CHIPPEWAS OF GEORGINA ISLAND FIRST NATION FIXED LINK

Initial Project Description of a Designated Project



April 8, 2022

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ABBREVIATIONS

Abbreviation	Definition
ANSI	Areas of Natural and Scientific Interest
CIB	Canada Infrastructure Bank
CIPS	Cambium Indigenous Professional Services
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
CNWA	*Canadian Navigable Waters Act*
DDC	Drone Delivery Canada Corporation
DFO	Fisheries and Oceans Canada
DPD	Detailed Project Description
EASR	Environmental Activity and Sector Registry
EC	Electrical conductivity
ECA	Environmental Compliance Approval
ECCC	Environment and Climate Change Canada
ELC	Ecological Land Classification
END	Endangered
EPA	*Environmental Protection Act*
ESA	Environmental Site Assessment
ESDC	Employment and Social Development Canada
FAA	*Fisheries Act* Authorization
GBA	Gender Based Analysis
GHG	Greenhouse Gas
GIFL	Georgina Island Fixed Link
GIFN	Chippewas of Georgina Island First Nation
GTA	Greater Toronto Area

Abbreviation	Definition
ha	Hectare
IAA	*Impact Assessment Act*
IAAC	Impact Assessment Agency of Canada
ICE	Indigenous Clean Energy
IPD	Initial Project Description
ISC	Indigenous Services Canada
ISET	Indigenous Skills and Employment Training
LIO	Land Information Ontario
LSFAU	Lake Simcoe Watershed
LSRCA	Lake Simcoe Region Conservation Authority
MBCA	*Migratory Birds Convention Act, 1984*
MECP	Ministry of the Environment, Conservation and Parks
MNO	Métis Nation of Ontario
MOU	Memorandum of Understanding
MP	Member of Parliament
MPP	Member of Provincial Parliament
MTO	Ministry of Transportation Ontario
NDMNRF	Ministry of Northern Development, Mines, Natural Resources and Forestry
NFP	Non-For-Profit
NHIC	Natural Heritage Information Centre
NRCan	Natural Resources Canada
PSW	Provincially Significant Wetland
PAHs	Polycyclic Aromatic Hydrocarbons
PHCs	Petroleum Hydrocarbons

Abbreviation	Definition
PPE	Personal Protection Equipment
PTTW	Permit to Take Water
RLSC	Rescue Lake Simcoe Coalition
ROW	Right-of-way
RSFD	Resource Stewardship and Facility Development
SACC	Strategic Assessment of Climate Change
SAR	Species at Risk
SARA	*Species at Risk Act*
SUV	Sport-Utility Vehicles
SWH	Significant Wildlife Habitat
TC	Transport Canada
THR	Threatened
VOC	Volatile Organic Compounds
VPR	Voluntary Project Review
WAGE	Women and Gender Equality
WSP	WSP Canada Inc.
WTFN	Williams Treaty First Nations

PART A – General Information

Project Overview

The Chippewas of Georgina Island First Nation (GIFN) is proposing a fixed link to connect Georgina Island to the mainland in the Town of Georgina, Ontario (the Project). Currently, Georgina Island is accessible solely by the Aazhaawe Ferry during the spring, summer, and autumn months of the year, and by scoot/airboat or ice road during the winter months. The Project is proposed to solve a number of issues the GIFN currently face with regard to accessing the mainland. These include a dated ferry system nearing the end of its service life, lack of viable alternative transportation options, and health and safety concerns. Current methods to access the island are not sustainable and have caused threats to the health and safety of GIFN community members and other island inhabitants (i.e., non-GIFN cottagers).

The proposed Project is considering alternatives that include a bridge and causeway that will provide access from the southwest shore of Georgina Island to the mainland, crossing a distance of approximately 2,800 metres (m). On the mainland, access to the bridge would be from Black River Road. The proposed bridge would span a portion of Lake Simcoe leading to the Sand Islands, where a causeway link would connect to Georgina Island with access to Chief Joseph Snake Road.

This Initial Project Description (IPD) documents the studies, findings, and consultation and engagement undertaken to date as part of the planning process for the Project.

1. PROJECT NAME

The Project's name, type or sector and proposed location.

Project Name:	Georgina Island Fixed Link
Type/Sector:	Transportation (Bridge and Causeway)
Proposed Location:	Georgina Island, Ontario
Municipal Location:	Town of Georgina, Regional Municipality of York (Lower Tier/ Upper Tier)

2. PROPONENT INFORMATION

The proponent's name and contact information and the name and contact information to the primary representative for the purpose of the description of the project.

Chippewas of Georgina Island First Nation (GIFN) Communication Protocol:

Mail/e-mail:	All correspondence to be sent to the **Proponent Contact** Copy the **Primary Representative Contact**
Telephone:	Direct all inquires to the **Proponent Contact**

Proponent:

Chief Donna Big Canoe

Chippewas of Georgina Island First Nation

Proponent Contact

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Chief Executive Officer

Cambium Indigenous Professional Services

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E-mail: m.jacobs@indigenousaware.com

3. PUBLIC AND REGULATORY ENGAGEMENT

A summary of any engagement undertaken with any jurisdiction or other party, including a summary of the key issues raised and the results of the engagement, and a brief description of any plan for future engagement.

Before 2019, the GIFN retained consulting services of Neegan Burnside to complete an alternatives assessment to connect Georgina Island to the mainland. As part of the study various agencies were engaged, and issues pertaining to mitigation of environmental impacts were raised. The results of engagement identified the need for GIFN to undertake additional detailed project planning for a fixed link (Neegan Burnside, 2008).

In the fall of 2019, WSP Canada Inc. (WSP) was retained to develop a Project Plan and identify a design, and construction plan for a fixed link. Initial engagement started with the GIFN Chief and Council, followed by the GIFN community, and then other parties. Consultation with regulatory and government agencies was initiated by the proponent in the fall of 2020 and was

conducted with a number of federal, provincial, and municipal agencies that have jurisdiction over portions of the proposed Project location. Engagement was also broadened to the mainland community, and community interest groups, and other Indigenous communities, as discussed below and in **Section 4. Indigenous Engagement**.

Public Engagement

Regional Citizens – Open Meeting – October 5, 2021

This meeting was the first Introduction to the Project for the mainland Lake Simcoe community at large. The intent of the meeting was to bring the greater mainland Lake Simcoe community information about the Project, from a First Nation lens, from the conception of the Project to the submission of the Draft IPD to the Impact Assessment Agency of Canada (IAAC). See **Appendix F** for meeting notes and summary of questions asked and feedback collected during this meeting.

Table 1 Summary of Public Engagement Events

Event	Date	Attendance	Topics Presented
Regional Citizens - Open Meeting	October 5, 2021	61 participants	Inform the greater Lake Simcoe community about the Project, from a First Nation lens, rom its conception through to the submission of the Draft IPD to IAAC.

Community Interest Groups

Rescue Lake Simcoe Coalition (RLSC) – April 22, 2021

On April 22, 2021, Cambium Indigenous Professional Services (CIPS) introduced the Project to a representative of the Rescue Lake Simcoe Coalition (RLSC) to discuss details of the Project, aspects of interest, processes for formal engagement and next steps. RLSC suggested the Project promote reconciliation and protect the environment on the whole. During this conversation it was concluded that GIFN will formally engage the RLSC and parties having the same Lake Simcoe protection goals as the community. RLSC did offer to promote meetings and inform its members of any relevant engagements to assist the community. With some technical details provided during this conversation, RLSC expressed interest regarding impacts and design aspects of the Project with specific interest on impacts to Lake Simcoe and the Lake Simcoe Watershed. CIPS iterated that engagement will be ongoing with RLSC to find acceptable mitigation measures and to ensure project changes will protect the lake.

Non-for-profit (NFP) Organizations – July 22, 2021

To follow up on this initial conversation with the RLSC, on July 22, 2021, CIPS met with non-for-profit (NFP) organizations with an interest in protecting Lake Simcoe, based on the list provided by IAAC on March 3, 2021 (see **Appendix F** for a copy of this list). CIPS presented a project introduction that included the Project background and understanding prior to the official IAAC

process being initiated. This meeting also served as the initial request for professional, invested eyes to join the GIFN's lens to protect Lake Simcoe going forward.

The following project NFP organizations were present or received access to the recorded presentation:

- Rescue Lake Simcoe Coalition
- Friends of Strawberry Island
- Carden Field Naturalists
- South Lake Simcoe Naturalists
- Ontario Water Centre
- North Gwillimbury Forest Alliance
- AWARE Simcoe
- Lake Simcoe Association
- Nature Barrie
- Orillia Naturalists Club
- The Ontario Headwaters Institute
- Windfall Ecology Centre
- Lake Simcoe Watch
- Save the Maskinonge
- Ontario Rivers Alliance
- Ecojustice
- Sail Georgina
- Ontario Water Centre

At the outset of this session, it was identified to the participants that the GIFN was looking for collective input from the organizations and that as each individual organization was made aware of project activities, or if individual organization had a particular concern, they could provide feedback directly to the Georgina Island Fixed Link (GIFL) Secretariat. As part of the process, organizations could remain in the collective or receive presentations as individual organizations. For that reason, the issues raised were assumed to be from the collective participants rather than their individual organizations. One individual response from the RLSC was received following the presentation.

For the most part, the response to the Project was positive as it was a positive and safe initiative that should benefit the local First Nation community. Similarly to engagement with the GIFN members, a need to protect the lake environment was identified as paramount. The fact that the presentation and directive from the GIFN community to protect the lake was evident in the presentation was well received.

During the presentation and discussion, the participants expressed concern about the impacts this project may have to individual landowners on the lake and such impacts might be mitigated. Impacts to views, land values, and to the construction of a nearby infrastructure project were identified as concerns. The GIFL Secretariat noted the concern and expressed that, as with all significant infrastructure projects, there will be both positive and negative impacts to the community. GIFN will include presentations to the public at large (Indigenous and non-Indigenous) to ensure that information is available in a transparent manner. Also, the community has voluntarily initiated the IAAC process, which will allow for a non-Indigenous review of impacts to ensure that voices wishing to protect the lake are heard throughout the process.

Also during the presentation, it was acknowledged that the current diesel ferry system poses an environmental hazard to the lake. Having a large boat, spewing black smoke, and carrying large trucks back and forth, is a concern, especially as the ferry ages. The potential for accident and an environmental catastrophe, and acknowledgment that a fixed link would significantly reduce that risk, was noted. It was also noted that the short-term construction phase may pose a similar risk and that partners should be made aware of the potential impacts on an ongoing basis.

The primary outcome from this session was that information needs to be shared and those that want to protect the lake should be included in the process. The GIFL Secretariat will be

developing an Environmental Review Team made up of Lake Simcoe knowledge holders to review project scope for environmental practice to make sure the studies are being conducted in a way that is acceptable to those wishing to protect the lake. Also, the Environmental Review Team will review all final versions of the studies to ensure that areas of concern are effectively considered during the Project decision making processes of the Proponent (GIFN).

The GIFL Secretariat has also opened multiple lines of communication. The fixed link website, subscription to update opportunities and direct email address opportunities are available to those requesting information. In addition, the IAAC process, which is familiar to the some of the NFP participants, is also being voluntarily initiated to allow for direct, formal inputs into the Project.

See **Appendix F** for meeting notes with the NFP organizations.

Summary of Community Interest Group Engagement

A summary of the meetings with the regional public and community interest groups to date is provided in **Table 2**.

Table 2 Summary of Community Interest Group Consultation

Event	Attendance	Date	Topics Presented
Rescue Lake Simcoe Coalition (RLSC)	1 representative	April 22, 2021	Introduction to the Project, aspects of interest, processes for formal engagement and next steps.
Non-for-profit (NFP) Organizations: • RLSC • Carden Field Naturalists • South Lake Simcoe Naturalists • North Gwillimbury Forest Alliance • Lake Simcoe Association • Windfall Ecology Centre • Lake Simcoe Watch • Rivers Alliance, • Sail Georgina • Ontario Water Centre	10 representatives	July 22, 2021	Introduction to the Project, including project background and understanding prior to the official IAAC process being initiated.

Federal Agencies

Meeting #1 - Canadian Infrastructure Bank (CIB) and Impact Assessment Agency of Canada (IAAC) - October 5, 2020

On October 5, GIFN engaged the Canadian Infrastructure Bank (CIB) and held an introductory meeting with IAAC to discuss the Project and next steps. The outcome of this meeting was the identification that the fixed link falls under the designated project list under the federal *Impact Assessment Act* (IAA) because it is proposed to contain a contiguous causeway greater than 400 metres and crosses Lake Simcoe. The result of this meeting led to the initiation of this IPD by the GIFN. Following that initial discussion, GIFN continued to work with the CIB as a potential funding partner. In August 2021, the CIB issued a Memorandum of Understanding (MOU) for Chief and Council's consideration intended to offer 'Accelerator' project loan support for the upcoming development and study costs related to the Project. The MOU for financial support was signed by Chief and Council in mid September 2021.

Regulatory Agencies

Meeting #1 – Ministry of the Environment, Conservation and Parks (MECP) – March 9, 2021

On March 9, 2021, the Project Team met with the MECP to determine what is required for the provincial environmental assessment (EA) process, if a provincial EA is required. The MECP noted that an Individual EA will likely not be required; however, certain Class EA processes may apply. A key question to consider in determining applicability of EA requirements is "proponency" as the provincial *Environmental Assessment Act* generally applies to public sector proponents, with some application to private sector proponents. As well, MECP noted that ownership of the lakebed would be a key consideration in determining whether a Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) Class EA process applies.

The MECP also noted that the Ministry would participate as part of the federal impact assessment process, even in the event no provincial *Environmental Assessment Act* approval is required. MECP will be part of the IAAC review team and will act as the window for all other provincial ministries. Any decision to follow a harmonized federal-provincial EA process requires Minister approval; however, in any EA process, the MECP would support principles of efficient and streamlined review to minimize duplication.

A copy of the meeting notes is included in **Appendix F.**

Meeting #1 – IAAC & MECP – May 12, 2021

On May 12, 2021, CIPS, WSP and the IAAC met with the MECP to coordinate EA/impact assessment requirements for the fixed link. MECP confirmed that an Individual EA will likely not be required; however, certain Class EA processes may apply. MECP also stated that the Municipal Class EA is not applicable, however, the NDMNRF Class EA may apply. MECP committed to providing reviews of submitted information pertaining to applicable provincial *Environmental Assessment Act* requirements and will provide comment according to their policy areas.

A copy of the meeting notes is included in **Appendix F.**

Meeting #1 – Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) – May 26, 2021

On May 26, 2021, WSP met with the NDMNRF to discuss provincial EA processes and requirements, including potential works on shorelands and lake bottom under NDMNRF jurisdiction. The NDMNRF also confirmed Resource Stewardship and Facility Development (RSFD) Class EA requirements for lakebed and shoreline areas. The NDMNRF stated that internal discussions were needed to confirm the consultation process including the Duty to Consult. The NDMNRF requested a copy of the Consultation List to confirm and/or update as required. The NDMNRF clarified that construction activities on Crown Land (including lakebed) will require a work permit under the *Public Lands Act*. Permanent/long term bridge footings, abutments, piers, and other occupations of Crown land will require easements, leaseholds, or tenure (occupational versus operational). A purchase would relieve NDMNRF of the requirement for long-term reviews going forward. The NDMNRF stated that there are numerous potential authorizations under its mandate, including under the *Public Lands Act, Fish and Wildlife Conservation Act*, or *Lakes and Rivers Improvements Act*. See **Appendix F** for meeting notes with the NDMNRF.

Meeting # 1 - Lake Simcoe Region Conservation Authority (LSRCA) – August 11, 2021

On August 11, 2021, WSP and CIPS met with the Lake Simcoe Region Conservation Authority (LSRCA) to introduce the Project and provide an overview of the Project status to date. It was noted that the proposed project will follow the federal impact assessment process as the Project is on the list of Designated Projects. As well, Lake Simcoe is navigable waters and will require specific federal permitting requirements. As part of this process, GIFN will be consulting with multiple groups as part of the draft IPD process. The LSRCA confirmed that it does not have jurisdiction for this Project but can participate to provide technical feedback and advice as needed. The LSRCA expressed general support for the Project and provided several recommendations to ensure impacts/risks to Lake Simcoe are minimized and/or mitigated, specifically since Lake Simcoe has portions with hydromorphological hazards. The LSRCA communicated that a Voluntary Project Review (VPR) process may be required and noted that they will need to discuss with the Board of Directors to identify what level of support could be provided to Project. GIFN will be presenting to the LSRCA Board in Fall of 2021 as a follow up. See **Appendix F** for meeting notes with the LSRCA.

Meeting #2 – LSRCA Board of Director's Meeting – September 24, 2021

CIPS provided the Board with an overview of the proposed Project and reviewed the timeline dating back pre-2008 where discussions were held and federal commitments were made; however, nothing happened at that time. In 2018, a formal resolution was made by GIFN Band Council to complete a fixed link by 2030.

An overview of the Project timeline was provided, and CIPS noted that it is hoped a community impact assessment will be completed by end of 2024, with a bridge operational by the end of 2026. Seeking input from all stakeholders including the LSRCA and its scientific knowledge of the lake will be critical to the Project's success.

It was resolved that the presentation regarding the Project be received for information and that a report be brought back to the Board once more information becomes available. See **Appendix F** for meeting notes with the LSRCA.

A summary of feedback collected during the various agency consultation meetings to date, and how the Project Team will be addressing the feedback, is included in **Appendix F**.

Table 3 Summary of Regulatory Agency Consultation

Agency	Date	Purpose
Canada Infrastructure Bank (CIB) and Impact Assessment Agency of Canada (IAAC)	October 5, 2020	To have an introductory Project meeting. The outcome of this meeting was the identification that the Project falls under the *Physical Activities Regulations* designated project list under the federal *Impact Assessment Act* (IAA).
Ministry of the Environment, Conservation and Parks (MECP)	March 9, 2021	To determine what is required for the provincial environmental assessment (EA) process, if a provincial EA is required.
IAAC and MECP	May 12, 2021	To discuss the need for coordinating federal-provincial impact assessment/EA requirements for the Project.
Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF)	May 26, 2021	To discuss EA processes and requirements, including potential works on the shorelands and lake bottom under NDMNRF jurisdiction.
Lake Simcoe Region Conservation Authority (LSRCA)	August 11, 2021	To introduce the Project and overview on the current status.
LSRCA Board of Directors	September 24, 2021	To provide an overview of the proposed Project and review the timeline dating back to pre-2008 when discussions were held and federal commitments were made.

Elected Officials

Member of Parliament (MP) for York Simcoe, Scot Davidson – August 31, 2021

On August 31, 2021, Chief Donna Big Canoe (assisted by CIPS) provided a Project introduction presentation to the Member of Parliament (MP) for York-Simcoe, Scot Davidson. This 30-minute presentation was provided as a courtesy to the MP to provide the required information to properly direct communications to the First Nation from constituents as the Project becomes public knowledge. During this meeting, MP Davidson expressed strong support for the Project and was supportive of the First Nation determining their own path for the future. MP Davidson has also offered to assist the GIFN leadership when requested. See **Appendix F** for meeting notes with MP Davidson.

Town of Georgina Mayor and Council – November 17, 2021

On November 17, 2021, a meeting was held with the Town of Georgina Mayor and Council to introduce and provide an overview of the Project. The Town inquired whether the properties identified on the Project study area as potential mainland landing areas are owned by the GIFN. CIPS confirmed that the properties are currently owned by the GIFN. They also explained that the properties are not part of the community's First Nation lands at this point. All of the properties are going through the Additions to Reserve process through the federal government and there is no distinct timeline on when that might occur have been provided.

It was acknowledged by the Town that a large quantity of fill would be required, and the Town inquired about the composition and source of the fill. The fill source has not been determined yet, although this question has been raised a number of times across the engagement sessions. It is assumed that the type of fill would be coming from the north along the highway and that truck traffic will be higher during the construction phase of the Project. LSRCA inquired about the same issue and raised truck volume as a project issue in the Region. The volume of fill required has spurred brainstorming by the community about potentially owning their own quarry, but conversations have not progressed. See **Appendix F** for meeting notes with the Town.

Member of Provincial Parliament (MPP) for York-Simcoe – Caroline Mulroney – December 3, 2021

The GIFN have made initial contact with Caroline Mulroney's office (Member of Provincial Parliament (MPP) for York-Simcoe) to schedule a similar presentation as that provided to MP Davidson. A meeting with held on December 3, 2021, that provided information to the MPP's office pertaining to how constituents can engage GIFN as well as to determine what the Project relationship between GIFN Council and the MPP's office would be moving forward. GIFN also inquired about the MPP's project role as the current Minister of Transportation for the province of Ontario. See **Appendix F** for meeting notes with MPP Mulroney.

Future Engagement with Regulatory Agencies and the Public

The GIFN Chief and Council recognize that additional consultation with government agencies and the public will be required for portions of the Project that are not solely located on reserve lands. As a result, the Fixed Link Engagement Plan (**Appendix E**) was finalized and approved by Council in February 2022, for implementation. Regularly scheduled engagement sessions will be provided as part of the GIFN and greater Lake Simcoe community consultation. The frequency of these dates has been determined through initial discussions and presentations by the Georgina Island Fixed Link (GIFL) Secretariat Team, as outlined in **Table 4** below.

