal to SNC-Lavalin/WFN for approval prior to initiating any additional undertaking.

#### **5.1.2            *Consideration and Evaluation of Alternatives***

As defined in the draft Terms of Reference (September, 2019), the alternatives and alternative methods related to supportive infrastructure and the preferred supply route will be identified during the preparation of the Impact Statement. The HIA will evaluate these alternatives from a health standpoint. Some alternatives expected to be evaluated in the HIA include routes; supportive infrastructure such as construction camps and access roads to such camps, and aggregate extraction pits and production facilities. The analysis conducted in the HIA will use information from the Impact Statement.

#### **5.1.3            *Characterization of Health Effects***

After completion of the baseline community health profile, which provides a foundation for identifying pre-existing vulnerabilities and evaluating potential changes in community health and well-being, the assessment of project impacts (both positive and negative) will commence. Since there are several studies being conducted as part of the Impact Statement, the HIA will use data and other information from the various IA studies (e.g., air quality, social, economic, water quality, noise, HHRA, Indigenous peoples and land use, country foods, etc.). This will ensure that efforts in terms of data and information gathering are not duplicated and will result in significant cost savings for the HIA while enhancing the quality of the assessment.

The HIA Project Team will rely on available reports and data from the other IA studies as well as information from the scientific and grey literature to evaluate potential impacts. The potential effects on health and well-being will be characterized based on several factors, which will be based on the HIA guidance *Intrinsik* recently developed for Health Canada to be applied to federal IA projects.

A data gap analysis will again be carried out to identify areas where additional data or information would be beneficial. Where major data gaps are identified, a discussion of the potential implications on the HIA process, results or recommendations will be provided.

For each determinant of health that is selected and taken through to the assessment step following the scoping process, a detailed assessment will be conducted including:

- Analyzing the relationship between the health determinant and health, especially in the context of the project and WFN. Information for this step will be taken from literature, Indigenous knowledge, results of the rightsholder/stakeholder engagement and information contained in the different study disciplines within the Impact Statement.
- Providing a discussion on the current baseline conditions in the WFN with respect to the determinant of health. Information for this step will be taken from the Community Health Survey, focus groups, key-person interviews, the Impact Statement and the rightsholder/stakeholder engagement.
- Evaluating the likelihood of impacts on the determinant of health due to the Project. Information for this step will be taken mainly from the Impact Statement, for example, if the determinant of health being assessed is air quality, the Air Quality Study in the Impact Statement will inform this analysis. Results of the rightsholder/stakeholder engagement and Indigenous knowledge will also be used as supplemental information.
- Characterizing the potential health impacts, including criteria such as magnitude and likelihood of impact, type of impact, the geographic and temporal extent of impact, vulnerable populations likely to be disproportionately affected, and overall potential health outcome. Information for this step will be taken mainly from the Impact Statement, and supplemented Indigenous knowledge, results of the rightsholder/stakeholder engagement and HIA practitioner judgement.

In order to ensure that the HIA is conducted in a systematic and transparent manner, an assessment framework will be applied. The effect characterization component of the HIA will be subject to a clear and consistent framework that determines the nature of impacts based on assessment results. In cases where the framework does not adequately apply, alternate assessment approaches will be considered, and a justification will be provided.

#### **5.1.4 Country Foods Assessment**

A Country Foods Assessment will be completed by SNC-Lavalin as per the requirements in the TISG. *Intrinsik's* Claire McAuley will serve as Senior Advisor for the Country Foods Assessment and will take the lead in incorporating the results of the Country Foods Assessment into the HIA (see **Appendix A** for details) in order to:

- Determine current use and quality of country foods for the WFN and other potentially impacted Indigenous communities;
- Highlight the importance of country foods to the WFN and other potentially impacted Indigenous communities in the HIA;
- Include a measured baseline of metal constituents in harvested foods and medicinal plants for the baseline community health profile.

The information and data from the Country Foods Assessment will flow into the HIA and the HHRA. Given that country foods are an essential part of the diet for Indigenous peoples, this assessment is an integral part not only of the HIA process, but also the IA process overall.

**Appendix A** provides a high-level work scope for Senior Advisory Services to assist SNC-Lavalin in the completion of the Country Foods Assessment proposed for the WSR Project.

## **6.0 PROPOSED WORK PLAN – PHASE III**

The third phase of the proposed work plan is largely based on the outcome of Phase II (the assessment of effects). The following is a general discussion of the recommendations, reporting and monitoring steps typical in the HIA process. The specifics of this undertaking will be finalized upon completion of Phase II.