Table 4 Public, Community Interest Groups and Regulatory Agency - Future Engagement Schedule

Engagement Stakeholders	Frequency	Notes
Government Agencies	• Updates are to be offered on a quarterly basis, depending on Project progress and need. • Presentations to government agencies will	• GIFL Secretariat has opened a line of communication through a Project website (www.gifixedlink.com),

Engagement Stakeholders	Frequency	Notes
	be conducted as desired (either when desired or according to a fixed schedule).	email contact and presentations.
Public and GIFN and greater Lake Simcoe Community Groups	• Public presentations will be conducted to solicit input regarding potential impacts during the impact assessment process, as required. • Organizations currently protecting Lake Simcoe may request presentations to their respective groups given the shared interest with the GIFN community of Georgina Island. • A website has been developed to share information, reports, and updates on an ongoing, real-time basis. • General public can subscribe for updates • Facebook pages has been developed to support general public engagement.	• GIFL Secretariat has opened a line of communication through the website, email contact and presentations.

4. INDIGENOUS ENGAGEMENT

A list of the Indigenous groups that may be affected by the carrying out of the project, a summary of any engagement undertaken with the Indigenous peoples of Canada, including a summary of key issues raised and the results of the engagement, and a brief description of any plan for future engagement.

The Government of Canada has a duty to consult, and where appropriate, accommodate Indigenous groups when it considers conduct that might adversely impact potential or established Aboriginal or treaty rights. The nature of this Project will trigger this obligation of the federal government. As the Project proponent, GIFN will need to execute the Fixed Link Engagement Plan to help ensure that the Project does not impact GIFN rights, or the rights of other Nations. The GIFN is signatory to the Williams Treaties and its peoples are recognized as Indigenous people of Canada. As such, the GIFN will respect the Nation to Nation relationship with the federal government of Canada and request the same from the federal government of

Canada. This relationship is documented by “Characteristics of a Nation-to-Nation Relationship - Discussion Paper (February 2017) – Submitted to the Institute on Governance (Marcia Nickerson).

Indigenous communities considered to have real or asserted interactions with the proposed study area for the Project will be engaged. As the Duty to Consult and Accommodate requirement is the responsibility of the federal government, the IAAC provided a letter on February 26, 2021, that identified Indigenous groups that may be impacted by the Project. IAAC identified the Indigenous groups listed below based on information available to the Crown from the Aboriginal and Treaty Rights Information System, and from publicly available information. The following constitutes the anticipated initial stakeholder list:

- Alderville First Nation
- Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama
- Curve Lake First Nation
- Hiawatha First Nation
- Huron Wendat Nation
- Métis Nation of Ontario – Region 7
- Mississaugas of Scugog Island First Nation

A copy of these letters is included in **Appendix F**.

Engagement Principles

GIFN will maintain a set of principles defining core values underpinning interactions with stakeholders.

These principles are as follows:

- GIFN is Committed to understanding, engaging, and identifying stakeholders early in the Project development process;
- GIFN will engage with Integrity by completing engagements in a manner that fosters mutual respect and trust;
- GIFN will engage with Respect ensuring the rights, cultural beliefs, values, and interests of stakeholders are recognized;
- GIFN will remain Transparent throughout engagements by ensuring concerns are responded to in a timely, open, and effective manner;
- GIFN will encourage Inclusiveness by encouraging and supporting broad participation by appropriate stakeholders.

The end result of the application the engagement principles is to foster trust through open and meaningful dialogue that respects and upholds the core beliefs, values, and opinions of the GIFN and its membership.

In order to build trust, engagements will be managed in a consistent, uniform manner to establish a ‘brand of information dissemination and stakeholder interaction’ that the GIFN community can predict, understand, and rely upon.

GIFN Community Engagement

In the fall of 2019, WSP Canada Inc. (WSP) was retained to develop a Project Plan for the GIFN and identify a design, and construction plan for a fixed link. On November 4, 2019, WSP

engaged the GIFN Chief and Council and presented its understanding of the background context, engineering options and work completed to date. The objective of the meeting was also to hold a visioning workshop with GIFN leadership to determine project need, project challenges issues, and a method for engagement within the GIFN community, as discussed below.

GIFN Community Holiday Bazaar – December 3, 2019

On December 3, 2019, a pop-up booth for the Project was set up at the Georgina Island Annual Community Holiday Bazaar to enhance outreach with members and cottagers. Present at the booth were representatives from the Consultant Team alongside members of the Georgina Island First Nation Economic Development Department. The project constraints, opportunities, and schedule were presented to approximately 60 attendees. Members of GIFN and cottagers present at this pop-up event were presented with a study area Map and feedback pertaining to project issues, concerns and opportunities were collected. This pop-up event was also used to advertise a community-wide workshop. The event resulted in the identification of key issues and concerns that the community wanted to address as part of the Fixed Link Study, including land protection, security, route selection, tax impacts, and effects on species.

A copy of the display materials is included in **Appendix F**.

GIFN Community Visioning Workshop – January 13, 2020

A Community Visioning Workshop was facilitated by the Project Team at the Georgina Island Community Centre on January 13, 2020. Live questions were asked using Clicker Technology during a formal presentation, after which the 31 attendees were divided into 5 facilitated focus groups and asked to discuss the benefits and constraints in greater detail. More specifically, the groups focused on discussion about the potential positives, objections, enhancements, and remediation related to the Project, as well as other comments and suggestions. Panels around the room were provided to describe technical aspects of the Project plan and schedule. GIFN community members expressed a strong preference for continued communication by email and continuing to hold community meetings and events regarding the Project.

Key issues raised in this meeting related to the risks associated with the current Aazhaawe Ferry and inclement weather that has resulted in loss of life within the community. These issues include safety, access to jobs, impacts on the natural environment, access, and traditional knowledge. Youth, elders and overall GIFN community health and wellbeing (quality of life) were also discussed and matters pertaining to the historical importance of pedestrian footpath from the Mainland to the island were discussed.

The results of the Community Visioning Workshop informed Chief and Council of the vision and objectives of the Fixed Link Study and the preferred alternative for undertaking this project on behalf of the community. As a result, 73% of participants were interested in seeing GIFN construct a combination of a causeway and bridge, and 63% were interested in including a multi-use path or other form of pedestrian connection as part of the Fixed Link Study. Furthermore, 63% of meeting participants saw an urgent need for a fixed link within the next year, though most understood the Project will likely take from 5 to 10 years to complete. Participants identified water pollution, fish habitat, and wildlife habitat as important environmental features to be protected. The comments from this workshop also indicated that the south-western shoreline of Georgina Island is the preferred location, consistent with previous studies and that the quality of life, healthcare, and job creation were cited as the top socio-economic concerns in the community which the fixed link is proposed to address. Other

comments discussed: duration of construction, the duty to consult, who will complete the EA, other environmental concerns, access and security, and traffic expectations.

The outcome of this meeting provided WSP and the GIFN Chief and Council with next steps to engage the GIFN community in the Fixed Link Study and to select a preferred alternative means for carrying out the technical investigation and future engagement that would be required.

A copy of the Community Visioning Workshop Summary is included in **Appendix F**.

GIFN Youth Workshop – November 9, 2021

A workshop was held with Georgina Island youth on November 9, 2021, and was facilitated CIPS. Feedback was collected from the workshop participants around three main area: whether the presentation was informative; main fears about the fixed link project; and potential benefits from the Project. 11 attendees participated in the workshop and provided their feedback and submitted questions to the facilitators. Some of the key concerns that were raised included: fear of cottagers being able to come and go more as they please; concerns that development that may happen after things are easier to bring over; lessened security for the community; and job loss due to the ferry being discontinued. See **Appendix F** for meeting notes and summary of feedback collected during this workshop.

Summary of GIFN Community Engagement

Table 5 Summary of GIFN Community Engagement Events

Event	Date/time	Attendance	Topics presented
GIFN Community Holiday Bazaar	December 3, 2019	60 participants	Project constraints and opportunities, as well as schedule and Project study area map.
GIFN Community Visioning Workshop	January 13, 2020	31 participants	Potential positives, objections, enhancements, and potential mitigation measures related to the Project.
GIFN Youth Workshop	November 9, 2021	11 participants	General project overview and Questions and Answers portion to respond to GIFN youths' questions/concerns about the Project.

Williams Treaty First Nations (WTFN)

Meeting #1 – July 17, 2021

On July 15, 2021, Chief Donna Big Canoe met with the Williams Treaty First Nations (WTFN) Chiefs to introduce the Project and inform them of the community's formal Band Council Resolution initiating the GIFN's intent to construct a fixed link. Following up from the meeting, Chief Big Canoe reintroduced the Project on August 26, 2021, requesting a Letter of Support from each community. As a result of this meeting, Georgina Island First Nation has received Letters of Support from each of the WTFN Chiefs on behalf of the following communities:

- Curve Lake First Nation (August 10, 2021)
- Chippewas of Rama First Nation (September 13, 2021)
- Mississaugas of Scugog Island First Nation (September 13, 2021)
- Alderville First Nation (September 13, 2021)
- Hiawatha First Nation (September 15, 2021)
- Beausoleil First Nation (September 15, 2021)

In the Letters of Support, the WTFN confirmed that they will follow an internal, agreed-to process for the Consultation to ensure that indigenous consultation is occurring. As well, some First Nations expressed interests in mitigating impacts to Lake Simcoe or the environment in general. GIFN informed all communities that regardless of the internal process, the IAAC will be contacting their consultation department on this process and that federal funds are available to support their consultation efforts pertaining to this Project.

See **Appendix F** for a copy of the Letters of Support received from the WTFN.

Métis Nation of Ontario (MNO)

Meeting #1 – August 12, 2021

On August 12, 2021, GIFN met with the Métis Nation of Ontario (MNO) to introduce the Project; to request project support; and to identify key consultation plans that may be required moving forward. The MNO expressed interest in any processes that would require archaeological studies or impacts as well identifying any potential socio-economic benefits that may be realized by the MNO citizens as a result of such a large infrastructure project. MNO was informed that a procurement plan is in development (completion Fall 2021) that does place a priority on Indigenous participation. GIFN also reiterated their equal concern for any potential archaeological and environmental impacts. The MNO will be preparing an MOU for GIFN Council's review and negotiation in the Fall of 2021 that details the formal relationship moving forward. Of particular note was the acknowledgement by GIFN and MNO of the unique opportunity for Indigenous people to be on both the Proponent and consultation sides of this Project to show how Consultation from an indigenous lens can occur. See **Appendix F** for meeting notes with the MNO.

The meeting was attended by several MNO representatives. Identity factors were not collected for this meeting. GIFN recognizes that over 120,000 people identify as Métis in Ontario, and any future engagement activities will apply GBA+ processes ensure that diverse perspectives are considered to best assess which sub-group is likely to be most impacted by any given issue.

Huron Wendat First Nation

Meeting #1 – November 30, 2021

Throughout the summer of 2021, GIFN has initiated, via email communications, initial consultation procedures required with the Huron Wendat community. A project presentation was shared with the community on November 30, 2021, and initial discussions have specifically focussed on archaeology support and Huron Wendat participation during development of the Stage I Archaeological Assessment. During this meeting the Huron Wendat First Nation inquired about whether the fixed link will travel through the Sand Island. GIFN explained that the study area travels east of the Sand Islands. The community specifically asked to stay 'inside' the sand Islands for this Project. It was noted to the Huron Wendat Nation that the LSRCA also commented on this and that specific environmental concerns would be evaluated along proposed route. The Huron Wendat First Nation noted support to the Project from a community based lens. The first nation emphasized that economic participation by the Nation would be desired and time would be committed to discussion if the GIFN were in need of economic partners, suppliers, or human resources (skilled or training programs). See **Appendix F** for meeting notes with the Huron Wendat First Nation.

This meeting was attended by two representatives of the Huron Wendat Nation, and identity factors were not collected for this meeting. Future engagement activities will apply GBA+ processes ensure that diverse perspectives are considered to best assess which sub-group is likely to be most impacted by any given issue.

A meeting with Yändata has been planned prior to February 2022 as well as scheduling of initial project update meeting prior to March 31, 2022, with Huron Wendat Nation and GIFL Secretariat. GBA+ processes will be applied during these engagements to ensure that diverse perspectives are considered to best assess which sub-group is likely to be most impacted by any given issue.

It is often identified through communications that other Indigenous communities or groups may have an ancestral or treaty tie to locations across Canada that have only been documented through the community's local oral traditions. If additional communities or organizations do get added to the above list, this will be noted in final reports and these additional stakeholders will receive a copy of the relevant project documents.

Consultation with Other Indigenous Communities and Organizations

A summary of feedback collected during the Indigenous consultation and engagement meetings to date, and how the Project Team will be addressing the feedback, is included in **Table 6** below.

Table 6 Summary of Non-GIFN Indigenous Engagement

Indigenous Group	Attendance	Date	Issues Raised
Williams Treaties First Nations: • Curve Lake First Nation • Hiawatha First Nation	8 representatives	July 15, 2021	Overall, the communities were in support of the Project, but shared a general concern about potential environmental impacts associated that

Indigenous Group	Attendance	Date	Issues Raised
• Alderville First Nation • Beausoleil First Nation • Chippewas of Georgina Island First Nation • Chippewas of Rama First Nation • Mississaugas of Scugog Island First Nation			may occur as a result of the Project.
Métis Nation of Ontario (MNO)	6 representatives	August 12, 2021	Overall, the Project was received favourably, particularly with regard to the economic benefit this Project could have to Georgina Island, the Indigenous community, and the regional economy.
Huron Wendat First Nation	2 representatives	November 30, 2021	Primary concerns pertain to archaeology with environmental and technical issues outside of archaeology entrusted to GIFN and the Williams Treaty First Nations as part of the environmental impact evaluation. The First Nation also noted that they believe that GIFN and their Williams Treaties counterparts will take the required environmental care of the site and would trust that stewardship to the Proponent and their Treaty allies.

Future Engagement with Indigenous Communities

The GIFN Chief and Council recognize that additional consultation with Indigenous leaders will be required for many portions of the Project that are not solely located on reserve lands. As a result, the Fixed Link Engagement plan (**Appendix E** of the IPD) was finalized and approved by Council in February 2022 for implementation. Regularly scheduled engagement sessions will be provided. The frequency of these dates has been determined through initial discussions and presentations by the GIFL Secretariat Team, as outlined in **Table 7** below.

Table 7 Indigenous Communities Future Engagement Schedule

Engagement Stakeholders	Frequency	Notes
GIFN Members	• GIFN community update meetings on a quarterly basis. • Specific engagements on community segments and populations, reports, community input will be scheduled as required.	• GIFN community meetings will be held virtually or in person. • GIFN community will be given notice of opportunities for project-based inputs as they arise through project development.
Williams Treaties Allies	• Updates to Williams Treaties Chiefs will be provided at scheduled meetings of the Williams Treaties Communities. • Formal duty to consult requirements to be developed on a community-by-community basis.	• The Chiefs are in consistent contact on a regular basis and letters of support from the Project have been provided. • If required, GIFN will request special or ad hoc meetings with Williams Treaty First Nations Chiefs.
Indigenous Leadership	• Updates are to be offered on a quarterly basis, depending on Project progress and need. • Presentations will be conducted as desired (either when desired or according to a fixed schedule). • Duty to consult activities will be conducted by the GIFN community and IAAC for the Huron Wendat Confederacy and the Métis Nation of Ontario (MNO).	• GIFL Secretariat has opened a line of communication through a Project website (www.gifixedlink.com), email contact and presentations.

5. OTHER RELEVANT STUDIES AND PLANS

Any study or plan, relevant to the project, that is being or has been conducted in respect of the region where the project is to be carried out, including a regional assessment that is being or has been carried out under section 92 or 93 of the Act or by any jurisdiction, including by or on behalf of an Indigenous governing body, if the study or plan is available to the public.

No regional environmental assessments have been carried out under section 92 or 93 of the Act in relation to the Project or its study area.

Neegan Burnside was retained by GIFN to complete a Preliminary Evaluation of Engineering and Environmental Alternatives (2008) as a first step toward realizing a fixed link between their island community and the mainland. The report focuses on a preliminary evaluation of routes and alternative crossing methods to begin to answer the question of how to provide a more convenient and consistent mode of travel for the residents and their visitors.

In 2020, the GIFN retained WSP to complete a Project Plan, considering the regulatory and legal parameters in place for major infrastructure projects in Canada that have the potential to impact the environment. The Project Plan was developed in 2021 to identify the applicable planning process, engagement process and environmental assessment guiding principles of the GIFN and community in order to construct a fixed link. This study was funded by and owned by the GIFN.

In addition, a Fixed Link Socio-Economic Study was completed in 2019, which described the health, social and economic context in the region where the Project is located, based on information that is available to the public or derived from any engagement undertaken.

In addition to the aforementioned studies, WSP will be completing detailed existing conditions and impact assessment studies in 2022. The anticipated timeline for completing these studies is for field investigations to take place during Spring/Summer 2022, with reporting to be completed during the fall 2022. Results of these studies will be included in the Detailed Project Description (DPD) document. Refer to **Sections 14. Description of the Physical and Biological Environment** and **15. Description of the Health, Social and Economic Context** for more detail on future studies.

As well, WSP is preparing a recommended cumulative effects assessment (CEA) framework, which will be included in the DPD, once developed.

6. SECTION 95 STRATEGIC ASSESSMENTS

Any strategic assessment, relevant to the project, that is being or has been carried out under section 95 of the Act.

The only relevant strategic assessment for the Project is the Strategic Assessment of Climate Change (SACC)(ECCC 2020[1]). Under SACC, any project undergoing a federal impact assessment will be required to provide an estimate of the Project's GHG emissions. The proposed bridge and causeway GHG emissions have been estimated to result in a decrease of 15% and shown to be less than the expected GHG emissions from the current ferry operations; thus, supporting the goals of Canada's Climate Action Plan. Further information is provided in **Section 23. Greenhouse Gas Emissions**.

No other strategic environmental assessments have been completed in relation to the project or study areas.

[1] ECCC. 2020. Strategic Assessment of Climate Change. Accessed March 2022. Available at https://www.canada.ca/en/services/environment/conservation/assessments/strategic-assessments/climate-change.html

PART B – Project Information

7. PURPOSE AND NEED OF THE PROJECT

A statement of the purpose of and need for the project, including any potential benefits.

The GIFN community currently relies on the Aazhaawe Ferry, which operates from the mainland to Georgina Island and has been funded by Indigenous Services Canada (ISC) to date. The ferry can carry up to 18 cars and there is cabin space for 50 walk-on passengers. The Aazhaawe Ferry's operational life cycle is coming to an end and the current transportation options have caused several health and safety issues for the community.

These health and safety issues include hazardous conditions associated with the ferry, scoot (air boat), and ice road operations, which include:

- Unexpected operational problems that may cause the ferry to be out of operation for long periods of time.
- During the freeze and thaw months of January to March, the ferry is winterized at the Virginia Beach site. So, transportation is limited during this time to using scoots (air boats), which as 12 passenger air-propelled vehicles, snowmobiles, or personal car across the ice. These methods of transportation has resulted in a host of safety issues including:
  - Cars going through the ice;
  - Drowning deaths; and
  - Mental health issues related to these safety issues.
- In addition to ice conditions, wind is an important environmental factor when utilizing the airboat (**Appendix G**). When there are strong winds, the airboat is no longer a safe and viable option.
- According to a GIFN community health survey completed in November 2021, the inadequacy of the current transportation options has the potential to contribute to stress-related disorders and other mental health issues (**Appendix G**).

As well, inadequate transportation service between the island and mainland has resulted in poor emergency service: emergency travel service is normally provided by the ferry. Medical care is provided on the island via regular visitations from mainland physicians. First responders travelling to and from the island also face the inherent risks associated with travel during winter. Travel to the island varies between the emergency services. Police officers use the Aazhaawe Ferry, their police boats, and the ice road (when operational) to come to the island (**Appendix G**). Firefighters travel to the island to respond to emergencies either on the Aazhaawe Ferry or on their airboats (similar to the scoot) and do not use the ice road. The Island does have a firetruck and pumper but when additional support is needed from firefighters from the mainland, firefighters from the mainland come to the island as additional resources, without equipment or additional trucks.

This presents an opportunity for investment in a safer, more reliable, and cost-effective transportation alternative to allow continuous access from Georgina Island to the mainland. The

GIFN community members engaged in preliminary studies for a fixed link, identified with the following future Vision Statement,

> "Chippewas of Georgina Island First Nation is a responsible and sustainable community that values safety and community health. A fixed link will offer the community with safe passage during all seasons while protecting the environmental, cultural, social and economic future of the community."

The proposed construction of a fixed link would have social and economic benefits to the GIFN community.

8. PROJECT DESIGNATION PER THE PHYSICAL ACTIVITIES REGULATION

The provisions in the schedule to the Physical Activities Regulations describing the project, in whole or in part.

Clause 50 of the Physical Activities Regulations under the IAA provides a description of the proposed undertaking and identifies the rationale for why it is a designated project. Clause 50 includes the "construction, operation, decommissioning and abandonment of a new permanent causeway with a continuous length of 400 m or more through navigable water."

Based on preliminary engineering studies and investigations, and based on the fact that the fixed link is proposed to traverse Lake Simcoe (a navigable body of water) with a permanent causeway of greater than 400 m, the fixed link is a designated project by definition.

9. PROJECT COMPONENTS AND ACTIVITIES

A list of all activities, infrastructure, permanent or temporary structures and physical works to be included in and associated with the construction, operation and decommissioning of the project.

The proposed fixed link will provide a new roadway link connecting existing local roads on the north end of Georgina Island and Black River Road (a local road). Traffic capacity on the fixed link will be impacted by traffic discharge rates on both ends. Given its connections, a lane capacity of a maximum of 400 vehicles per hour is projected, akin to the typical lane capacity for a local road. In addition, the vision is that the fixed link will have enhanced security and controlled access from the mainland, e.g., by using an entrance control such as a guard booth. The entry control will slow down the traffic arrival rates and thus reduce the traffic demand per hour, compared to a free-flow traffic entry to the bridge. The Project design is envisioned to allow the regular passage of vehicles up to Class B (e.g., school purposes bus), to be confirmed through further study. Based on the Project Visioning workshop and other outreach activities, it is proposed that access to the island will be restricted to GIFN community members, leaseholders, and others by permission. The precise method of access is yet to be determined.

The following permanent and temporary structures, and related activities, are expected to be required to construct the fixed link connecting Georgina Island to the mainland:

Permanent structures:

a) Bridge with piers and foundations in the water;
b) Causeway at both ends of the bridge to the shore including sheet piles walls and backfill or rockfill in shallow areas;
c) Culverts may be required below the causeway to allow the water movement; and
d) Re-design of access roads near existing the Aazhaawe Ferry location.

Temporary structures:

a) Temporary cofferdams at each pier for the construction of foundation and piers;
b) Temporary shoring for construction of culverts and causeways; and
c) Temporary barges may be required during construction.

A Transportation Impact Study will be completed to identify the impacts and potential improvements such as left-turn lanes, right-turn lanes, signalization (if warranted) and recommend the lane configurations. Key intersections will include the fixed link at Black River Road, Hadden Road at Highway 48 on the mainland side and the intersection of Chief Joseph Snake Road and Bear Road on the island side. The outcome of the study will include recommended intersection control type and lane configurations at the study intersection as well as recommended storage lengths for exclusive left-turn and right-turn lanes. Once the recommendations from the Transportation Impact Study are accepted by reviewing agencies – Town of Georgina, York Region and Ministry of Transportation Ontario (MTO), the functional and detail design work would need to be completed for the intersection improvements as well as the traffic management plan during construction on the land side.

Preliminary investigations have identified a suitable road network that will be close to the shoreline of Lake Simcoe, in order to accommodate the fixed link. A bridge would be constructed of approximately 3.5 m x 8.0 m and foundations in water of 1200 to 1500 m of approximately 14 m wide in addition to a causeway from each end for a total length of 2830 to 3100 m. A causeway of approximately 1000 m would span from Georgina Island connecting to a bridge structure of 1200 m which spans to another causeway of 500 m to the mainland's shore.

It is conceptualized that access roads near the existing Aazhaawe Ferry location will be re-designed as a rural road with pavement, shoulders, and open ditches with an 18.0 m cross-section and any additional wider grading as required to match existing grades along the length of roadway, both on the mainland and on the island. The Project will require that some roadways will be re-aligned through both pre-disturbed and undisturbed areas, the roadway corridor will require preparation activities generally including removals and site preparations, construction staging and temporary power, earthworks, and subsequent roadworks.

At this time, it is anticipated that underground servicing will be necessary to provide any storm system required to augment the drainage of the rural road and open ditches, and not include watermains or sanitary sewers. Stormwater management considerations may be necessary to address runoff from the road and open ditches, potentially including small roadside pond(s) and pre-treatment to protect downstream waters such as Lake Simcoe.

It is anticipated that aboveground infrastructure would include utility poles with overhead lines to extend electrical power along proposed realigned roadways in order to provide lighting. Temporary and permanent signage, and pavement markings will be required for traffic controls and roadway usage.

Safety and environmental considerations shall be top priorities at all times during the full project and may affect scheduling. Continued engagement and communications to guide and respect all stakeholders will be required as part of the assessment, design, and construction processes.

Decommissioning or abandonment are not anticipated for the proposed bridge and causeways.

The preliminary list of civil engineering drawings and associated deliverables may include:

- Cover Sheet;
- Notes;
- Details;
- Storm drainage plan;
- Stormwater Management Plan, related documents (Functional Design Brief, SWM Report);
- Erosion and Sediment Control Plans;
- Grading Plans;
- Plan and profiles;
- Composite Utility Plans; and
- Intersection Plans.

9.1 Roadwork Component and Activities

A general list of physical activities for the roadworks as follows:

- Earthworks
  - Clearing trees and grubbing;
  - Rock clearing, to be confirmed with geotechnical report;
  - Protect or relocate existing electrical poles and other utilities;
  - Erosion control (e.g., silt fences, sediment pond);
  - Topsoil stripping and disposal;
  - Import soil to fill;
    - Cut to fill: approximate preliminary estimate of 650 m^3;
    - Import to fill: approximate preliminary estimate of 10,400 m^3.
- Road construction
  - Rough grading;
  - Right-of-way (ROW) configuration (approximately 18 m wide), including ditch, shoulder, and stormwater management;
  - Import granular (e.g., for pavement structure and asphalt);
  - Intersection works at Black River Road and Bear Road (e.g., widening, turning lane, stop sign/controls, other signage, and pavement markings);
  - Culvert for existing ditches;
- Fine grading and restorations of disturbed areas with topsoil, seed/sod, additional plantings as deemed appropriate for landscape and ecology;
- Utilities
  - Electrical/streetlighting/transformers/overhead lines (e.g., for intersections and access roads).

In addition to the roadworks on the mainland and island, there are much larger efforts required for the two causeway segments to ramp the road on each approach to the bridge over the water crossing. A preliminary estimate of the total height of the bridge crossing above the water surface at the road centreline at top of asphalt would be approximately 28 m above the water

surface. This height would allow for the pier height above the water to be 20 m and the bridge structure thickness for the balance.

A major part of the earthworks for the causeways and embankments related to the water crossing will involve the sourcing and placement of suitable fill via trucking on land and barges on water to place it. This process is a multiple step handling operation that requires substantial project controls and monitoring. The rough order of magnitude estimate of the earthworks required for the causeways is 4.5 million cubic metres (m^3), of which some 2.5 million m^3 would be below water surface to fill from existing bottom of Lake Simcoe and leaving a navigable channel in the waterway under the bridge spans. Additional information regarding the earthworks and fill will be provided in the DPD.

9.2 Bridge and Causeway Component and Activities

A high-level list of activities expected for the construction of the bridge and causeway includes the following:

- Marine survey and confirmation of subsurface geotechnical considerations for fill to be placed;
- Earthworks
  - Construction of foundations and piers will require a cofferdam around the foundation cap;
  - Dewatering from inside the cofferdam to the bottom of the concrete cap;
  - Sourcing and trucking of suitable fill to mainland handling area for subsequent loading onto the barges;
  - Barge operations in the water from mainland to both causeway construction areas;
  - Once ready, extending all roadworks construction activities as listed above on both causeways to each end of the bridge segment of the water crossing.

Notwithstanding impacts associated with the construction of foundations and piers, the remainder of the bridge is expected to have no adverse impacts on water except the use of barges to transfer materials and equipment. According to required water studies, the causeway segments are considered close the water section with possible culverts required to allow water movements at certain locations.

The bridge structure is intended to be a post-tensioned segmental box girder bridge of approximately 120 to 150 m and be supported on solid reinforced concrete piers supported on deep foundations to bedrock. De-icing material will be used on the top surface of the bridge and causeway to reduce the potential of deterioration due to salt application. Stainless steel reinforcing steel will be used according to Ministry of Transportation (MTO) directions and guidelines to reduce future maintenance of the structure. Ice breakers are intended to be constructed to avoid additional forces on the piers.

Temporary structures relating to the construction may include trailers, sheds, and bins for various phases and stagings of construction. Also, temporary moorings and docks related to construction in and on the water are expected. No permanent structures are associated with the road itself, other than the bridge and structural elements (i.e., piers, etc.).

Given the general scale of works for the roadway construction and normal practice, it is anticipated to be a multi-year process involving one General Contractor. All works will be subject to seasonality and weather conditions.

Site removals and preparations can be scoped and undertaken in a period of months once the other environmental considerations and full impact assessment are done. Earthworks may be expected to achieve the magnitude of estimated effort both on the mainland and island in the course of some 6-8 months. In addition, the much greater effort for the earthworks in the water for the crossing by the barge and placement of approximately 4.5 million cubic metres of suitable fill, which will require assessment under Excess Soils Regulation depending on placement of the fixed link, may be expected to require at least 2-3 years of operations.

Roadworks may proceed as temporary improvements along the road corridor to accommodate the construction activities necessary for the causeways and bridge, prior to the full construction of permanent roadworks to access the water crossing.

10. PROJECTS ESTIMATED MAXIMUM PRODUCTION CAPACITY

An estimate of the maximum production capacity of the project and a description of the production processes to be used.

IAAC's guidance for an IPD requests an estimate of maximum production capacity of the Project and a description of the production processes to be used; however, the guidance indicates that this information may not be relevant to all project types, which is the case for the fixed link as it is not creating new production processes (unlike a new mine or energy generation project).

The proposed bridge and causeway will provide a roadway link connecting local roads on Georgina Island to the mainland. Traffic capacity on the fixed link will be impacted by traffic discharge rates on both ends. Given its connections, a lane capacity of a maximum of 400 vehicles per hour is projected, akin to the typical lane capacity for a local road.

In addition, based on the findings of the Project Visioning workshop and other outreach activities, it is proposed that the bridge side of the link should have enhanced security and controlled access to restrict access to the island to GIFN community members, non-GIFN leaseholders and others by permission. The method of entrance control is yet to be determined, but could be similar to a guard booth. The entry control would slow down the traffic arrival rates and thus reduce the traffic demand per hour, compared to a free-flow traffic entry to the bridge. The Project design is envisioned to allow the regular passage of vehicles up to Class B (e.g., school purposes bus), to be confirmed through further study.

A Transportation Study will be required, and further discussions should be held with York Region Transit and York Region District School Board to explore the potential for York Region Transit to operate a transit bus and for York Region District School Board to operate a school bus between the mainland and island to aid both residents and visitors without private vehicle access.

11. ANTICIPATED SCHEDULE

The anticipated schedule for the project's construction, operation, decommissioning and abandonment, including any expansions of the project

The Project schedule assumes that the full federal impact assessment process may be required for the Project; thus, the Project Team prepared a schedule that goes through the four phases

of the federal impact assessment process, as outlined in **Table 8.** (A full schedule is also included in **Appendix D**). This schedule allows for the Project to proceed with permitting and approvals, and ultimately construction starting in mid 2026. Construction is assumed to occur from mid 2026 to the end of 2027. Decommissioning or abandonment are not anticipated for the proposed fixed link.

Table 8 Fixed Link Project Schedule Summary

Phase	Start	End
IAA Phase 1: Planning	Mid 2022	Early 2023
IAA Phase 2: Impact Statement	Early 2025	2025
IAA Phase 3: Impact Assessment	Early 2025	Late 2025
IAA Phase 4: Decision Making	Early 2026	Mid 2026
Construction	Mid 2026	Late 2027
Operation	2028	N/A
Decommissioning and Abandonment	Not anticipated	

Alternatively, IAAC may determine that no impact assessment is required. A “no impact assessment” decision would allow the Project to proceed with permitting and other approvals, and ultimately construction starting in mid-late 2023 and concluding in 2026.

In making the decision regarding the need of an impact assessment, IAAC will consider the following factors as per Section 16 of the IAA:

- The IPD, the proponent's Response to the Summary of Issues provided by IAAC, and the DPD;
- The possible adverse effects of the Project that are within federal jurisdiction or the adverse effects that are directly linked or necessarily incidental to the exercise of federal power, duty, or function;
- Any adverse impact the Project may have on the rights of Indigenous peoples of Canada;
- Any comments received from the public, any jurisdiction or Indigenous communities;
- Any relevant regional or strategic assessment;
- Any study that is conducted or plan that is prepared by a provincial, territorial, and Indigenous jurisdiction (in respect of a region in which the Project is located) and that has been provided to IAAC; and,
- Any other factor that IAAC considers relevant.

12. PROJECT ALTERNATIVES

A list of potential:

a. Alternative means that the proponent is considering that are technically and economically feasible, including through the use of best available technologies; and,
b. Alternative to the project that the proponent is considering and that are technically and economically feasible, and directly related to the project.

12(a) Alternative Means

Alternative means are the various technically and economically feasible ways, including through the use of best available technologies, which would allow a designated project and its physical activities to be carried out.

The GIFN Leadership and community have already identified a preferred alternative solution – a combination of a bridge and causeway. The WSP technical team has worked with GIFN to draft feasible alternative designs that can be used in the EA and have done so for early scoping, understanding and identification of feasible funding options. The range of alternative designs are based on three preferred routes or options for a fixed link, displayed in **Figure 2,** including:

Option #1 – A Bridge and Causeway connecting to Duclos Point on the mainland side;

Option #2 – A Bridge and Causeway via the existing ferry route between Aazhaawe Ferry Landing and Virginia Beach Marina. Approximately 2,800 m in length, this option originates from Georgina Island and would terminate at a GIFN property to the West of Bay Vista; and

Option #3 – A Bridge and Causeway envisages the Link on the shoreline between a location near the Study route and Lee Farm Lane on the mainline side connected to the island via the Sand Islands with a connection to Chief Joseph Snake Road – possibly at the existing intersection of Chief Joseph Snake Road and Bear Road. Approximately 2,800 m in length, the origin of the fixed link on the mainland side continues to be examined and will be confirmed in the DPD, once developed. For the purpose of this IPD, two alignments were developed. Both originate from Georgina Island and terminate on a GIFN owned property on the mainland, as depicted on **Figure 1**. A preferred alignment will be determined based on the detailed impact assessment studies listed in **Sections 14. Description of the Physical and Biological Environment** and **15. Description of the Health, Social and Economic Context** and will be included in the DPD.

During the Community Visioning Workshop, Option #1 was determined to be not viable due to land ownership (non-GIFN), high residential density concerns at Duclos Point, and lack of viable roads to accommodate the infrastructure on the mainland side.

Option #2 was identified as not viable due to substantially higher costs associated with bridge construction over a much longer span and deeper waters.

Option #3 would leverage the Sand Islands, thereby allowing a portion of the fixed link to be a causeway, which would require a shorter bridge and avoid deeper waters, and ultimately be more cost-effective compared to Option #2.

A detailed wave, hydrodynamic and sedimentation modeling study will be completed at future stages of the Project to assess the impacts related to erosion and sedimentation. As well an aquatics survey will be conducted to determine potential impacts on existing aquatic species. Results of both studies will be documented in the DPD, once developed.

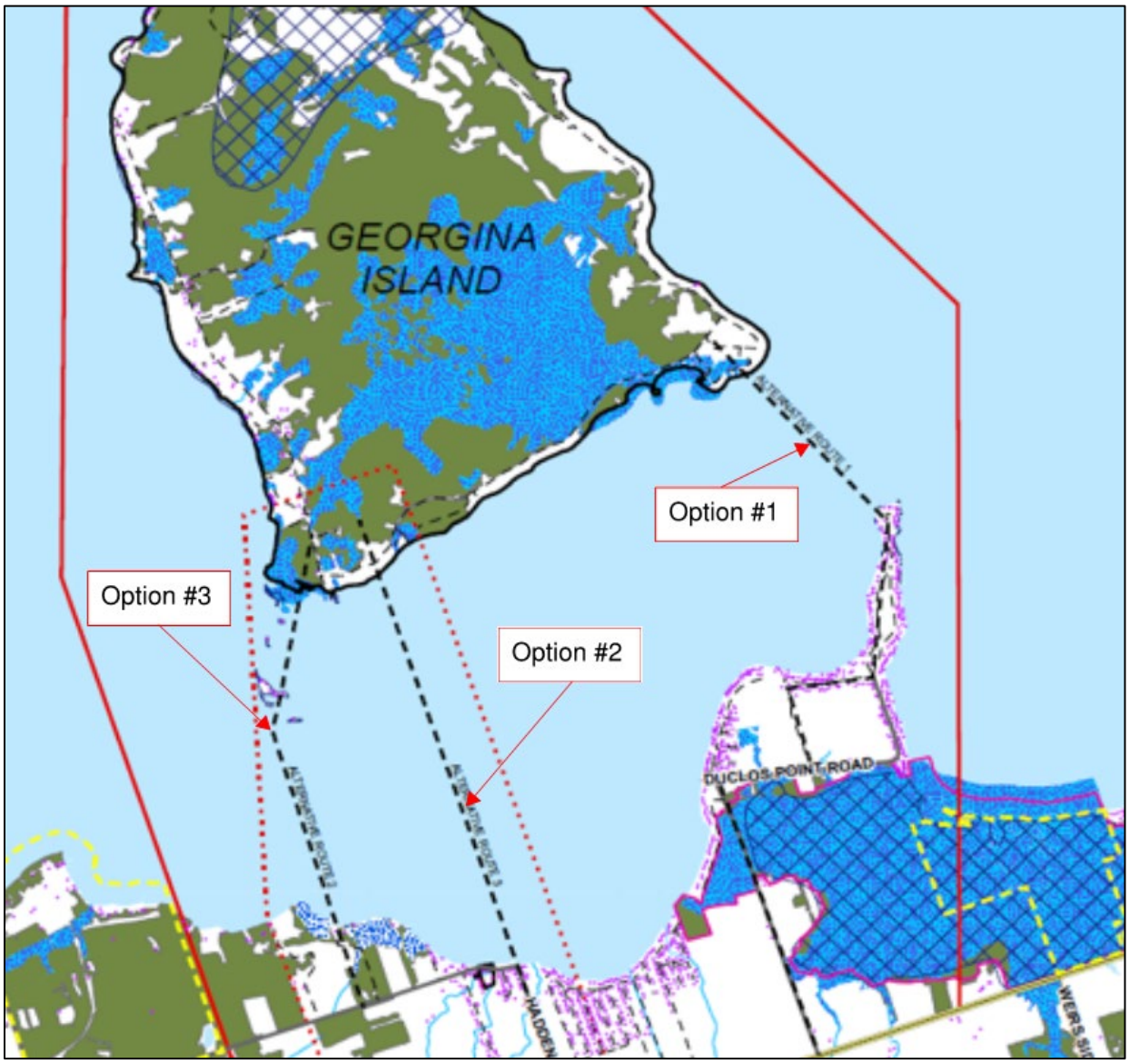

Figure 1 Alternative Options for a Fixed Link

12(b) Alternatives to the Project

Alternatives to the Project are functionally different, yet technically and economically feasible, ways to meet the need for the Project and achieve its purpose.

Alternatives to a fixed link were developed through studies and preliminary analyses with GIFN and presented in the Proposed Fixed Link Study – Preliminary Evaluation of Engineering and Environmental Alternatives (Neegan Burnside, 2008). The alternatives were presented to the

GIFN community and have been considered for the purposes of the EA planning process. The potential alternatives included:

a) Do Nothing
b) Improve Existing Aazhaawe Ferry and Ice Road Operations
c) A Bridge
d) A Combination of a Bridge and Causeway

Do Nothing – Not a Preferred Alternative

The Nation did not consider doing nothing as a preferred alternative. This is because the Aazhaawe Ferry is nearing the end of its lifecycle and would ultimately leave GIFN and cottagers on Georgina Island with no alternative to cross Lake Simcoe. Although cost-effective in the short-term, continued reliance on a ferry nearing the end of its lifecycle would not solve the issues involving food security, access, health and safety, and more. The Preliminary Evaluation of Engineering and Environmental Alternatives (Neegan Burnside, 2008) describes the option to do nothing as not adequately addressing the transportation needs of GIFN. The report states that an ideal solution would provide a reliable all-weather transportation link from Georgina Island to the mainland, which would deliver positive benefits in health and safety, economic development, tourism and employment for the community. As such, the “do nothing” option does not satisfy the purpose and rationale for the Project.

Improve Existing Ferry and Ice Road Operations – Not a Preferred Alternative

The Nation did not consider continuing and improving existing ferry operations and relying on ice roads during winter months as a preferred alternative. Reliance on a ferry is unsustainable, especially considering that the ferry is nearing the end of its lifecycle and continues to be a costly measure for travel. The Preliminary Evaluation of Engineering and Environmental Alternatives (Neegan Burnside, 2008) describes the option to improve existing ferry and ice road operations describes the issue of pack ice and corridor movement as being an ongoing issue. Health, safety, food security and general access issues in winter months would continue to persist. Furthermore, no system exists which could better institute the ice road system. Due to ice conditions and the depth of the channel, a bubble system for ice road transportation would not be feasible. Therefore, this alternative is not technically feasible and has potential impacts on aquatic habitat and existing recreation. This alternative does not fully address the purpose and rationale for the Project.

A Bridge – Not a Preferred Alternative

A bridge was considered by GIFN to be a preferred alternative as it serves as a road link. A road link would deliver many essential benefits such as improved access to the mainland, health and safety, food security, educational and recreational opportunities, tourism, etc. However, the construction of a bridge would not leverage sand islands in the vicinity of Georgina Island. The opportunity to construct a causeway along the sand islands which would then connect to a bridge to cross Lake Simcoe was viewed more preferably by GIFN as this option presents added cost-savings and reduces the length of a bridge, which leads to fewer environmental impacts in water.

A Combination of a Bridge and Causeway – Preferred Alternative

A roadway network including a combination of bridge and causeway would provide more reliable health care services to GIFN including quicker ambulance service (especially during

winter months), more reliable scheduling to accommodate visiting health practitioner travel and improved food security and easier and safer general access to Georgina Island in winter months. Equally important is that the combination of a bridge and causeway would dramatically improve the safety of accessing the island from the mainland during winter months. Constructing a causeway along the Sand Islands takes advantage of local geography to reduce the length of the in-water bridge, therefore leading to fewer environmental impacts and greater cost-savings than using a bridge alone.

PART C – Location Information and Context

13. PROJECT LOCATION

> (a) its proposed geographic coordinates, including, for linear development projects, the proposed locations of major ancillary facilities that are integral to the project and a description of the spatial boundaries of the proposed study corridor.

13a. Geographic Coordinates

The following lists the spatial boundary coordinates of the study area limits, exhibited in **Figure** 2.