### **6.1 Recommendations**

This step of the HIA will identify specific actions that could be taken to avoid, minimize, or mitigate adverse effects or enhance positive health effects. The recommendations will be developed based on the HIA findings, in collaboration with the WFN and the HIA Steering Committee (a half-day Recommendations Workshop), and will focus on measures that are feasible and work to improve community health, where necessary.

### **6.2 Reporting**

The reporting step of an HIA is intended to communicate the findings and recommendations to decision makers, the public and other stakeholders. The HIA process will be documented as part of the Impact Statement. First, a comprehensive technical document will be created to provide a detailed account of the HIA, the evidence used and methods, HIA findings and recommendations. Second, in order to make the HIA accessible to all informed rightsholders and stakeholders, a plain language summary will also be developed by the HIA Team that will focus on key findings, recommendations and provide an overview of the process. Third, a 1-page fact sheet will provide a visual display of the information that is intended to be shared with people of all ages and levels of scientific understanding. It is possible that additional forms of communication may be requested by the WFN. If this is the case, Intrinsik will submit a proposal to SNC-Lavalin/WFN for approval prior to initiating any additional undertaking.

### **6.3 Monitoring and Evaluation**

The monitoring and evaluation step(s) of an HIA track the adoption and implementation of HIA recommendations and their impact on health, determine whether the HIA was conducted according to plan and/or whether it influenced the decision-making process. Intrinsik will

conduct an evaluation of the HIA process, identify key strengths and find ways to improve the practice. Based on the results of the HIA and the recommendations provided, the HIA Team will also develop a monitoring plan. The plan may include measures such as follow-up evaluations, monitoring of certain environmental components or health indicators and a host of other potential options. Input will also be sought from the WFN to ascertain which health indicators are most valuable to the community to monitor over time. This work plan includes the development of a monitoring plan; however, implementation of the plan is outside of the proposed scope and cannot be determined until the specific measures/recommendations have been developed. Based on the overall results of the HIA and the Impact Assessment process, a monitoring plan will be developed by the HIA Team and included in the technical report.

## **7.0 PROJECT MANAGEMENT**

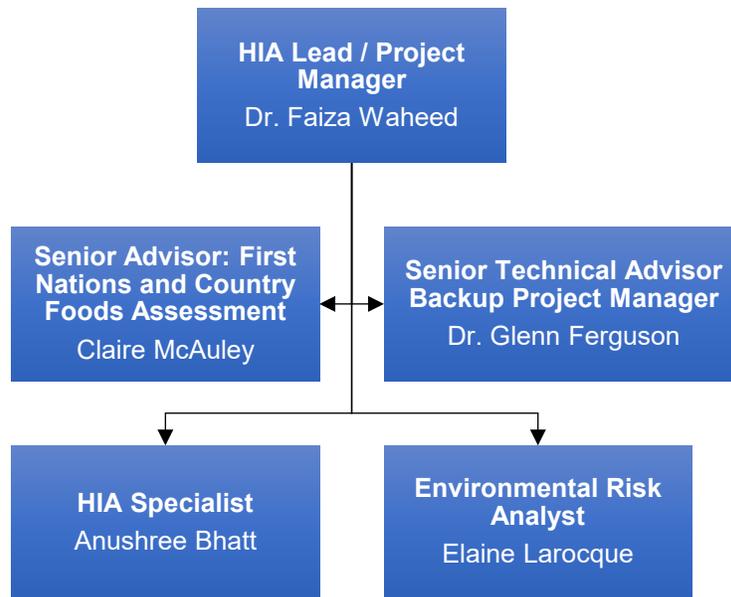
The Intrinsic team will rely on the Project Manager and HIA Lead, Dr. Faiza Waheed, to ensure effective communication between the HIA Team, WFN and SNC-Lavalin throughout the project. Dr. Waheed will provide monthly updates (via teleconference or email) to SNC-Lavalin and WFN on progress, interim findings, and project deliverable updates. In order to do this, she will be in constant discussions with Intrinsic team members to ensure that the schedule is on track and that team members are informed of project issues and updates. Under the assumption that the HIA process will last up to three years (IA schedule), monthly calls with the client (and IA Team) have been scheduled.

The schedule, timelines and milestones will be discussed with SNC-Lavalin and WFN, and revisited at several key points throughout the project (e.g., following rightsholder/stakeholder engagement). We believe that it is critical to ensure from the outset that we have fully understood the scope, expectations and deliverables required by the WFN and SNC-Lavalin. In the event that minor changes from the proposed approach and work plan are requested they will be documented and presented to SNC-Lavalin for consideration and/or approval prior to undertaking any additional work. At any time, if a project challenge arises that could potentially jeopardize the schedule or project delivery, Dr. Waheed will immediately contact SNC-Lavalin and the WFN with the issue as well as a proposed resolution.