List of coordinates:

- North: 44° 21’ 23” N ; 79° 18’ 16 W
- Northeast: 44° 21’ 37” N ; 79° 17’ 36” W
- Northwest: 44° 20’ 48” N ; 79° 18’ 40” W
- West: 44° 20’ 09” N ; 79° 19’ 00” W
- Southeast: 44° 19’ 31” N ; 79° 16’ 55” W
- Southwest: 44° 18’ 51” N ; 79° 19’ 46” W

The study area encompasses the southwest tip of Georgina Island, and a mainland area from just east of Sibbald Point Provincial Park, to just south of Black River Road, and east to Hadden Road. The study area also includes the waters of Lake Simcoe between the mainland and southwest tip of Georgina Island.

13b. Site Maps

> (b) site maps produced at an appropriate scale in order to determine the project’s proposed general location and the spatial relationship of the project components.

The GIFN community’s preferred alternative alignment for Option #3 is a combination of a bridge and causeway (light green route in **Figure 2**) that will provide access from the southwest shore of Georgina Island to the mainland.

See **Figure 2** for a site map of the fixed link and **Figure 5** for a site map of existing human receptors.

L:\Projects\2019\01346_00_ChippewaGeorgina\19M_01346_00_ChippewaGeorgina_Fig2_StudyArea_202204.mxd

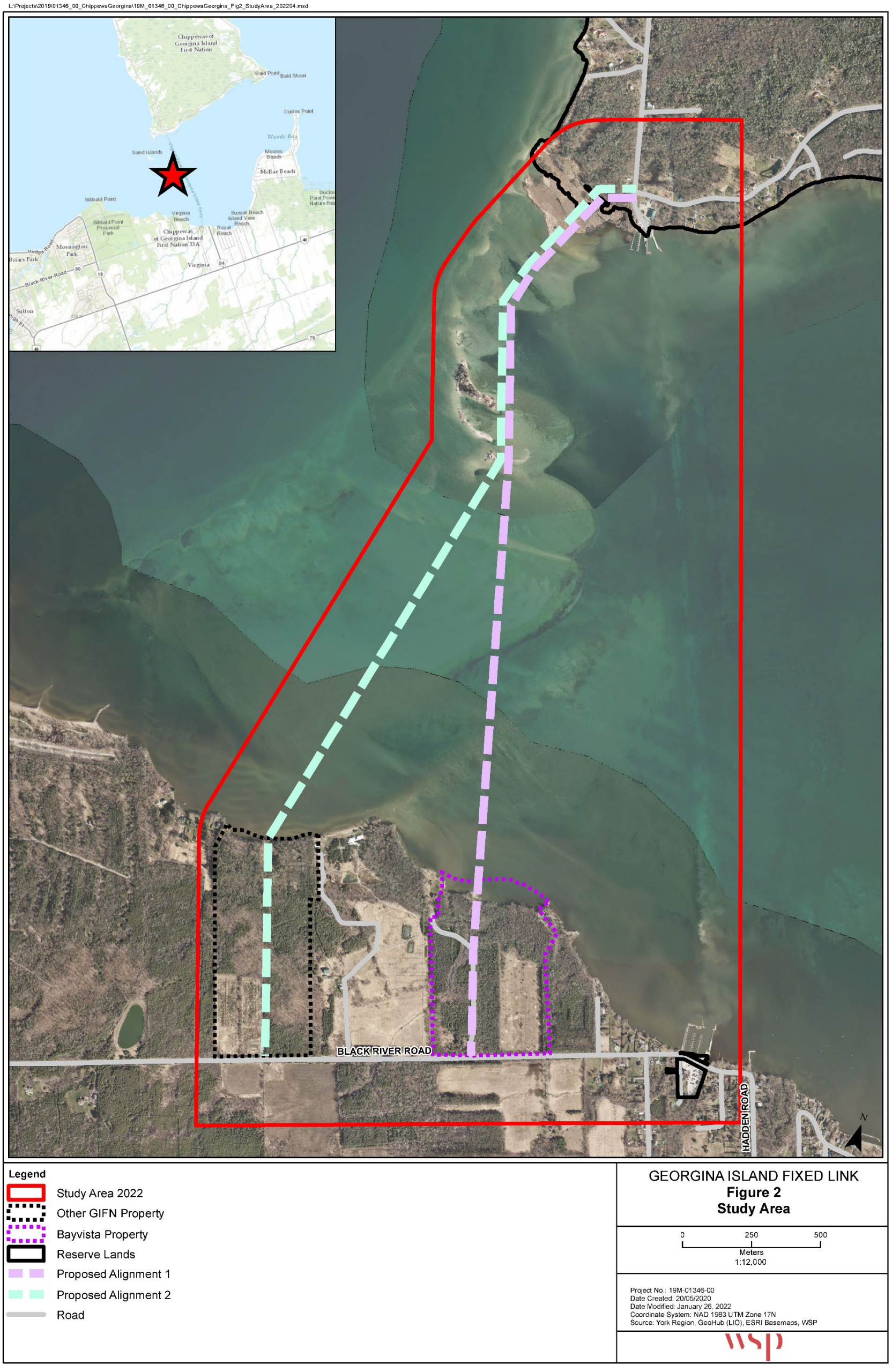

Figure 2 Georgina Island Fixed Link Study Area

13c. Legal Land Description

The legal description of land to be used for the project, including, if the land has already been acquired, the title, deed or document and any authorization relating to a water lot.

The GIFN has three reserves, with the main one being the Chippewas of Georgina Island First Nation Indian Reserve ("Georgina Island No.33"), which consists of a small parcel of land near Virginia Beach and three islands on the southern shores of Lake Simcoe: Georgina Island, Snake Island, and Fox Island.

The parcels of land on Georgina Island, shown in **Figure 3** and **Figure 4**, are owned by the GIFN in fee simple on the mainland and are part of the GIFN's reserve lands, whose title is vested in Her Majesty the Queen in right of Canada. GIFN provide Certificates of Possession to community members as 'stewards' to that piece of land within the communal allotment. The CP holder can lease that land to both GIFN and non-GIFN parties; thus, there are some private leases to non-GIFN cottagers as well.

On Georgina Island No.33, the fixed link will connect to the island at the existing intersection of Chief Joseph Snake Road and Bear Road. GIFN owns several properties in fee simple on the mainland that may be chosen for the location of the fixed link's connection on the mainland. The legal description of the lands on the mainland that are owned by GIFN in fee simple will be provided once the exact location of the connection on the mainland is determined. Based on preliminary investigations, it appears that the lake bottom between the shore and the mainland may belong to the upland owner, in this case the GIFN, which will be confirmed with the Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF). See **Figure 3** for the Land Ownership Plan for Georgina Island (2007), **Figure 4** for the Land Use Plan.

In Canada, there are four types of property rights regimes in operation on reserves - customary rights, the independent land codes developed under the recently passed *First Nations Land Management Act*, leases, and Certificates of Possession (CPs). **Figure 3** provides detail about the current ownership of the Georgina Island lands, which are broken down to Band Land and Certificate of Possession. **Band lands**, in the context of the GIFN terminology are those lands set aside in the *Indian Act* and subject to the *Land Management Act* lands controlled by the First Nation. A **Certificate of Possession** is evidence of the lawful possession of an individual tract of reserve land (the band council must allot the land to the applicant and the [Minister of Crown – Indigenous Relations must approve the allotment).

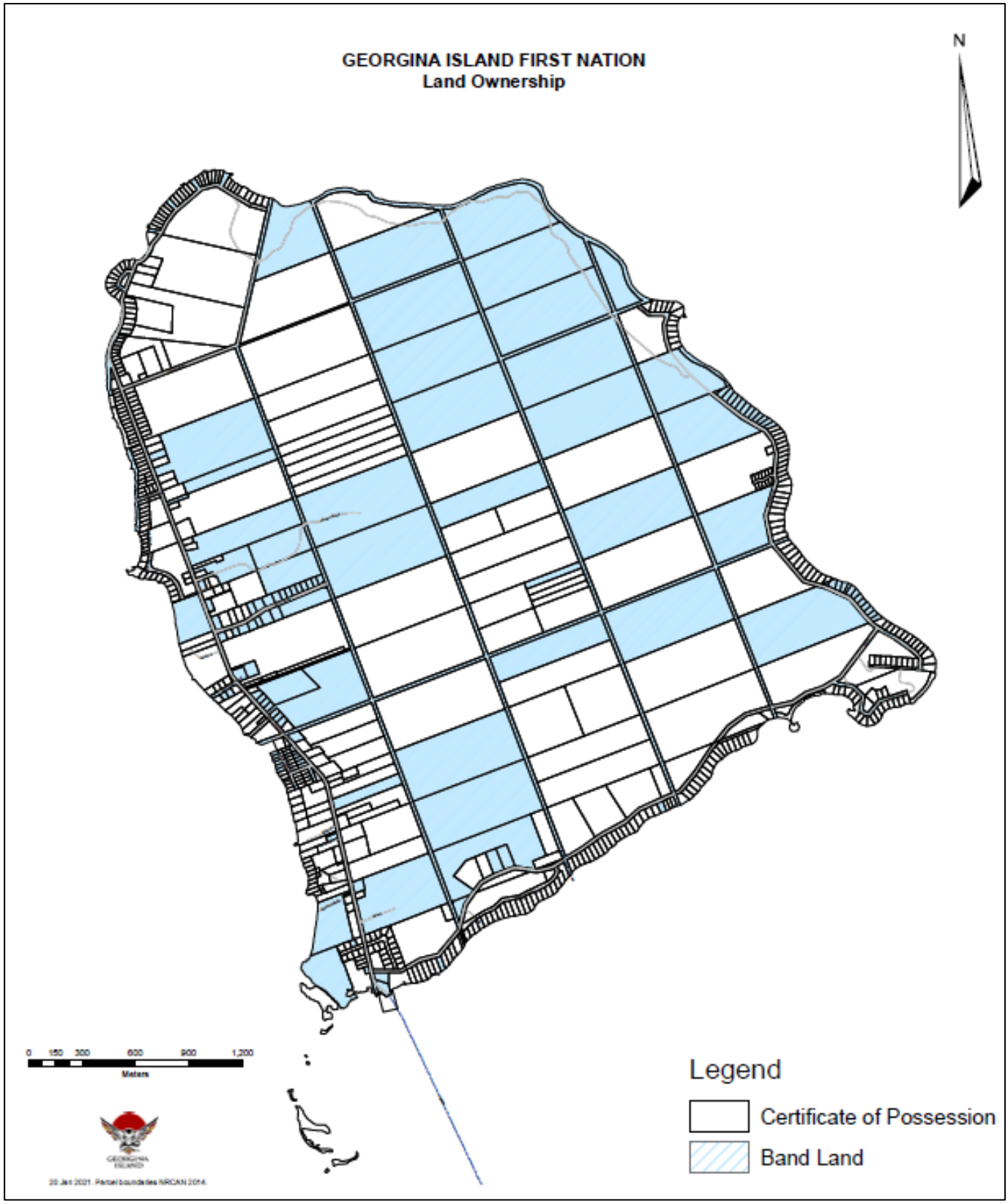

Figure 3 Georgina Island Land Ownership (2007)



Figure 4 Georgina Island Land Use Plan

In addition, **Table 9** provides the legal description of land to be included within the Project study area, including, if the land has already been acquired, the title, deed or document and any authorization relating to reserve lands. This list will be refined in the DPD, once developed, to include only lands that will be used for the Project.

Table 9 Legal Land Description

PIN	Description
1063953	LOT 1-5-15 CONCESSION I, 5811R RSO ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063953	LOT 1-5-15 CONCESSION I, 5811R RSO ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1220327	LOT 2-11 BROKEN FRONT CONCESSION AND CONCESSION 1, 106510 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063925	LOT 2-9 CONCESSION 1 AND BROKEN FRONT CONCESSION; 6201R RSO ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1068432	LOT 2-4 CONCESSION 1, 6651R RSO ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1068430	LOT 1-11 CONCESSION 1, 95085 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063967	LOT 1-6-7 CONCESSION 1, 75757 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063970	LOT 1-6-6 CONCESSION 1, 75757 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063974	LOT 1-6-5 CONCESSION 1, 75757 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063975	LOT 1-6-4 CONCESSION 1, 75757 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063976	LOT 1-6-3 CONCESSION 1, 75757 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063980	LOT 1-6-2 CONCESSION 1, 75757 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063983	LOT 1-6-1 CONCESSION 1, 75757 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063984	LOT 1-1-21 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063985	LOT 1-1-20 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063986	LOT 1-4 CONCESSION 1, 64387 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063973	LOT 1-5-16 CONCESSION I, 5811R RSO ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063981	LOT 1-3 CONCESSION 1, 64387 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063978	LOT 1-5-11 CONCESSION 1, 83544 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063972	LOT 1-5-10 CONCESSION 1, 83544 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

PIN	Description
1063966	LOT 1-5-9 CONCESSION 1, 83544 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063956	LOT 1-5-8 CONCESSION 1, 83544 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063958	LOT 1-5-7 CONCESSION 1, 83544 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063961	LOT 1-5-6 CONCESSION 1, 83544 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063965	LOT 1-5-5 CONCESSION 1, 83544 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063950	LOT 1-5-14 (ROAD) CONCESSION 1, 83544 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063942	LOT 1-5-12 CONCESSION 1, 83544 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063943	LOT 1-5-13 CONCESSION 1, 83544 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063945	LOT 1-5-3 CONCESSION 1, 83544 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063949	LOT 1-5-4 CONCESSION 1, 83544 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063939	LOT 1-1-22 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063937	LOT 1-1-23 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063935	LOT 1-1-24 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063931	LOT 1-1-4 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063932	LOT 1-1-5 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063941	LOT 1-1-6 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063947	LOT 1-1-7 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063955	LOT 1-1-8 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063962	LOT 1-1-9 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063969	LOT 1-1-10 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063977	LOT 1-1-11 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1184395	LOT 1-1-15 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063959	LOT 1-1-19 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063979	LOT 1-1-12 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

PIN	Description
1063971	LOT 1-1-13 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063964	LOT 1-1-14 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063957	LOT 1-1-15 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063944	LOT 1-1-16 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063948	LOT 1-1-17 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063951	LOT 1-1-18 CONCESSION 1, 71168 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1213219	ROAD BROKEN FRONT CONCESSION, T124 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1063982	LOT 1-1-2 CONCESSION 1, 2057 RSO ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1068343	LOT 1-2-2 CONCESSION 1, 2058 RSO ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1208844	UNNAMED ISLAND # 5, 103065 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1208841	STONE SHOAL #2, 103065 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1208840	UNNAMED ISLAND # 4, 103065 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1208839	UNNAMED ISLAND # 3, 103065 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1208837	UNNAMED ISLAND # 2, 103065 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1208838	UNNAMED ISLAND # 1, 103065 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1064059	PART 1, 66615 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1064060	PART 2, 66615 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1064061	PART 3, 66615 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
1064058	PART 4, 66615 CLSR ON, CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
35300005	LT 3 PL 191 GEORGINA T/W R662203; S/T INTEREST IN R662203, IF ANY; TOWN OF GEORGINA
35300005	LT 3 PL 191 GEORGINA T/W R662203; S/T INTEREST IN R662203, IF ANY; TOWN OF GEORGINA
35300006	PT LT 4 PL 191 GEORGINA AS IN R677368; T/W R677368; GEORGINA
35300013	LT 10 PL 191 GEORGINA T/W R573344; GEORGINA
35300014	PT LT 11 PL 191 GEORGINA AS IN R563498 TOWN OF GEORGINA

PIN	Description
35300015	PT LT 11 PL 191 GEORGINA; PT LT 12 PL 191 GEORGINA AS IN R586309; TOWN OF GEORGINA
35300016	PT LT 12 PL 191 GEORGINA AS IN R272132; PT LT 13 PL 191 GEORGINA AS IN R272132; GEORGINA
35300017	PT LT 13 PL 191 GEORGINA AS IN R645881; PT LT 14 PL 191 GEORGINA AS IN R645881; T/W R645881; GEORGINA
35300102	PT LT 12 CON 7 GEORGINA AS IN B4616B; PT LT 14 PL 191 GEORGINA; PT LT 26 PL 191 GEORGINA AS IN A66289A T/W A66289A TOWN OF GEORGINA
35300019	PT LT 15 PL 191 GEORGINA AS IN R658891; T/W R658891; TOWN OF GEORGINA
35300018	PT LT 15 PL 191 GEORGINA AS IN R507882; T/W R507882; GEORGINA
35300020	LT 16 PL 191 GEORGINA T/W R666993; GEORGINA
35300021	LT 17 PL 191 GEORGINA T/W R151874; GEORGINA
35300022	LT 18 PL 191 GEORGINA T/W R571229; S/T INTEREST IN R571229; GEORGINA
35300023	LT 19 PL 191 GEORGINA T/W R638469; GEORGINA
35300024	LT 20 PL 191 GEORGINA; PT LT 21 PL 191 GEORGINA AS IN R668123; GEORGINA
35300025	PT LT 21 PL 191 GEORGINA AS IN R450498; T/W R450498; GEORGINA
35300026	PT LT 22 PL 191 GEORGINA AS IN R193566; GEORGINA; SUBJECT TO EXECUTION 95-06984, IF ENFORCEABLE. ;
35300027	PT LT 22 PL 191 GEORGINA AS IN R655397; LT 23 PL 191 GEORGINA T/W R665397; GEORGINA
35300023	LT 19 PL 191 GEORGINA T/W R638469; GEORGINA
35300022	LT 18 PL 191 GEORGINA T/W R571229; S/T INTEREST IN R571229; GEORGINA
35300021	LT 17 PL 191 GEORGINA T/W R151874; GEORGINA
35300020	LT 16 PL 191 GEORGINA T/W R666993; GEORGINA
35300018	PT LT 15 PL 191 GEORGINA AS IN R507882; T/W R507882; GEORGINA
35300019	PT LT 15 PL 191 GEORGINA AS IN R658891; T/W R658891; TOWN OF GEORGINA
35300108	PT LT 24 PL 191 GEORGINA AS IN R182640 EXCEPT FOURTHLY LANDS; T/W & S/T R182640; GEORGINA
35280117	PT LT 25, PLN 191; GEORGINA

PIN	Description
35280027	PT LT 25 PL 191 GEORGINA AS IN R171564 (WESTERLY PORTION), S/T R732536; GEORGINA.
35280028	PT LT 25 PL 191 GEORGINA; PT RDAL BTN CON 7 & 8 GEORGINA AS CLOSED BY R389951, PTS 4 & 5, 65R3258; GEORGINA
35280056	WATER LT LOCATION DT157 IN LAKE SIMCOE IN FRONT OF LT 25 PL 191 AND RO AD ALLOWNACE BTN CONCESSION 7 & 8 (GEORGINA) PT 1 65R7476; GEORGINA
35300028	PT LT 24 PL 191 GEORGINA AS IN R667720; T/W & S/T R667720; GEORGINA
35300084	PT LT 24 PL 191 GEORGINA AS IN R659017; T/W R659017, IF ANY TOWN OF GEORGINA
35300083	PT LT 24 PL 191 GEORGINA AS IN R678772; T/W R678772; GEORGINA
35300029	PT LT 24 PL 191 GEORGINA AS IN R716315; T/W R716315; GEORGINA
35300030	PT LT 24 PL 191 GEORGINA AS IN R245095, R162932; T/W R2455095, R162932; GEORGINA
35280026	BLK B PL 481 GEORGINA; GEORGINA
35280025	PT LT 12 CON 8 GEORGINA AS IN A10244A; TOWN OF GEORGINA
35280024	PT LT 12 CON 8 GEORGINA AS IN B41809B; GEORGINA
35300080	LT 51 PL 481 TOWN OF GEORGINA
35300081	LT 52 PL 481 GEORGINA; GEORGINA
35300082	LT 53 PL 481 GEORGINA; GEORGINA
35300085	BLK A PL 481 GEORGINA; GEORGINA
35300079	LT 50 PL 481 GEORGINA S/T INTEREST IN R194978, IF ANY; GEORGINA
35280025	PT LT 12 CON 8 GEORGINA AS IN A10244A; TOWN OF GEORGINA
35280024	PT LT 12 CON 8 GEORGINA AS IN B41809B; GEORGINA.
35280114	PT LT 12 CON 8 GEORGINA, AS IN R248504, EXCEPT PT 1 6529220; TOWN OF GEORGINA
35280113	PT LT 12 CON 8 GEORGINA, PT 1 65R29220; GEORGINA
35280022	PT LT 12 CON 8 GEORGINA AS IN R631775; GEORGINA
35280021	PT LT 12 CON 8 GEORGINA AS IN R298531; GEORGINA
35290031	LT 54 PL 481 GEORGINA T/W B47410B TOWN OF GEORGINA
35290032	LT 55 PL 481 GEORGINA T/W R115079; GEORGINA

PIN	Description
35290033	LT 56 PL 481 GEORGINA T/W R188741; GEORGINA
35290034	LT 57 PL 481 TOWN OF GEORGINA
35290035	LT 58 PL 481 GEORGINA; GEORGINA
35290036	LT 59 PL 481 GEORGINA; GEORGINA
35290037	LT 60 PL 481 GEORGINA; GEORGINA
35290038	LT 61 PL 481 GEORGINA; GEORGINA
35290039	LT 62 PL 481 GEORGINA; GEORGINA
35290040	LT 63 PL 481 GEORGINA; GEORGINA
35280022	PT LT 12 CON 8 GEORGINA AS IN R631775; GEORGINA
35290092	PT LT 12 CON 7 GEORGINA AS IN R479140; T/W R479140 TOWN OF GEORGINA
35290029	PT LT 12 CON 7 GEORGINA AS IN R443403; GEORGINA
35290028	PT LT 12 CON 7 GEORGINA AS IN R274148 TOGETHER WITH AN EASEMENT AS IN TWR27414 TOWN OF GEORGINA
35290026	PT LT 11 CON 7 GEORGINA AS IN R610342; GEORGINA
35280021	PT LT 12 CON 8 GEORGINA AS IN R298531; GEORGINA
35280015	PT LT 12 CON 8 GEORGINA AS IN R633780, S/T R633780, S/T INTERESTS IN R419083; S/T DEBTS IN B14657B; S/T BENEFICIARIES INTEREST IN A3705A; GEORGINA; S/T ROW FOR ALL PERSONS ENTITLED THERETO OVER THE WESTERLY 20 FEET OF THE SOUTHERLY 285 FEET OF THE SOUTH 459 FEET OF SAID LOT 12 AS IN LT1504501. S/T EASEMENT IN FAVOUR OF ENBRIDGE GAS DISTRIBUTION INC. OVER PT 1 65R27543 AS IN YR591271, S/T & T/W IN B19480B
35280013	BLK B PL 308 GEORGINA; PT BLK A PL 308 GEORGINA AS IN R610342, S/T DEBTS IN R610342; S/T INTEREST IN A46742A - (SPOUSAL INTEREST OF DONAL D ROSS MARTYN), ADDED 01/05/16 BY A. GRAHAM, ADLR
35280102	PT BLK A PL 308, PTS 1, 2 & 3 65R21644, GEORGINA. S/T ROW IN FAVOUR OFPT BLK A PL 308 AS IN R140941 OVER PT 2 65R21644 AS IN R713405; "S/T SUBSECTION 44(1) OF THE LAND TITLES ACT, R.S.O. 1990 EXCEPT PARAGRAPHS 3 & 14 THEREOF"
35280011	PT LT 10 CON 8 GEORGINA PT 1, 65R7975; GEORGINA
35280010	PT LT 10 CON 8 GEORGINA AS IN R490934; GEORGINA
35280008	PT LT 10 CON 8 GEORGINA AS IN B34937B, S/T B34937B, IF ANY; GEORGINA

PIN	Description
35280007	PT LT 10 CON 8 GEORGINA AS IN R735576; GEORGINA
35280006	E PT LT 9 CON 8 GEORGINA BEING PART 1, 65R37393; GEORGINA

13d. Proximity to Residences and Potentially Affected Communities

The project's proximity to any permanent, seasonal, or temporary residences and to the nearest affected communities.

GIFN land ownership includes Georgina Island (1,295 ha), Snake Island (133 ha), Fox Island (19 ha), Sand Island (4 ha) and Gravel Island (0.4 ha). The First Nation residents reside on Georgina Island, while Snake, Fox and Sand Islands are "surrendered lands" and are currently leased to non-GIFN cottagers. According to the First Nation web site there are about 227 cottage lots on Snake Island and approximately 64 lots on Fox Island. The Land Ownership Plan for Georgina Island (2021) is included as **Figure 4** and the Land Use Plan is included as **Figure 5**. Seasonal residences are leased to members of the public under agreement with GIFN on all islands.

According to the Fixed Link Socio-Economic Study (**Appendix B**) prepared by CIPS, the GIFN community buildings and most residential structures are centralized on the eastern and western shores, with ample distance away from the Project. The majority of the community's homes and community buildings are located on the west side of the island, along Chief Joseph Snake Road. Approximately 179 GIFN band members live on Georgina Island. Cottages occupy lots along the northwest, south and eastern portions of the island; some of these are leased by non-GIFN cottagers.

GIFN community buildings are concentrated in the area of Root Road. The GIFB community centre, administration office, school, medical clinic, and water treatment plant are located along Chief Joseph Snake Road. The ferry dock, located in the southwest corner of the island, is the main access point for residents, cottagers, and visitors.

Human Receptors

As shown in **Figure 5**, both Indigenous and non-indigenous human receptors that may be impacted by the Project activities. The locations of all permanent residences, temporary land uses (i.e., cottages) and sensitive human receptors (i.e., community buildings) are identified. Cottages are located along the southern shore of Georgina Island along Larry's Lane. Two community buildings are within the island portion of the study area. The northern shore of the Town of Georgina is within the Protected Countryside Area of the Greenbelt Plan, 2017. The Hamlet of Virginia is in the southeast portion of the study area and is predominantly residential. The Protected Countryside lands – apart from Sibbald Point Provincial Park and the Hamlet of Virginia – also make up the Natural Heritage System.

Section 3.2.2 of the Greenbelt Plan contains Natural Heritage System policies. Policy 3.2.2.3 a) requires that new development or site alteration demonstrate "…no negative impacts on key natural heritage features or key hydrologic features or their functions." Policy 3.2.2.3 d) limits the disturbed area to 25% of the total developable area and the impervious surface of the total

developable area to 10%. Policy 3.2.2.3 e) requires at least 30% of the total developable area to remain or be returned to natural self-sustaining vegetation.

Section 4.2.1 contains general infrastructure policies. Policy 4.2.1.1 permits new infrastructure within the Protected Countryside if it receives environmental approval and can meet one of two objectives. The GIFN is subject to the federal impact assessment process and will support towns, villages, and hamlets.

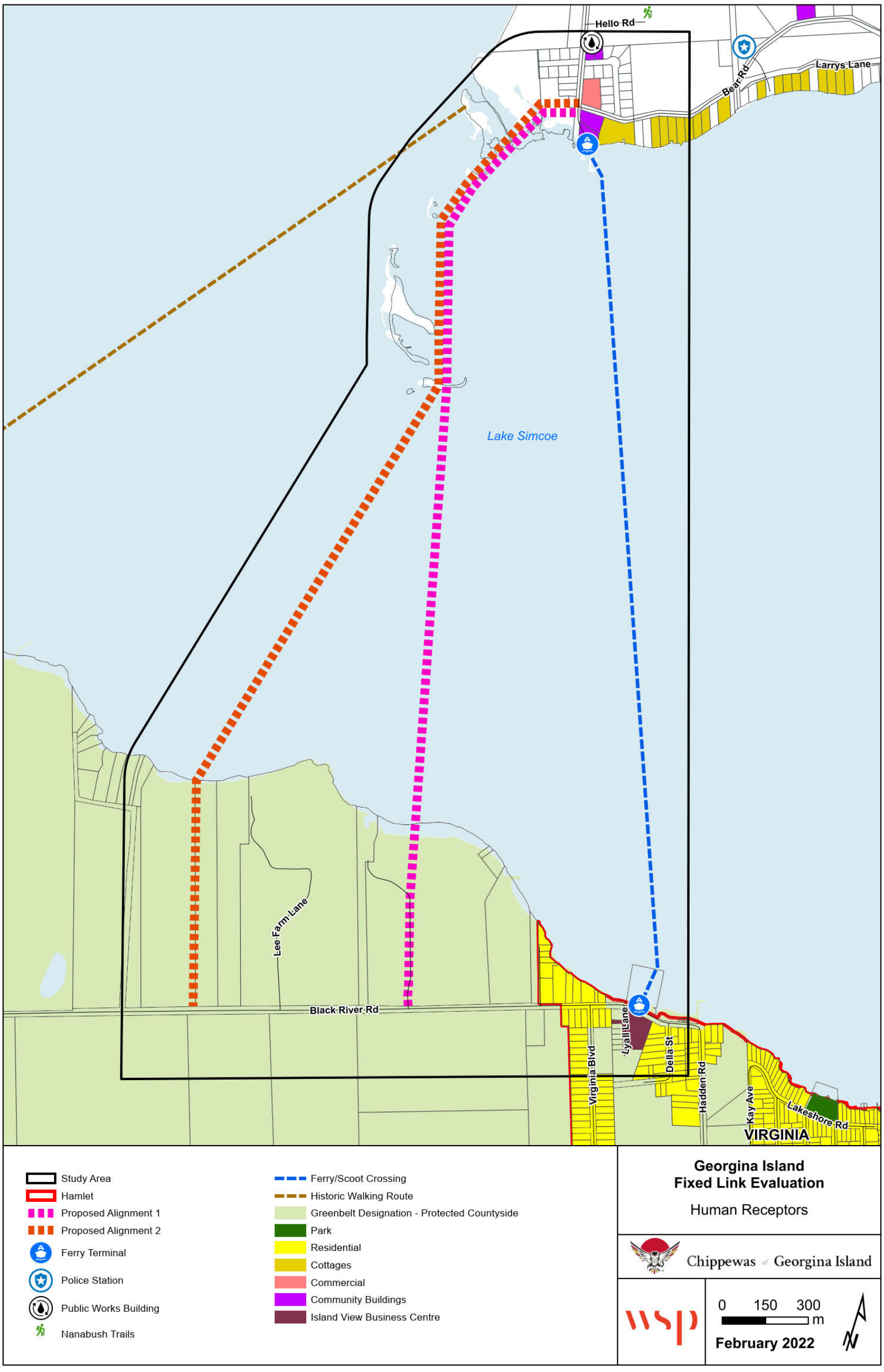

Figure 5 Human Receptors

13e. Proximity to Indigenous Lands

The project's proximity to land used for traditional purposes by Indigenous peoples of Canada, land in a reserve as defined in subsection 2(1) of the Indian Act, First Nation land as defined in subsection 2(1) of the First Nations Land Management Act, land that is subject to a comprehensive land claim agreement or a self-government agreement, and any other land set aside for the use and benefit of Indigenous peoples of Canada.

Georgina Island is entirely considered reserve lands under the Williams Treaty (1923). Other GIFN property is located along the mainland of Lake Simcoe, between the Virginia Beach Wetland Complex and Sibbald Point Provincial Park. Therefore, the majority of the Project is expected to be located on land subject to *First Nations' Land Management Act*.

As detailed in the Preliminary Evaluation of Engineering and Environmental Alternatives (Neegan Burnside, 2008), GIFN entered into a Framework Agreement on First Nation Land Management in 1996 with Her Majesty the Queen in Right of Canada. Under this arrangement, the GIFN community voted, on February 5, 1997, to opt out of the land management provisions of the *Indian Act* and into their own land regime.

13f. Proximity to Federal Lands

The project's proximity to any federal lands.

Besides GIFN's reserves (**Figure 3**), which are federal lands within the meaning of the IAA, there are no known federal lands in proximity to the Project.

14. DESCRIPTION OF THE PHYSICAL AND BIOLOGICAL

A brief description of the physical and biological environment of the project's location, based on information that is available to the public.

ENVIRONMENT

This section provides a brief description of the physical and biological environment of the Project's location, including sections on geology, natural environment, hydrogeology and drainage, environment site assessment, archaeology and cultural heritage, and air and noise.

A number of preliminary background studies have been initiated for this Project, using both information provided by the GIFN and publicly available information, to ascertain existing physical and biological conditions and identify data gaps that may need to be filled through additional field work or desktop work. The findings of the desktop study completed to date is summarized in the following sections. Physical or biological features identified having potential to be potentially impacted by the Project will be further assessed in future stages of the Project.

Future Studies

Additional background information for the study area will be obtained from other relevant agencies (e.g., NDMNRF, MECP, and LSRCA) during future study phases, and field surveys will be completed to document existing conditions. The Project Plan (2021) (**Appendix C**) outlines the data gaps and recommended studies to be completed. Those studies will further

refine the existing conditions information for the study area and will identify sensitive features. Results from these studies will be included in the DPD, once developed.

These studies include:

- Air Quality Existing Conditions and Impact Assessment Study
- Noise Existing Conditions and Impact Assessment Study
- Natural Environment Impact Study, which include a summary of the results of the following surveys:
  - Terrestrial Ecology and Wildlife Existing Conditions Report
  - Aquatic Ecology Existing Conditions Report
  - Arborist Report
  - Fish and Fish Habitat Survey
  - Breeding Bird Surveys
  - ELC and Botanical Inventories
  - Species at Risk (SAR) Assessment
- Surface Water Quality Impact Study
- Erosion and Sediment Control Plan
- Stormwater Management Report
- Geotechnical Investigation
- Coastal Engineering Plan, which include a summary of the results of the following surveys:
  - On Land Geophysical Survey
  - Marine Geophysical Survey
  - Magnetometer Survey
  - Bathymetry Survey
- Hydrogeological Baseline Conditions and Impact Assessment Report
- Phase I and II Environmental Site Assessments
- Accidental Spills and Malfunctions Assessment

Geology

A site reconnaissance completed for terrestrial ecosystems as part of a Proposed Fixed Link Study – Preliminary Evaluation of Engineering and Environmental Alternatives (Neegan Burnside, 2008), found that Georgina Island is underlain by limestone bedrock which rises 8-10 m above Lake Simcoe on its northwestern and northeastern points. On these points, the bedrock is covered by 10 to 15 cm of sandy or clay loams. To the south, the island slopes down into the lake with much of the land only 0.5 to 3 m above the lake surface elevation. Along the southern shore, there are shallow silts over clay, and off the island's southwest corner, currents have deposited a series of small islands and spits known as the Sand Islands. See **Figure 6**.

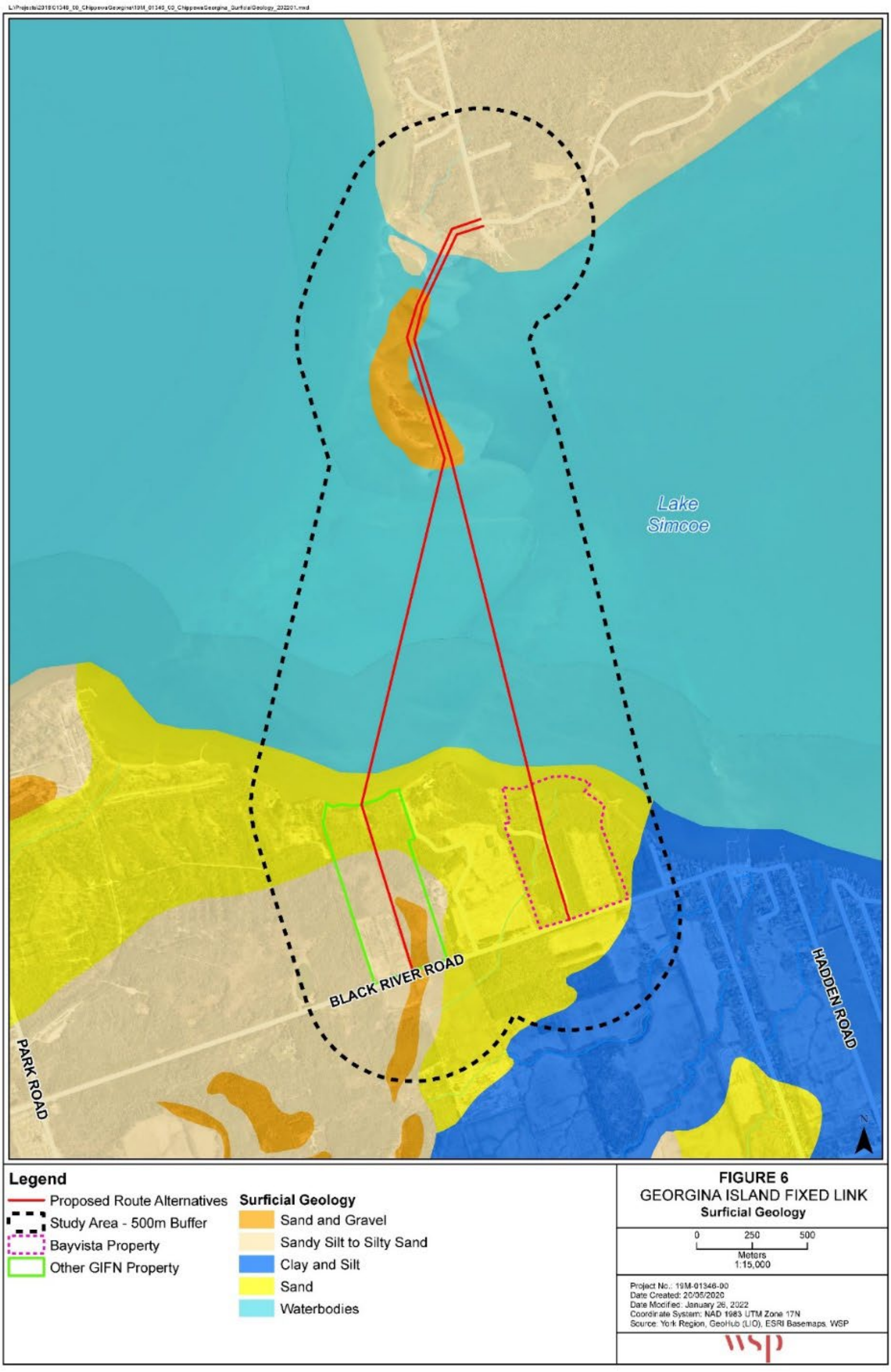

Figure 6 Study Area Surficial Geology

Bedrock

The bedrock geology in the Georgina Island area consists of flat lying, thinly bedded sedimentary rock comprising limestone, dolostone, shale, arkose, and sandstone. This rock underlies all of the islands as well as the shoreline of the mainland. The top of bedrock is slightly higher at the northeast side of Georgina Island compared to the southwest. Bedrock may be locally exposed at ground surface in a zone along the northwestern to southeastern part of the island as well as along the shoreline elsewhere on the island.

Overburden

The bedrock within the Georgina Islands is overlain by unconsolidated sediments (overburden). The surficial unit of the southwest portion on Georgina Island is glacial till, consisting of heterogeneous deposits of silt, sand, gravel, cobbles, and boulders. The overburden thickness on the southwestern corner of the island is several meters thick. The overburden at the location where the fixed link is planned to connect to the mainland is part of a different geological unit, comprising glaciolacustrine deposits of sand, gravelly sand and gravel, nearshore and beach deposits.

Future Studies

A geotechnical investigation is required to assess a number of surface and sub-surface conditions and will enable proper assessment of impacts associated with erosion and sedimentation processes, bearing capacity of road design and much more.

Natural Environment

Vegetation Communities and Wildlife Habitat

The study area includes wetland communities mapped as part of the Georgina Island PSW as well as terrestrial vegetation communities at the south tip of Georgina Island. On the mainland, the study area includes forested wetland communities that are mapped as part of the Virginia Beach Wetland Complex (non-PSW) as well as surrounding upland forest and open habitats. Portions of these forested communities are mapped as Significant Woodlands in municipal official plans. These vegetation communities and their associated wildlife habitat will be further evaluated during field investigations during the next phase of the Project.

Georgina Island is approximately 1,353 ha and supports a high diversity of 38 vegetation community types. This includes 25 wetland communities, nine terrestrial communities and four human-influenced communities. Most of the island is covered in broadleaf and mixed swamps with the mixed swamps largely confined to the southeast side of the island. The mixed swamps are dominated by White Birch and White Cedar, as well as stands of Eastern Hemlock and Black Ash. In the northwestern portion of the island, there are small mixed swamps of Black Ash and Green Ash and Black Ash, Red Maple, White Cedar and occasionally Balsam Fir as secondary tree species. Scattered among the swamps are small openings supporting cattail marshes and thicket swamps of Red-osier Dogwood, Willow species and Speckled Alder.

A Deer Wintering Area (i.e., a seasonal concentration area for deer) is located in the study area, on the mainland, and is identified as a Significant Wildlife Habitat (SWH) area. This SWH feature has been identified by the NDMNRF and mapped in the provincial Land Information Ontario (LIO) database.

Fish and Aquatic Habitat

Lake Simcoe, the main aquatic feature within the study area, is located in the Severn River watershed and is part of the Trent-Severn waterway. According to the Project Plan (**Appendix C**), Lake Simcoe provides fish habitat for a range of coldwater, coolwater and warmwater fish species. Lake Simcoe occupies approximately 20 percent of the Lake Simcoe watershed and has 722 km^2 of fish habitat. Lake Simcoe is approximately 30 km long, 25 km wide, with an average depth of 15 m, a maximum depth of 41 m and a water volume of 11.6 km^2. Water levels and flows are managed by Parks Canada, an agency of Environment and Climate Change Canada (ECCC).

Due to its large size, Lake Simcoe reacts relatively slowly to seasonal weather conditions and stop-log changes. In the southwestern corner of Georgina Island between the tip of the island and Doyle Beach, a major shoal formation extends over a significant part of this area, in places extending above the surface as the Sand Islands. Nearer to the mainland, depths are also very shallow, in the order of 0.6 m extending to the area adjacent to Sibbald Point Provincial Park. An area with a deeper channel exists in the central area between the Sand Island shoals and the mainland, and is thought to have depths of about 1.8 m. According to bathymetric data, the depths within a 20 m span of the existing ferry crossing route is in the order of 1.5 m.

Background information obtained for the Project Plan (**Appendix C**) indicates a total of 58 species have been documented in the Lake Simcoe watershed. Coldwater species (e.g., Lake Trout, Lake Whitefish, Lake Herring and Rainbow Smelt) are frequently caught north of the Georgina Island and are not typically found along the southern shoreline. A warm water to cool

water fishery generally exists north of mainland shoreline between Duclos Point, south-west to Sibbald Point and south of Georgina Island. Also, the south shoreline of Georgina Island is known to contain Muskellunge spawning and nursery habitat as well as Northern Pike spawning habitat (Anishinabek/Ontario Fisheries Resource Centre 2009). The study area also includes three warmwater tributaries of Lake Simcoe on the mainland, and one tributary on the island.

The fish population within the lake has shifted from coldwater species, such as Lake Trout, Whitefish and Lake Herring, to species preferring warmer water such as Perch, Bass and Sunfish. These changes relate, in part, to changes in nutrient cycling and dissolved oxygen concentrations, siltation over spawning sites, shifts in available food items and the invasion of non-native species.

NDMNRF through comments received on the draft IPD (2021) has noted that while the lake has been shifting from coldwater species to warm water species, a number of coldwater species continue to thrive in Lake Simcoe, including Lake Trout, Whitefish and Cisco, as further described below:

- Lake Trout are currently of concern in Lake Simcoe. It is anticipated that increased stocking efforts and other management techniques will result in a population rebound.
- Whitefish appear to be maintaining their populations. About 80% of total catch are wild and unclipped fish. Further, NDMNRF continues to stock 140,000 Whitefish annually.
- Cisco have made a notable rebound without any stocking efforts. NDMNRF reopened the Cisco season in 2015.