In the event that the WFN or SNC-Lavalin is not satisfied with an individual deliverable or is concerned about project milestones, the first course of action will be to contact Dr. Waheed. She will document the concern, discuss it with the Intrinsic Project Team and within two business days provide WFN and SNC-Lavalin with proposed actions to address the concern.

## **8.0 STAFFING AND RESOURCES**

Over the past 35 years Intrinsic has demonstrated unwavering commitment to promoting scientific evidence-based solutions to our client's issues. Our highly-trained staff has a breadth of experience conducting assessments of various forms and within a wide variety of sectors. We have undertaken quantitative and qualitative evaluations of environmental impacts, including those resulting from wastewater treatment facilities, in order to identify, evaluate and mitigate potential harms to human health.



The team proposed for this project is comprised of experienced professionals who have extensive experience in assessing the potential vulnerabilities, risks and health impacts of environmental stressors and have conducted projects with First Nations involvement and consultation. An organizational chart shows the proposed HIA team structure (**Figure 2**).

The HIA Team has been identified below, along with education, and project roles.

**Figure 2 HIA Team Organization and Structure**

**FAIZA WAHEED, Ph.D., M.Env.Sc.**  
**HIA Lead / Project Manager**

Dr. Faiza Waheed will be the main point of contact and will manage all aspects of the HIA, including staffing and resource allocation, scheduling, budget, and correspondence with WFN, SNC-Lavalin and the HIA Steering Committee. Dr. Waheed will also be responsible for leading the rightsholder/stakeholder engagement component of the HIA, in collaboration with SNC-Lavalin staff, our Senior Advisor in First Nations consultation, Ms. Claire McAuley, and our Senior Technical Advisor, Dr. Glenn Ferguson. All documentation associated with the HIA will be reviewed and approved by Dr. Waheed.

**ANUSHREE BHATT, M.Env.Sc.**  
**HIA Specialist**

Ms. Bhatt will provide technical support throughout completion of the HIA, under the supervision of the HIA Lead. Tasks include collection and synthesis of evidence, data analysis and interpretation, applying quantitative and qualitative assessment methodologies and conducting literature reviews to gather and organize information required for the HIA, as well as providing support for other tasks.

**ELAINE LAROCQUE, M.Env.Sc.**  
**Environmental Risk Analyst**

Ms. Larocque, together with Ms. Bhatt, will provide technical support throughout completion of the HIA, under the supervision of the HIA Lead. Tasks include collection and synthesis of evidence, data analysis and interpretation and conducting literature reviews to gather and organize information required for the HIA, as well as providing support for other tasks.

**CLAIRE MCAULEY, M.Eng., M.Sc., P.Eng.**

**HIA Role: Senior Advisor – First Nations Consultation and Country Foods Assessment**

Claire McAuley will provide support to the HIA Team as senior advisor with respect to the Country Foods Assessment results as well as with First Nations consultation, if necessary. Ms. McAuley's has a long history of working with First Nations communities with respect to health and environmental issues. Ms. McAuley will also serve as a Senior Advisor to Country Foods Assessment (**Appendix A**) to be conducted by SNC-Lavalin.

**GLENN FERGUSON, Ph.D., QP<sub>RA</sub>**

**HIA Role: Senior Technical Advisor / Backup Project Manager**

Dr. Glenn Ferguson will provide support to the HIA Team as a senior technical advisor and reviewer, with special focus on chemicals and other contaminants in environmental media. Dr. Ferguson will be involved in meetings with the client as well as in the rightsholder engagement. In addition, in case of an emergency, should the designated Project Manager be unavailable, Dr. Ferguson will serve as the Backup Project Manager.

**10.0 CLOSURE**

Should you require any further information, please do not hesitate to contact me at (416) 998-5591 or via email at [gferguson@intrinsik.com](mailto:gferguson@intrinsik.com).

Yours sincerely,

INTRINSIK CORP.

<Original signed by>

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**Glenn Ferguson, Ph.D., QP<sub>RA</sub>**

Vice President

Senior Environmental Health Scientist

## **APPENDIX A**

### **Webequie Country Foods Assessment Senior Advisor (Scope and Assumptions)**

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## **Webequie Country Foods Assessment**

The Country Foods Assessment will be completed to:

- Determine current use and quality of country foods for the Webequie First Nation and other potentially affected Indigenous groups.
- Highlight the importance of country foods to the Webequie First Nation and other potentially affected Indigenous groups in the Health Impact Assessment (HIA).
- Establish a measured baseline of metal constituents in harvested foods and medicinal plants.
- Provide an opportunity for Indigenous peoples to provide input regarding traditional and market food security in their communities.