The NDMNRF has also identified spawning areas for Northern Pike west of the ferry launch site on the mainland and has noted that these shoals are important for the re-establishment of the Lake Simcoe coldwater fishery. This habitat will be further evaluated in 2022 with results documented in the DPD.

Species at Risk

No aquatic Species at Risk (SAR) have been identified through a review of the NHIC database, DFO SAR Mapping (2020) and other SAR screenings. This will be confirmed with DFO during future study phases.

The background review completed for the Project Plan (**Appendix C**), determined that two Avian SAR: Least Bittern (Fed: THR; Prov: THR) and Barn Swallow (Fed: THR; Prov: THR) have been recorded in the study area. Least Bittern (Fed: THR; Prov: THR) may have nested in a marsh (wetland neM6) in the 1980s but habitat conditions may no longer be suitable (Toronto Zoo, 2015). Barn Swallow (Fed: THR; Prov: THR) have been recorded nesting on structures at the ferry dock and foraging over the shoreline and marsh areas at the south end of Georgina Island (E.P.D.I., 2015). Blanding's Turtle (Fed: THR; Prov: THR) has also been reported to "frequent" the marsh (wetland neM6).

WSPs background review also identified the *potential* for the following Endangered and Threatened SAR in the Project study area:

- Three birds: Bank Swallow (Fed: THR; Prov: THR), Cerulean Warbler (Fed: END; Prov: THR) and Acadian Flycatcher (Fed: END; Prov: END).
- Two reptiles: Spotted Turtle (Fed: END; Prov: END) and Eastern Hog-nosed Snake (Fed: THR; Prov: THR).

- Five mammals: Little Brown Bat (Fed: END; Prov: END), Northern Long-eared Bat (Fed: END; Prov: END), Eastern Small-footed Bat (Fed: NAR; Prov: END), Tri-colored Bat (Fed: END; Prov: END) and Grey Fox (Fed: THR; Prov: THR).
- Two vascular plants: Butternut (Fed: END; Prov: END) and American Ginseng (Fed: END; Prov: END).

ECCC (2021) provided additional information on federal SAR in proximity to the study area (including Special Concern [SC] species) that should be considered. These species are listed below

- Blanding's Turtle (Fed: END; Prov: THR)
- Snapping Turtle (Fed: SC; Prov: SC)
- Midland Painted Turtle (Fed: SC; Prov: NAR)
- Wood Turtle (Fed: THR; Prov: END)
- Milksnake (Fed: SC; Prov: NAR)
- Western Chorus Frog, Great lakes/St. Lawrence population (Fed: THR; Prov: NAR)
- Wood Thrush (Fed: THR; Prov: SC)
- Eastern Wood Peewee (Fed: SC; Prov: SC)
- Red-headed Woodpecker (Fed: END; Prov: SC)
- Bobolink (Fed: THR; Prov: THR)
- Eastern Meadowlark (Fed: THR; Prov: THR)
- Butternut (Fed: END; Prov: END)
- Yellow-banded Bumblebee (Fed: SC; Prov: SC)

In addition, ECCC has identified that the Project may also be in or in proximity to critical habitat for:

- Blanding's Turtle (Fed: END; Prov: THR)
- Red-headed Woodpecker (Fed: END; Prov: SC)

Field surveys have not occurred for breeding and migratory birds and would be necessary to determine the presence of presence of avian SAR and other migratory birds. Similarly, targeted searches for other SAR have not been completed to inform a full assessment of SAR presence and potential. Potential presence of, and habitat for, SAR will be further assessed at future stages through field investigations and targeted species at risk surveys. Results of the 2022 field investigations will be documented in the DPD, along with an assessment of potential effects.

In addition to the identified SAR, the GIFN identified deer as one of the key species being hunted on the island. Hunting mainly occurs on the interior of the island on the 50 acres that is the centre of the island. Hunting also occurs on the north end of the island. The area where the causeway and bridge being proposed to meet the island is not an area that where deer hunting takes place.

As illustrated in **Figure 7,** the known terrestrial and aquatic features within the study area, based on previous work completed by others. For example, wetland community mapping for the Georgina Island Provincially Significant Wetland (PSW) is presented, along with communities that are known to support SAR, including Blanding's Turtle (Fed: THR; Prov: THR), Snapping Turtle (Fed: SC; Prov: SC), Barn Swallow (Fed: THR; Prov: THR) and Least Bittern (Fed: THR; Prov: THR) (Toronto Zoo, 2015, E.P.D.I, 2015). Known Muskellunge and North Pike Spawning Areas are also mapped according to available background information (Anishinabek/Ontario Fisheries Resource Centre, 2009).

Migratory Birds

The *Migratory Birds Convention Act, 1994* (MBCA) protects all migratory birds, not just avian SAR and the Project has the potential to impact migratory birds, primarily through construction activities. Nesting migratory birds are protected under the MBCA; therefore, no work will be permitted to proceed that would result in the destruction of active nests (nests with eggs or young), the wounding or killing of birds, of species protected under the MBCA and regulations under the Act.

Designated Natural Areas

There are several provincially designated natural features mapped within the study area, including:

- Georgina Island PSW
- Virginia Beach Wetland Complex (non-PSW)
- Stratum 2 Deer Wintering Area (i.e., Significant Wildlife Habitat [SWH])
- Sibbald Point Provincial Park (Recreation Class)
- Greenbelt Policy Area

Figure 8 provides an overview of Designated Natural Areas, based on information available in the provincial Land Information Ontario (LIO) database.

Culturally Significant Species

To take culturally sensitive species into consideration, the GIFN developed an Environmental Principles document outlining the principles (**Appendix I**) that will guide the development of the Project without sacrificing the integrity of the environment and its species.

Some of the key principles include:

- All Project processes will be examined thoroughly prior to the commencement of work to identify direct and indirect adverse impacts to all of Creation including plants, animals, water, land, and air.
- Examination will ensure that the integrity of the environment will be kept, and where threats are identified, will be mitigated using the most current best management practices from both Traditional and Western knowledge.

Refer to **Appendix I** for the full list of GIFN Environmental Principles.

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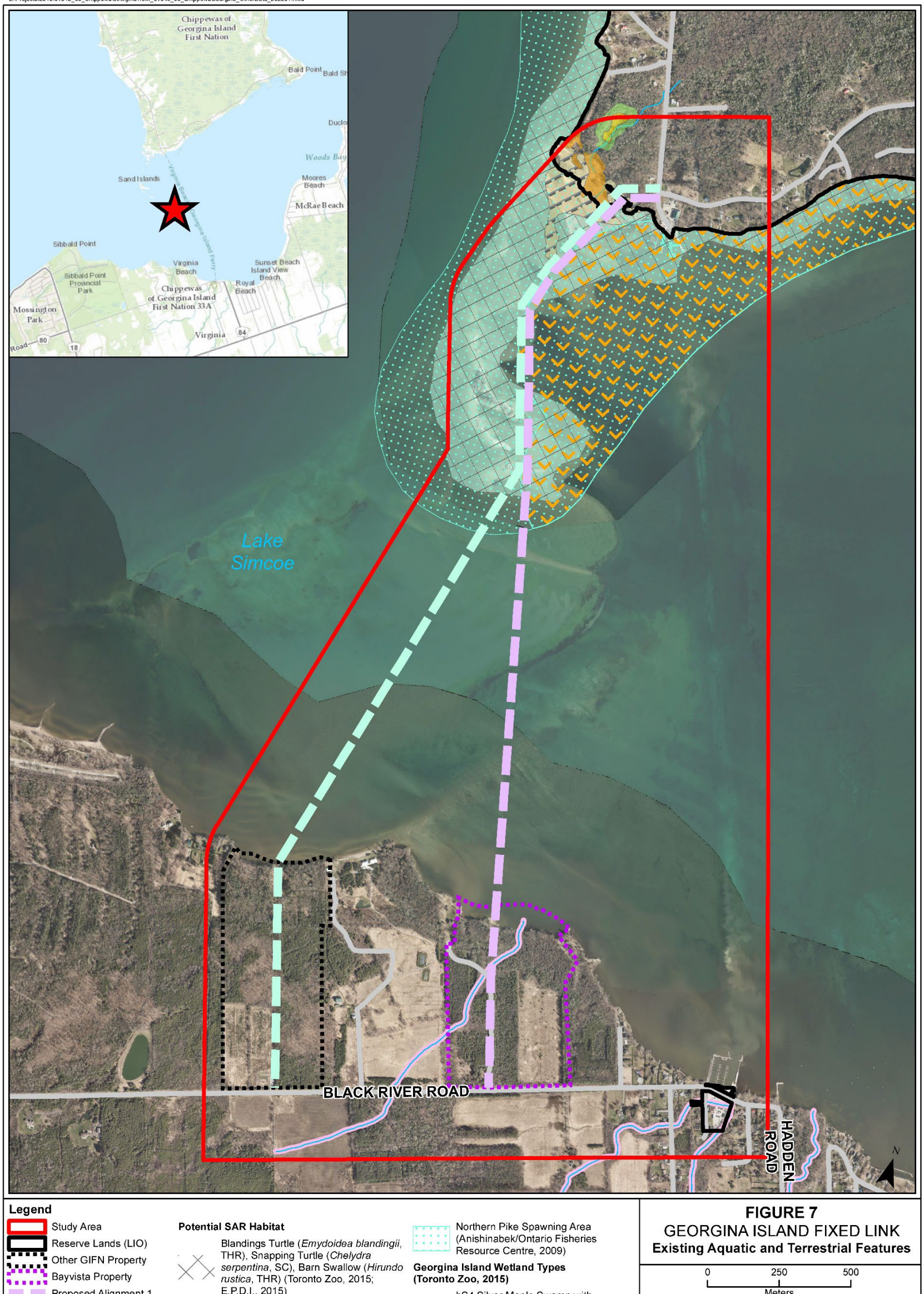

Figure 7 Fixed Link Existing Aquatic and Terrestrial Features

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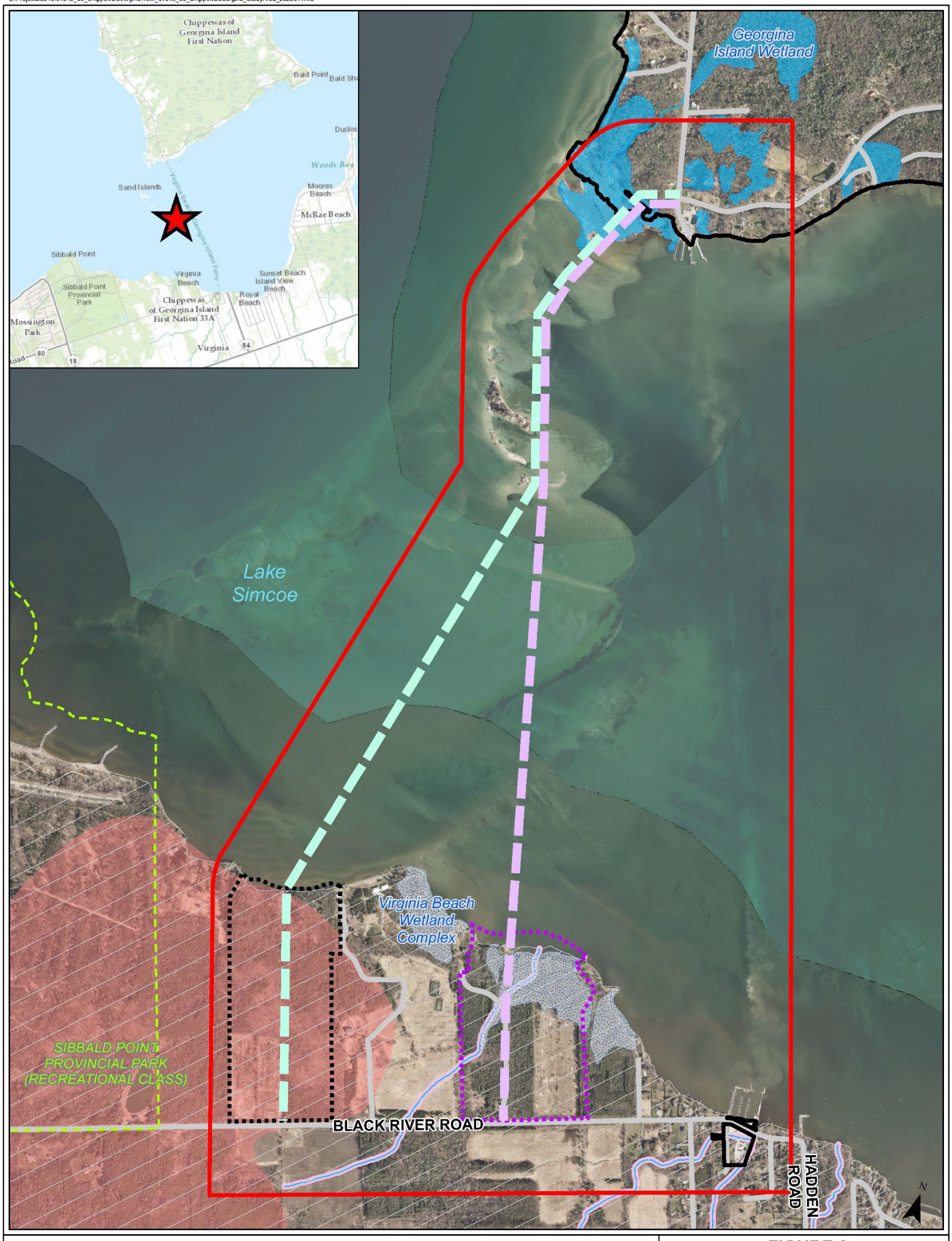

Figure 8 Designated Natural Areas

Hydrogeology and Drainage

From a drainage perspective, additional studies will be required as part of the Project, including to assess and identify:

- Water quantity and quality control measures;
- Impact of ice forces on bridge piers and abutment; and,
- Climate change impact on lake water levels and wave action.

The Ministry of the Environment, Conservation and Parks (MECP) water well records and water supply records were reviewed and indicate that groundwater is present at depths ranging between 5.8 and 17.1 meters below the ground surface (mbgs) in the overburden. The management of groundwater will be considered in the impact assessment studies, and is expected to be needed during construction of the Project, depending on the chosen construction methodology.

Based on recent water supply well records, it is interpreted that the mainland may be partially serviced by groundwater and watermains. Documents provided by the GIFN show that a watermain is present along Bear Road on Georgina Island, indicating that the Georgina Island is serviced for water. A water treatment plant is present on the west side of the Georgina Island shown on “issued for construction” drawings from S. Burnett & Associates Limited (2018). The water intake occurs from Lake Simcoe west of the Georgina Island. Gravity sanitary sewer and pumping stations are present on Beaver Road (Neegan Burnside, 2005).

The “Georgina, Fox and Snake Islands Subwatershed Plan” (2017) confirms that drinking water within the area is provided through private wells and surface water from Lake Simcoe. A Water Well Survey will need to be completed to confirm the reliance on and details of water wells available in the area.

Detailed geotechnical and hydrogeological investigations will also be completed to confirm the existing conditions of the shallow groundwater areas of the island.

Investigations, meetings with the LSRCA coordination with respect to wetland impacts and mitigation, as well as an investigation of source water quality during and post construction will be required. The major risk to hydrogeological resources as a result of this project undertaking is resulting from the need to dewater during construction in Lake Simcoe.

Environmental Site Assessment – Contaminated Soil Investigation

Preliminary site assessments were completed in 2019 and identified three inactive landfill locations on Georgina Island. The locations of the historical landfills are immediately west of the active landfill sites, as shown on **Figure 9** (reproduced below and includes inset zoom of inactive landfill locations on Rabbit Road), with the nearest being approximately 2.2 km NNW of the Project area.

Two sources of potential contamination on the island were identified at the Marina and Business Centre and the buildings/storage yard at the ferry docks (potential contaminating activities include fuel spills and leaks from fuel storage tanks and fuel dispensing equipment, and vehicle/equipment and waste materials storage).

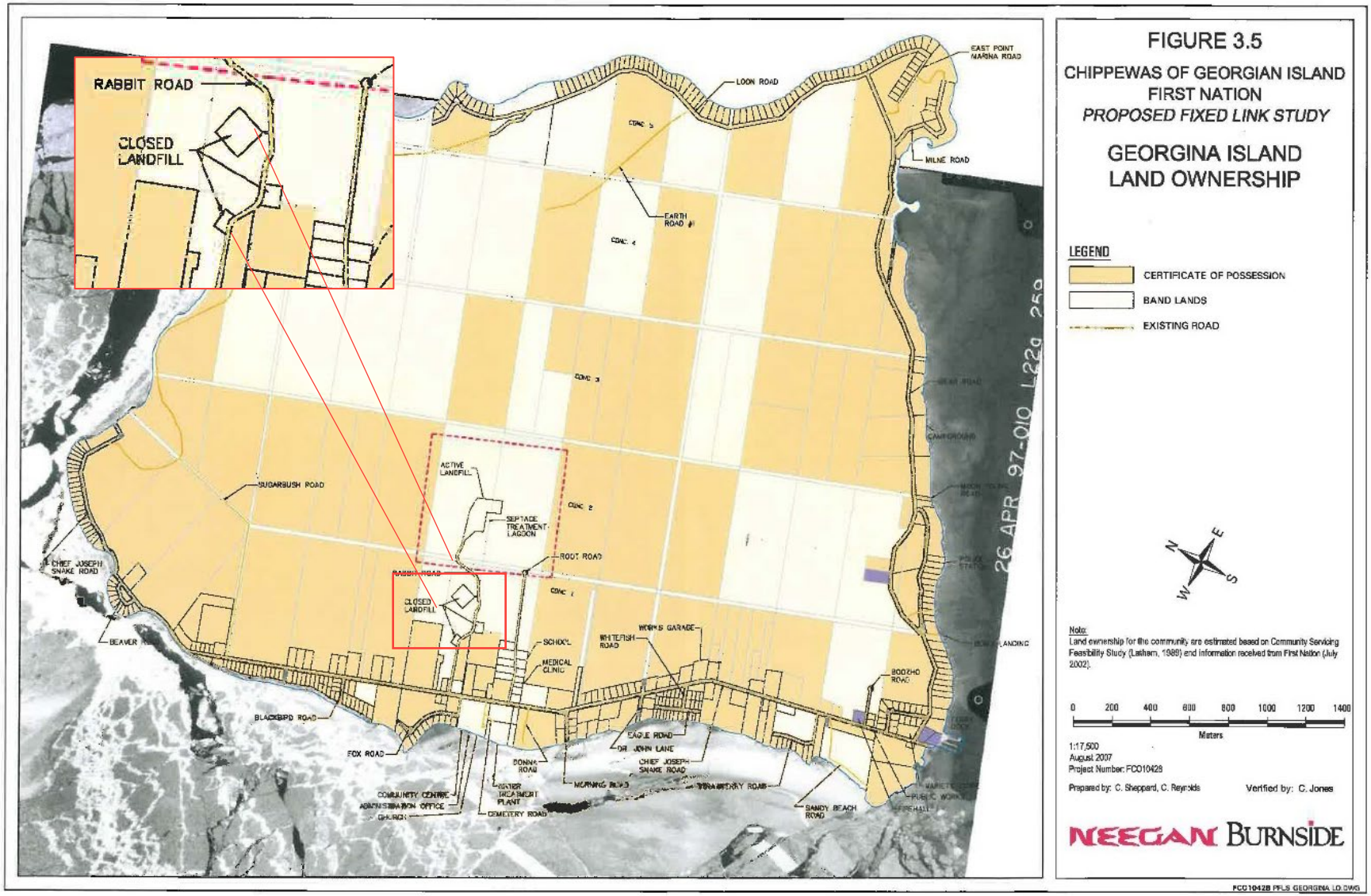

Figure 9 Location of Inactive Landfill sites

Contaminants of potential concern (COPC) include polychlorinated biphenyls (PCBs), metals, petroleum hydrocarbons, volatile organic compounds (VOCs), polycyclic aromatic compounds (PAHs), and electrical conductivity and sodium adsorption ratio (road salt contamination). These contaminants may adversely affect the quality of country foods. A Traditional Land Use (TLU) study will be completed to inform the assessment of country foods on human health. Results of the TLU study and an analysis of potential impacts on country foods will be included in the DPD, once developed.

Further investigation will be completed to determine whether there may be potential impacts associated with the sources of potential contamination (e.g., likelihood that impacted soil and/or groundwater will be encountered during construction). The Phase I Environmental Site Assessment (ESA) study area is anticipated to include those properties that are wholly or partly within a 250-m radius of the Project area. A Phase II ESA will characterise soil and ground water quality with respect to the contaminants of potential concern

Air and Noise

No specific background studies have been conducted for air quality, greenhouse gas, or noise for the Project to date. Air Existing Conditions and Impact Assessment and Noise Existing Conditions and Impact Assessment studies will be completed to inform the federal impact assessment process. Under the *Environmental Protections Act* in Ontario, the regulations state that air and noise emissions discharged from construction activities must be controlled to avoid causing an adverse effect using “every step necessary to control the emissions”.

During design and construction, a Construction Contractor shall provide and implement recommended best management practices that are industry standard in Ontario to minimize air emissions from construction activities including best management practices for dust, noise, and approvals for mobile construction equipment.

15. DESCRIPTION OF THE HEALTH, SOCIAL AND ECONOMIC CONTEXT

A brief description of the health, social and economic context in the region where the project is located, based on information that is available to the public or derived from any engagement undertaken.

Future Studies

In addition to the future studies listed in **Section 14. Description of the Physical and Biological Environment**, the following studies will be prepared to further refine the existing conditions information for the study area and will identify significant and sensitive features. Results from these studies will be included in the DPD, once developed.

- Transportation and Traffic Impact Study;
- Stage 1 Archaeological Assessment Report; and
- Cultural Heritage Existing Conditions and Impact Assessment Report.

Transportation Planning and Traffic Analysis

The current major transportation option for community members between Georgian Island and the Mainland is a ferry service, known as the Aazhaawe Ferry. There are significant gaps in the ability to report on existing transportation conditions for GIFN and the surrounding area. The Project Planning process will require a Traffic Impact Study and analysis of existing and future transportation operations in order to understand how possible fixed link alternatives will impact current pedestrian and vehicular traffic within the study area.

Additional studies are required by the Project Team in order to establish baseline conditions that are relevant to current travel demands. This will require contacting contact the Town of Georgina and York Region in order to obtain information. Furthermore, additional site visits may be required as part of the Project Planning process associated with traffic counts in the area.

A traffic survey and transportation study are required. The data used in previous studies may be outdated and does not consider current traffic and transportation needs in and surrounding the Study area. However, previous studies did show the following:

- Passenger and vehicle demand for 2006 showed that the maximum monthly usage of the ferry occurred in the summer with a maximum of 4,398 vehicles and 138 passengers in a month;
- The number of vehicle trips utilizing the ferry link is significantly less than the number that would use a proposed fixed link, due to the cost and time constraint imposed by the ferry link;
- The long-term demand on the fixed link was forecasted to be about 2,180 vehicles per day, with 142 vehicle crossings in the am peak hour and 206 vehicle crossings in the pm peak hour;
- It is typical practice to utilize asphalt surface for roads that experience traffic volumes exceeding 400 vehicles per day and it was recommended that all roadways within the study area include asphalt surface; and,
- Traffic from the fixed link could impact the operations of the intersection of Hadden Road at Highway 48 and potentially trigger a signal subject to signal warrant analysis.

- To assess existing traffic operations, traffic counters specialized in traffic data collection will be required to obtain the following information:
- Automatic traffic record (ATR) data for Black River Road; and,
- Peak period (7-9am and 4-6pm) turning movement counts at the intersection of Hadden Road at Highway 48 and Chief Joseph Snake Road at Bear Road.

It should be noted that traffic data collected at this time may not represent typical traffic patterns due to Covid-19. Therefore, the information from the Town of Georgina and the Ministry of Transportation Ontario (MTO) will be required in order to compare the data with historical counts (if available) to establish baseline existing conditions. Furthermore, weekday, morning, and evening peak hour intersection capacity analyses of existing, traffic volumes for the study intersections using the Synchro 10 software package is recommended.

Archaeology and Cultural Heritage

A review of the Ontario Archaeological Sites Database indicated there are no recorded archaeological sites within or up to 1 km from the study area. A review of the Ontario Public Register of Archaeological Reports indicated no archaeological assessments were completed within the study area. However, the York Region Archaeological Management Plan shows much of the study area on the mainland to hold archaeological potential.

A Stage 1 Archaeological Assessment, including consideration for marine archaeological resources for areas where the lakebed of Lake Simcoe and shorelines may be disturbed, will be completed at future stages of the Project. Stage 1 Archaeological Assessment will identify the archaeological potential of the study area and recommend appropriate mitigation strategies, including whether subsequent archaeological assessment is warranted. Consideration for underwater archaeological potential must be encapsulated within the Stage 1 report.

Population and Demographic

As outlined in the Fixed Link Socio-Economic Study (2019) (**Appendix B**), the main population of the reserve resides on the largest Island, Georgina Island. In 2021, it was recorded that approximately 179 of the 618 GIFN band members permanently reside on the island's The GIFN is governed by an elected band council, consisting of one chief and four councillors.

Surrounding Population

As per the 2016 census[2], the population located within 50 km of the GIFN community was in excess of 860,000 people. This is expected to grow to over 1.1 million people. The population located within 100 km of Georgina Island is very substantial and includes the Greater Toronto Area and the entire Golden Horseshoe population.

Within the primary market, there are 296,778 households and this number increases dramatically to 2,189,671 when nearby populations within a 100 km radius are included. If the market reach is expanded once again, the number of households increases to over 3.5 million.

[2] In this section and following sections, a combination of data sources has been used, including Statistics Canada 2016 census data, which provides the most complete census data to reflect recent population changes and trends, though precise population numbers will have changed since 2016; thus, population data from 2019 and 2021 differs slightly. Where supplemental data has been obtained, the source has been identified.

The numbers are expected to grow significantly in future years. The anticipated number of households within 250 km is projected to be over 4.2 million.

The local population surrounding the study area is in excess of 5.4 million (within a 1.5 hour driving radius). The preferred route of the fixed link would be located within a 5-minute drive on the mainland to Sibbald Point Provincial Park, one of the most popular parks in Ontario (70,000 people per year). Georgina Island is within the proximity of numerous seasonal activities and prime cottage country, which brings more cottagers and tourists to the area in summer months. Approximately 280 resorts, bed and breakfasts, farming accommodations and campgrounds exist within the immediate area of Georgina Island and the current Aazhaawe Ferry Station on the mainland. Local tourism infrastructure is currently in place to support the demand and is fully operational. Accordingly, a commercial presence with the GIFN community is strong and tourism in the area has favourable conditions for growth.

Population Density

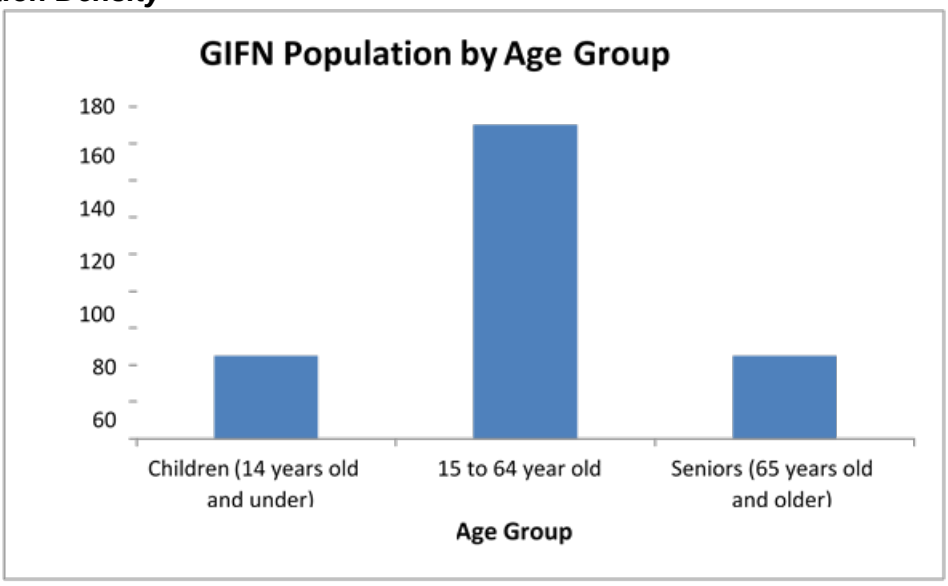

Figure 10 GIFN Population by Age (Statistics Canada, 2016)

The land area of the island is approximately 15 km^2 which is 4.5 km long and 3.2 km wide with an area of 1,416 ha (3,499 acres). The population density, as of 2016, was 17.9 people per square kilometer (Statistics Canada, 2016). At the time of the 2016 census, the population of GIFN was approximately 261 (including GIFN Members and non-members). The majority of the population in 2016 was in the age range of 15-64, as seen in **Figure 10**.

Population Change

Overall, the population is declining at a rate of 0.3% per year over the past 15 years from 2001 to 2016. In the last two census, the population declined by 14 people, an average decline rate of 1% per year from 2011 to 2016. First Nations or persons with Registered or Treaty Indian status but are not First Nations, Métis, or Inuit identity, make up 84% of the total population.

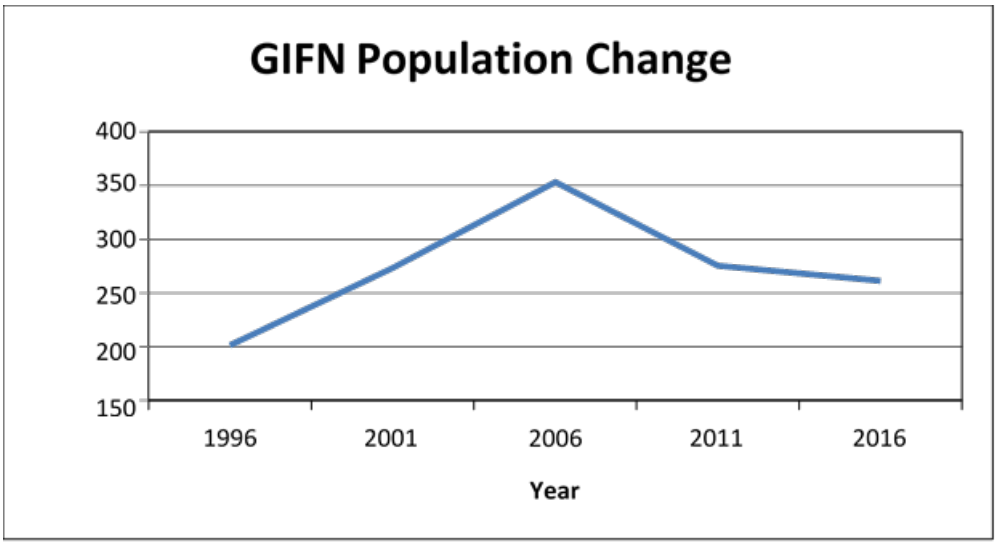

Figure 11 GIFN Population Over Time (1996-2016) (Statistics Canada, 2016; Statistics Canada, 2012)

Based on the Census data from 1996 to 2016, the GIFN population (which includes both GIFN Members and non-members) has shown a decreasing trend. The population percentage change between 2011 to 2016 was -5.1% (**Figure 11**). As of 2016, there are 565 private dwellings on the Reserve and 118 dwellings which are occupied by usual residents (Statistics Canada, 2016).

Population by Sex

Based on 2021 data from the Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) First Nation Profiles, GIFN has a total membership of approximately 936 members of which approximately 209 reside on the island and 726 live off the island (CIRNAC, 2021; GIFN, 2019). Of the 209 members that reside on the island, approximately 98 are male and 111 are female as identified in **Table 10.** (CIRNAC, 2021).

Table 10 GIFN Registered Population

Residency	Number of People
Registered Males on Own Reserve	98
Registered Females on Own Reserve	111
Registered Males Off Reserve	353
Registered Females Off Reserve	373

The most recent census did not provide gender statistics for Georgina Island, but as of the 2019 registered membership, 53.8% of people were registered female members living within Georgina Island, and 46.1% of people were registered males also living within the community (**Table 11**).

Table 11 Population by Sex for GIFN

	GIFN	
	Number	Percent (%)
Total	261	100
Male	120	46.1
Female	140	53.8

Population by Age

Georgina Island has a median age of 44.65 years old and an average age of 41.3. The largest population is the age group between 55 and 59 years old, and the least populated age group is 85+ years old. 66% of the population are in the working age group between 15 to 64 years old, while 25.7% make up the younger population which will be a part of labour force in less than two decades (**Table 12**).

Table 12 Population by Age for GIFN

	GIFN	
	Number	Percent (%)
Total Population	260	100
Children (14 years old and under)	45	17.3
15 to 64 years old	165	66
Seniors (65 years old and older)	45	17.3

Seasonal Population Changes

Seasonal influx of non-GIFN cottagers and tourists in the summer months is reported (**Table 13**), and in a recent Health Impacts Assessment survey 43 participants indicated this influx is one of the reasons for causing additional strain on both the ferry and the GIFN community as a whole (Intrinsik, 2021).

Table 13 Total Ferry Passenger Vehicle Trips (2009-2019)

Year	Total Number of Passenger Vehicle Trips	Winter (5%)	Spring (20%)	Summer (45%)	Fall (30%)	Difference (Summer-Spring)	Difference (Summer-Fall)
2009	153,000	7,650	30,600	68,850	45,900	38,250	22,950
2010	121,500	6,075	24,300	54,675	36,450	30,375	18,225
2011	123,300	6,165	24,660	55,485	36,990	30,825	18,495
2012	129,600	6,480	25,920	58,320	38,880	32,400	19,440
2013	128,850	6,443	25,770	57,983	38,655	32,213	19,328
2014	121,500	6,075	24,300	54,675	36,450	30,375	18,225
2015	122,400	6,120	24,480	55,080	36,720	30,600	18,360
2016	163,800	8,190	32,760	73,710	49,140	40,950	24,570
2017	136,575	6,829	27,315	61,459	40,973	34,144	20,486
2018	126,450	6,323	25,290	56,903	37,935	31,613	18,968
2019	164,250	8,213	32,850	73,913	49,275	41,063	24,638
TOTAL	**1,491,225**	**74,561**	**298,245**	**671,051**	**447,368**	**Avg. = 33,891**	**Avg. = 20,335**

Seasonal passenger vehicle trip percentages are based on community knowledge, provided from the Transportation Manager of GIFN. It is presumed that ferry passenger vehicles during Spring (March 20 – June 21) consists almost entirely of community members (staff, families, etc.) and that ferry passenger vehicles during Fall (September 22 – December 21) consists again of mainly community members, but to a lesser extent than the Spring season. The influx of passenger vehicle trips in the Summer, versus Spring and Fall is between 20,000 and 33,000 from 2009-2019, which can be attributed to seasonal visitors.

Impacts on the community include longer ferry wait times which contribute to easy access to island residences and mainland emergency healthcare or recreational activities.

Education

According to GIFN website, there is an elementary school for children from kindergarten to Grade 5 with an attached community library on the island. The community library offers programs such as skills upgrading, early learning literacy computers for children and E-learning. Individuals such as the Aboriginal Student Advisor, Education Manager and Post-Secondary Education Coordinator can be contacted and are available for assistance for those seeking higher education. For grade 6 through to 12, students need to travel from the island to the mainland.

In 2016, 70.4% of GIFN members aged 25 to 64 had a high school diploma or equivalency certificate, compared with 86.3% in Canada (Statistics Canada, 2016).

In the GIFN community, 6.98% of people aged 25 to 64 had a bachelor's degree or higher in 2016, while 27.91% had a college, CEGEP or other non-university certificate or diploma as their highest level of education, and 13.95% had an apprenticeship or trades certificate or diploma as their highest level of education (**Table 14**).

Table 14 Level of Education for GIFN

Education by highest certificate, diploma, or degree	Chippewas of Georgina Island First Nation			
	Total Number[a]	Percentage	Male[a]	Female[a]
Total Population (aged 15 years and over)	215	100	100	115
No certificate, diploma, or degree	50	23.26%	25	30
Secondary (high) school diploma or equivalencycertificate	50	23.26%	25	25
Apprenticeship or trades certificate or diploma	30	13.95%	20	10
College, CEGEP or other non-university certificateor diploma	60	27.91%	20	35
University certificate or diploma below bachelorlevel	10	4.65%	0	0
University certificate, diploma, or degree atbachelor level or above	15	6.98%	0	15
Bachelor's degree	10	66.67%	0	10

[a] Users should be aware that the estimates associated with this variable are more affected than most by the incomplete enumeration of certain Indian Reserves and Indian settlements in the 2016 Census of Population. For more information on Aboriginal variables, including information on their classifications, the questions from which they are derived, data quality and their comparability with other sources of data, refer to the Aboriginal Peoples Reference Guide, Census of Population, 2016 and the Aboriginal Peoples Technical Report, Census of Population,2016.

[b] Total – Secondary (high) school diploma or equivalency certificate for the population aged 15 years and over inprivate households – 25% sample data.

Employment

Overall, the employment rate in Georgina Island is growing at a rate of 1.7% per year over the past 5 years from 2011 to 2016. In the last two census, its employment rates grew by 8.4%, an average growth rate of 1.7% per year from 2011 to 2016. A growing employment rate reflects positive economic conditions in the community and implies that people looking for a job are getting matched to an employer.

In 2016, the population of GIFN in the labour force was 130 individuals, out of which approximately 96% were employed (**Table 15**). 29% of the working population was employed in public administration, while the other 71% was split between seven other industries as illustrated in **Figure 12** (Statistics Canada, 2016).

Table 15 Labour Force Status for GIFN

Labour Force Status	Chippewas of Georgina Island First Nation			
	Total Number[a]	Percentage	Male[a]	Female[a]
Total Population (aged 15 years and over) [b]	215	100%	100	115
In the Labour Force	130	60.47%	65	65
Employed	125	96.15%	60	60
Unemployed	10	7.69%	0	0
Not in the Labour Force	80	37.21%	35	50

[a] Users should be aware that the estimates associated with this variable are more affected than most by the incomplete enumeration of certain Indian Reserves and Indian settlements in the 2016 Census of Population. For more information on Aboriginal variables, including information on their classifications, the questions from which they are derived, data quality and their comparability with other sources of data, refer to the Aboriginal Peoples Reference Guide, Census of Population, 2016 and the Aboriginal Peoples Technical Report, Census ofPopulation, 2016.

[b] Labour force status for the population aged 15 years and over in private households – 25% Sample data. Refersto whether a person aged 15 years and over was employed, unemployed or not in the labour force during the week of Sunday, May 1 to Saturday, May 7, 2016.

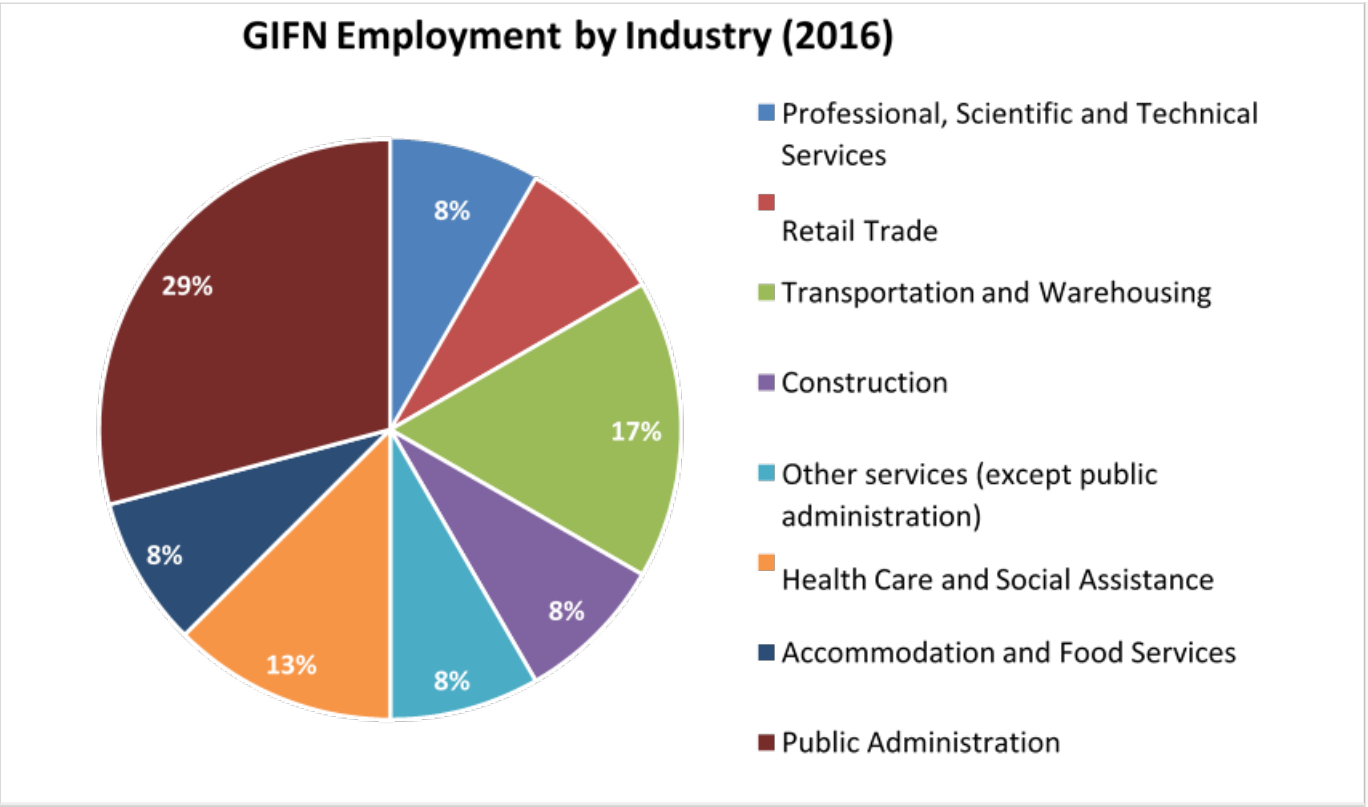

Figure 12 GIFN Employment by Industry (2016) (Statistics Canada, 2016)

Income

The median total income for GIFN in 2016 was $26,368 (**Table 16**), which is significantly less than provincial median income of $33,539, and a national median income of $34,204 (Statistics Canada, 2016). With a population at 261 people at the time of the census, most inhabitants at of Georgina Island were above the low-income cut-off, or the income a person must earn to be part of the low-income group.

Table 16 Income by Sex for GIFN

Income statistics in 2015	Total	Male	Female
Number of income recipients aged 15 years and over	200	90	110
Median total income	$26,368	$29,632	$25,504
Average total income	$36,627	$36,679	$36,583
Median after-tax income	$25,728	$29,632	$25,024
Average after-tax income	$34,684	$34,624	$34,735

The largest percentage of the population fell in the under $10,000 income group with 23.26% of individuals compared to Ontario which only had 15.3%, and Canada having 14% of individuals (**Table 17**).