It is proposed that Intrinsic personnel (Ms. Claire McAuley) act in a Senior Advisory capacity working in conjunction with SNC-Lavalin for completion of the Country Foods Assessment. Ms. McAuley will work with the SNC-Lavalin team throughout all phases of the assessment in order to ensure that the requirements of the TISG are met. Ms. McAuley will then work with the Intrinsic HIA team to integrate the results of the assessment into the HIA.

It is understood that the SNC-Lavalin team has developed a work plan for the completion of Country Foods Assessment. The estimate of time and effort required for a senior advisory role, as included in Table 1, has been based on the project tasks required in the assessment through review of the TISG and Health Canada (2018) (Guidance for Evaluating Human Health Impacts in Environmental Assessments: Country Foods). The proposed cost estimate assumes that there is no travel required.

It is anticipated that Ms. McAuley would provide an advisory role throughout the review of the key primary data (both country food samples or consumption survey data) and provide suggestions based on lived experience regarding options for communication and engagement of participants in both the survey and the submission of samples.

Ms. McAuley will work with the SNC-Lavalin team to develop, implement and interpret a questionnaire to determine traditional food consumption, food security, and traditional food security. Inclusion of questions regarding barriers to country foods consumption will provide insight into perceptions of quality and preferred dietary items as required to meet the requirements of the TISG. Evaluation of the current status of food security or insecurity in the community considering both commercial and traditional foods can be ascertained through results of the questionnaire.

In order that the food quality results are both statistically valid and scientifically defensible, a minimum of 10 samples should be targeted for each vegetation, game or fish species, with the exception of soils for which a companion sample should be collected with each vegetation sample. Guidance regarding sample number is obtained from Health Canada (2004) (Federal Contaminated Site Risk Assessment in Canada: Supplemental Guidance on Human Health Risk Assessment for Country Foods (HHRA<sub>Foods</sub>)).

Ms. McAuley will work with SNC-Lavalin to both evaluate the results of the food quality assessment and will provide strategies for their communication to the participating communities,

including consideration of possible consumption advisories as required for susceptible populations or life stages.

**Claire McAuley, M. Eng, M.Sc., P.Eng.**

Claire McAuley is a senior scientist with Intrinsic Corp. She has over 30 years of experience and is currently leading biomonitoring and risk assessment projects for First Nations, and both government and private sector clients. Claire is currently working under contract to Health Canada to develop the Federal Draft Guidance for Predicting Impacts of Proposed Projects on Traditional Food Security, and has provided workshops for the HC Regional Environmental Assessment Coordinators on Guidance for Evaluating Human Health Impacts in Environmental Assessment: Country Foods. She was recently invited to present at Health Canada's Country Foods Forum, a multi-stakeholder meeting, to address concerns regarding the information requirements for the inclusion of food quality studies in Impact Assessments and the issuance of consumption advisories and their potential impacts on food security.

Claire has been a co-recipient, with a number of First Nations, of funding under the National and Regional First Nations Environmental Contaminant Programs (FNECP) (2009 – 2020) completing traditional food quality studies (game, fish and plants) with the Wolastoqey Nation in New Brunswick (WNNB), Swan River First Nation, Driftpile First Nation, Sucker Creek First Nation, the Cold Lake First Nations (CLFN) and the Industry Relations Corporation of the Chipewyan Prairie Déné First Nation (CPDFN). These studies have been funded through Health Canada and Indigenous Services Canada. Early in 2018, in conjunction with the Nisga'a Fisheries and Wildlife Department, Claire was the co-recipient of a grant from the BC First Nations Health Authority (FNHA) Environmental Contaminants Program to investigate Steller Sea Lion tissue quality.

Claire is currently working with the GNWT as a Risk Communications Consultant to assist in the interpretation, development, and delivery of the results of various HHRAs and ERAs associated with legacy arsenic contamination around the City of Yellowknife including providing options for delivery approaches for communications with key stakeholders, including the Yellowknives Dene First Nation. Claire has worked with the WNNB to develop methodologies and a proposed approach whereby the Government of New Brunswick (GNB) could work collaboratively with the Nation in the creation and issuance of traditional food advisories (e.g., fish, fiddleheads and moose organs). This approach has facilitated meaningful discussion between the WNNB and regulatory agencies and resulted in review of fish and organ meat consumption advisories.