Table 17 Total Income Groups in 2015 for GIFN

Income statistics in 2015	GIFN	
	Total	Percentage
Total income groups for the population aged 15 years and over in private households	200	100%
Under $10,000 (including loss)	50	23.26%
$10,000 to $19,999	35	16.28%
$20,000 to $29,999	35	16.28%
$30,000 to $39,999	25	11.63%
$40,000 to $49,999	10	4.65%
$50,000 to $59,999	10	4.65%
$60,000 to $69,999	10	4.65%
$70,000 to $79,999	0	0%
$80,000 to $89,999	15	6.98%
$90,000 to $99,999	10	4.65%
$100,000 and over	10	4.65%

The average income per household within the local region is substantially higher than the Ontario average. Within Ontario, the average household income is almost $67,000. Within the primary market area, the average family income is just over $77,000. This difference is quite substantial when assessing household purchasing power - an examination of the households within 250 km also shows an income greater than the Ontario average. This difference is less substantial, however, and over the next five years is expected to remain in line with Ontario averages.

Along with having higher household incomes, a larger portion of households are in the top percentiles for income ranges. Approximately 71% of households within the local market have an income over $60,000 per year and has the lowest percentage of households earning below the poverty line (less than 5%). The more favourable of the statistics is that throughout all households within the more regional markets, the largest earning groups are those that earn over $100,000 and between $60,000 and $80,000 per year.

Owing to high demand in tourist opportunities within the Georgina Island area, overbearing and uncontrolled tourists and overuse of the existing land base are potential risks with expanded tourism potential. As such, overuse of the current ferry system is a threat to local community members relying on service to the mainland. A fixed link would alleviate these demand pressures. A controlled and secure bridge would also ensure access to the island and use of the

fixed link would not be overused, particularly during summer months, which bring considerably more tourists to the area.

Cost of Living

Cost of living for residents of Georgina Island can be expected to be at or near Ontario averages. Ontario is Canada's largest province and is one of the most expensive provinces on a cost basis. This is partially explained by the province having some of the highest housing costs in Canada, especially around the Greater Toronto Area (GTA), where 48% of Ontarians call home.

Electricity

With 84% of residents being First Nations, costs associated with delivery for electricity are not incurred due to the On Reserve First Nations Delivery Credit from Hydro One, implemented July 1, 2017, resulting in a lower average monthly electricity bill. However, the Ontario Fair Hydro Plan was only promised for four (4) years, and the future of electricity pricing is unknown. As per the updated Community Energy Plan for Georgina Island (2018), electricity is the most common energy type for space-heating used year-round in residential and seasonal residential sectors.

Propane

Propane is the second most common energy type used for space heating in both the year-round residential and seasonal residential sectors. Propane is supplied to the community by Budget and Superior Propane, by truck on the ferry. Delays due to freezing and thawing seasons on Lake Simcoe do occur for the community, so propane must be pre-ordered at times during the year, compounding costs for residents.

Internet

Internet in the community is provided by Xplornet and Bell Communications. Internet connectivity has been historically poor, as connection must be established wirelessly. Costs associated with internet would be consistent with other local municipalities, without having a secure fibreoptic speed connection. The G for the purposes of crossing an ice-road, resulting in higher-than-average premiums. From the updated Community Energy Plan, 80% of transportation energy use between 2014 to 2017, was by the residential and seasonal residential sectors.

Housing

From the 2016 census, 91% of families owned their homes, with the remaining 9% renting their home. Housing prices on First Nations have been historically lower due to standards set by the First Nation itself to ensure homes are affordable for members, or due to the value placed on dwellings that reside on leased lands. This may differ to some degree for cottages located on lakefront. Costs associated with renting on a First Nation have also remained lower than regional averages due to more limited access to services that are available outside of First Nation communities. It can be expected that costs associated with housing/ renting would be lower than regional averages.

Food And Essentials

Food costs for residents of Georgina Island can be expected to be higher than mainland residents due to the added need for transportation to the island from the mainland. Georgina

Island does not currently have any grocery or convenience stores available, so residents must travel to the mainland to access nearby centres to shop for essentials.

Transportation

Transportation costs in Ontario are also some of the highest in Canada, with car ownership and associated insurance premiums being high as well. Many Georgina Island residents must travel by vehicle to the mainland for education, employment, essential services, social and recreation activities. Residents of the community must also carry comprehensive insurance for their personal vehicles for the purposes of crossing an ice-road, resulting in higher-than-average premiums. From the updated Community Energy Plan, 80% of transportation energy use between 2014 to 2017, was by the residential and seasonal residential sectors.

Childcare

Childcare provided by the Niigaan-Naabiwag Child Care Centre is subsidized by the federal government for members of Georgina Island. For the purposes of this Project, it has been included in the cost-of-living existing conditions. Members who reside outside the community but wish to take advantage of subsidized childcare, must transport their children to the facility within the community, thus incurring additional risks and costs of transportation, and ferry wait times. Refer to **Appendix B** for further detail.

Country Food

The following list (**Table 18**) include in of food and medicinal sources for Georgina Island include, but is not limited.

Table 18 Country Food Sources on Georgina Island

Type	Species
Fish	• Lake whitefish (*Coregonus clupeaformis*) • Lake herring (*Coregonus artedii*) • Burbot (*Lota lota*) • Northern pike (*Esox lucius*) • Yellow perch (*Perca flavescens*) • Smallmouth bass (*Micropterus dolomieu*) • White sucker (*Catostomus commersoni*) • Pumpkinseed (*Lepomis gibbosus*) • Brown bullhead (*Ictalurus nebulosus*) • Rock bass (*Ambloplites rupestris*) • Pumpkinseed (*Lepomis gibbosus*) • Black crappie (*Proxis nigromaculatus*) • Rainbow smelt (*Osmerus mordax*) • Muskellunge (*Esox masquinongy*)
Mammals	• Eastern gray squirrel (*Sciurus carolinensis*) • Red squirrel (*Sciurus vulgaris*) • Eastern cottontail (*Sylvilagus floridanus*) • Snowshoe hare (*Lepus americanus*) • White-tailed deer (*Odocoileus virginianus*) • American black bear (*Ursus americanus*) • North American beaver (*Castor canadensis*)

Type	Species
	• Muskrat (*Ondatra zibethicus*)
Birds	• Canada goose (*Branta canadensis*) • Canvasback (*Aythya valisineria*) • Mallard (*Anas platyrhynchos*) • Redhead (*Aythya americana*) • Wood duck (*Aix sponsa*) • Hooded Merganser (*Lophodytes cucullatus*) • Common goldeneye (*Bucephala clangula*) • American widgeon (*Mareca americana*) • American black duck (*Anas rubripes*) • Greater scaup (*Aythya marila*) • Lesser scaup (*Aythya affinis*) • Bufflehead (*Bucephala albeola*) • Blue-winged teal (*Spatula discors*) • Gadwall (*Mareca strepera*) • Green-wigned teal (*Anas carolinensis*) • Northern pintail (*Anas acuta*) • Northern Shoveler (*Spatula clypeata*) • Rudy duck (*Oxyura jamaicensis*) • Ring-necked duck (*Aythya collaris*) • Ruffed grouse (*Bonasa umbellus*) • Mourning dove (*Zenaida macroura*) • Eastern Wild Turkey (*Meleagris gallopavo silvestris*)
Reptiles	• Painted turtle (*Chrysemys picta*) • Common snapping turtle (*Chelydra serpentina*)
Plants	• American Ginseng (*Panax quinquefolius, Panacis quinquefolis*) • White Cedar (*Thuja occidentalis*) • Wild Crabapple (*Malus coronaria*) • Morel (*Morchella esculenta*) • Fiddlehead (*Polypodiopsida* or *Polypodiophyta*) • Wild Ginger (*Asarum canadense*) • Wild Mint (*Mentha arvensis*) • Ramp/Leek (*Allium tricoccum*) • Wild asparagus (*Asparagus officinalis*) • Chaga (*Inonotus obliquus*) • Sweetgrass (*Hierochloe odorata, Anthoxanthum nitens*) • Wild rice (*Zizania palustris*)

Community Features and Services

On Georgina Island, there is an administration building, a health centre, a police station, a fire hall, and a community centre. As well, the island children attend a two-classroom school until Grade 5, and there is a daycare for infants and toddlers. A church, the community centre and an outdoor rink provide opportunities for the community to gather for various events.

The community buildings and most residential structures are centralized on the eastern and western shores providing community members with easier access to local services. The GIFN

has undeveloped Lake Simcoe shoreline and excellent proximity to Highway #12 and Highway #48 leading directly from the Greater Toronto Area to the northern cottage regions. Georgina Island is only accessible by the Aazhaawe Ferry during the spring, summer, and autumn months of the year and by scoot or ice road during the winter months. The ferry can carry up to 18 cars and there is comfortable cabin space for 50 walk-on passengers.

The Georgina, Fox, and Snake Islands Subwatershed Plan (2017) confirms that drinking water within the study area portion located on Georgina Island is provided through private wells and surface water from Lake Simcoe. A water well survey will need to be completed to confirm the reliance on and details of water wells available in the area. GIFN provides drinking water to approximately 109 households on Georgina Island. This supply has been in place since 1993 and surface water from Lake Simcoe is taken in a location approximately 345 m to the west of the Georgina Island, treated at the Georgina Island Water Treatment Plant. Based on recent water supply well records, it is understood that the mainland may be partially serviced by groundwater and watermains.

Recreational opportunities exist within GIFN on Georgina Island; however, recreational, and social activities could have expanded offerings for members on the mainland. Aazhaawe Ferry scheduling and inconsistent ferry operations do not provide flexible opportunities for recreation offerings off territories.

Please refer to **Section 13d. Proximity to Residences and Potentially Affected Communities** for a description of human receptors (both Indigenous and non-indigenous) that may be impacted by changes to air, water, and country food quality and noise levels associated with the Project activities.

Tourism

The Georgina Island is situated in the prosperous Ontario Regional Tourism (RTO) Zone 6 – also known as the Central Counties. The Central Counties has a population of over 2 million people, residing within over 670,000 households. Tourism in Central Counties is an increasingly substantial contributor to economic growth. The retention of businesses and services in the area is increasingly dependent on visitor spending, resulting in nearby economies investing heavily in attracting those visitors.

From the RTO Zone 6 visitor profile survey in 2018, Cultural Sampling, Attraction to Nature and Ecological Lifestyle scored the highest social values in the survey.

Emergency and Health Care Services

Health care services to GIFN are hindered by inconsistent methods of transport to Georgina Island during winter months and the reliance on one ferry operating with limited capacities during spring, summer, and autumn months. Ambulance service in winter months is currently a challenge as ambulances cannot travel on ice and stretchers cannot fit in scoots. As a result of access difficulties, the overall costs of services from the hourly rates are higher than average and there are greater costs for equipment and maintenance of equipment. 24/7 service across all health care offerings is not possible due to complexities of accessing the island and emergency service would have to be delivered via air medical services. With a reliable fixed link, visiting doctors can more easily and affordably access Georgina Island to provide members of GIFN with essential health care service.

COVID-19 Pandemic

In March 2020, the COVID-19 pandemic (the pandemic) emerged in Ontario, forcing many industries to either close or operate at a reduced capacity. These measures and the hardships with public health measures has forced many tourism businesses to lay off staff with concerns of cashflow to pay for fixed costs such as rent, utilities and existing debt. From a survey and report released in October 2020, by the Tourism Industry of Ontario (TIAO), it was estimated that tourism businesses were suffering a 69% revenue decline at that time.

Further pandemic waves, and a regression into more stringent physical distancing protocols has caused sectors such as restaurants, bed and breakfast and other local tourism attractions even further hardships, which are yet to be fully understood as the pandemic continues. At the beginning of the pandemic, GIFN leadership decided to limit access to the island, for the protection of community health. This choice, which was in the best interests of the community, has had obvious impacts to local businesses both on the island and mainland,. As well, Indigenous peoples experience a more significant burden of noncommunicable and infectious diseases generally, and this is related to social and health inequities stemming from invasion and subsequent colonisation.

The island closure impacted the momentum of the fixed link Project as stakeholder meetings and community engagements regarding the Project have either been rescheduled for times when public health measures have relaxed or switched to virtual options, which most of the work force has become familiar with. As well community members experienced increased challenges in accessing cultural practices due to public health protocols, lack of ability to travel to communities due to lockdown measures, increased fear and concern surrounding contracting the virus and the shutdown of recreational activities such as sports, entertainment, cultural gatherings, and family vacations. Close living quarters also impacted mental health, especially in cases of unhealthy emotional and physical situations for women, children, and LGBTQ2S+ peoples as a non-exhaustive list. Further, as a result of the heightened public health protocols, community members experienced lack of culturally safe health care and access to personal protection equipment (PPE).

In response to the pandemic and island closure, GIFN entered into a six-month commercial agreement with Drone Delivery Canada Corp. (DDC). Dated July 30, 2020, the agreement was established with the assistance of Drone Delivery Canada sales agent Air Canada and also the Pontiac Group. The drone delivery platform was crucial to limit person-to-person contact on its island ferry service by transporting COVID-19-related cargo including personal protection equipment (PPE), hygiene kits, test kits, test swabs, and other goods.

PART D – Federal, Provincial, Territorial, Indigenous and Municipal Involvement

16. POTENTIAL FEDERAL FINANCIAL SUPPORT

A description of any financial support that federal authorities are, or may be, providing to the project.

The GIFN are well positioned to take this project on financially.

The GIFN understand the substantial costs that will be associated with this project. For community planning purposes, the GIFN Chief and Council have separated the Project into two separate phases: Planning/Design and Construction.

The Canada Infrastructure Bank (CIB) is in discussions with the GIFN with respect to financing the Project construction. The community has initiated the processes required to be considered for financial support through an initial meeting, which included a presentation by the CIB to the First Nation Council. The discussions with respect to a potential CIB investment would be for approximately 80% of the required capital to be supported by the CIB.

The remaining 20% of the Project would be funded through a combination of Long-Term Investments, own source revenues and other government equity-based funds. Due to the uncertainty of government programming over the long term, the GIFN community is unable to gauge what amounts may be available in the long term. For that reason, the GIFN is operating on the assumption that they will be required to support the full 20% of equity needed and are willing to do so if required.

It should be noted that any funding with respect to the Project from a federal department (e.g., CIB) would be conditional upon the Project receiving a positive decision statement from the Minister of Environment and Climate Change after an impact assessment, or a decision by the IAAC that no impact assessment of the Project is required (IAA, subsection 7(3)).

17. FEDERAL LANDS THAT MAY BE USED FOR THE PROJECT

A list of any federal lands that may be used for the purpose of carrying out the project.

Georgina Island No.33, the reserve lands of GIFN, are federal lands as defined in the IAA. The fixed link will connect the mainland to Georgina Island No.33. Any submerged lands under Lake Simcoe that were once dry lands belonging to Georgina Island No.33, Sand or Gravel Islands before the water levels of Lake Simcoe are also federal lands as defined in the IAA (**Figure 3**).

18. INVOLVEMENT OF FEDERAL AUTHORITIES AND OTHER JURISDICTIONS

A list of any jurisdictions that have powers, duties or functions in relation to an assessment of the project's environmental effects.

See **Table 19** for a summary of list of agencies that have been consulted with for the Fixed Link Study.

Table 19 List of Agencies that have Potential Powers, Duties of Functions

Agency	Level	Powers, Duties and Functions
Impact Assessment Agency of Canada (IAAC)	Federal	• Administer the *Impact Assessment Act* (IAA). • Lead and manage the impact assessment process for all federally designated major projects. • Lead Crown engagement and serve as the single point of contact for consultation and

Agency	Level	Powers, Duties and Functions
		engagement with Indigenous peoples during impact assessments for designated projects. • Provide opportunities and funding to support public participation in impact assessments. • Work to ensure that mitigation measures are applied and are working as intended. • Promote uniformity and coordination of impact assessment practices across Canada through research, guidance and ongoing discussion with stakeholders and partners.
Fisheries and Oceans Canada (DFO)	Federal	• Administer the *Fisheries Act*. • Administer the protection provisions of aquatic species under the *Species at Risk Act* (SARA). • Ensure that Canada's oceans and other aquatic ecosystems are protected from negative impacts. • Ensure commercial vessels and recreational boaters can safely navigate DFO waters. • Save lives and protect existing environments when emergencies arise.
Environment and Climate Change Canada (ECCC)	Federal	• Administer the protection provisions of terrestrial species under the SARA. • Preserve and enhance quality of the natural environment, including water, air and soil quality, and the coordination of the relevant policies and programs of the Government of Canada renewable resources, including migratory birds and other non-domestic flora and fauna. • Enforce rules and regulations under its mandate.

Transport Canada (TC)	Federal	• Develop and oversee the Government of Canada's transportation policies and programs so Canadians can have access to a transportation system.
		• Administer the *Canadian Navigable Waters Act* (CNWA), and the *Bridges Act.*
		• Work towards the following objectives:
		  • Proposing and updating policies, laws, and regulations;
		  • Conducting inspections, enforcement activities and surveillance of the transportation industry's equipment, operations, and facilities; and
		  • Providing funding to organizations for projects that strengthen the transportation network, including safety improvement

Agency	Level	Powers, Duties and Functions
		projects, technological innovations, and green transportation initiatives.

Indigenous Services Canada (ISC)	Federal	• Administer the *Indian Act* in cooperation with Crown-Indigenous Relations and Northern Affairs Canada.
		• Work with First Nations, Inuit, and Métis to:
		  • Improve access to high-quality services;
		  • Improve well-being in Indigenous communities across Canada; and
		  • Support Indigenous peoples in assuming control of the delivery of services at the pace and in the process they choose.

Women and Gender Equality (WAGE)	Federal	• Lead the implementation of GBA Plus across the federal government and provide expert advice and strategic support to federal departments and agencies in the development of policies, programs and legislation related to gender equality. Intersectional analysis of GBA Plus incorporates considerations related to engagement. • In December 2018, the Government of Canada passed the *Budget Implementation Act, 2018 No.2*, which included legislation in favour of evolving Status of Women Canada (an Agency) into a department and increasing its power, duties, and functions to those concerning not just women, but all gender identities. • "Advance equality with respect to sex, sexual orientation, and gender identity or expression through the inclusion of people of all genders including women, in Canada's social and political life" as well as the intersection of these with other identity factors such as ethnicity, age, socio-economic level, disability and others. • Share expertise in a range of issues related to gender equality, gender-based violence and in the practice of Gender-based Analysis Plus (GBA Plus), which is the Government of Canada's strategy to mainstream equality, diversity, and inclusion into all government business.
Employment and Social Development Canada (ESDC)	Federal	• Develop, manage, and deliver social programs and services, as well as promote safe, healthy, cooperative, and productive workplaces. • Implement two Indigenous Labour Market programs that support participation of First

Agency	Level	Powers, Duties and Functions
		Nations, Métis, and Inuit in the labour market: the Indigenous Skills and Employment Training (ISET) Program and the Skills and Partnership Fund (SPF).

Ministry of Environment, Conservation and Parks (MECP)	Provincial	• Administer the Environmental Assessment Act.
		• Administer the Environmental Protection Act.
		  • Contaminated soils and waste generated during construction must be disposed of in accordance with *Ontario Regulation 347*, entitled "General—Waste Management" and the *Environmental Protection Act*.
		  • Activities involving the management of excess soil shall be completed in accordance with *Ontario Regulation 406/19*, On-Site and Excess Soil Management, and MECP guidance document "Rules for Soil Management and Excess Soil Quality Standards" (MECP, 2020).
		  • The *Environmental Protection Act*, 1990 [Part X, section 92] defines and imposes specific duties on anyone causing a spill or having control of a spilled pollutant into the natural environment. MECP must be notified when a solid, liquid and/or gaseous material has been released to the outside environment (i.e., outside of a building) and causes, or has the potential to cause, an adverse effect.
		• Administer the Ontario Water Resources Act
		  • Water takings that exceed 50,000 litres per day must be carried out in compliance with the conditions for registration on the Environmental Activity and Sector Registry (EASR) or a permit to take water (PTTW) issued under the *Ontario Water Resources Act*, where and as applicable within the Project area.
		• Administer the *Endangered Species Act, 2007*, which prohibits activities that would kill, harm, or harass, and/or damage or destroy habitat of species listed under *Ontario Regulation 230/08* as extirpated, endangered, or threatened in Ontario.
		  • It is a proponent's responsibility to determine if their planned activity(s) will

Agency	Level	Powers, Duties and Functions
		have adverse impacts on SAR protected under the Act and/or its habitat. If a proposed activity will impact SAR and/or its habitat (i.e., the activity may contravene subsection 9(1) and/or 10(1) of the Act), an authorization under the Act would be required in order to proceed with the activity and comply with that Act. • Protect Ontario's air, land, water, species at risk and their habitats. • Tackle climate change. • Manage the province's parks and conservation reserves. • Maintain strong environmental protections while creating jobs. • Enforce compliance with environmental laws. • Work with partner ministries, other governments, Indigenous partners and organizations, industry, stakeholders, and the public. • Monitor and report to track environmental progress.
Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF)	Provincial	• Administer the Fish and Wildlife Conservation Act and the Invasive Species Act. • Administer the Public Lands Act and Lakes and Rivers Improvements Act. • Administer Class EA processes under the Environmental Assessment Act. • Protect people, property and communities from forest fires, floods, and droughts. • Develop and apply geographic information to help manage the province's natural resources. • Identify, evaluate, and classify Provincially Significant Wetlands (PSWs) and Areas of Natural and Scientific Interest (ANSIs). • Complete Fisheries Assessment work within the Lake Simcoe Watershed (LSFAU) to guide management
Lake Simcoe Region Conservation Authority (LSRCA)	Provincial	• Administer Ontario Regulation 179/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation under the Conservation Authorities Act • Work with the community to protect and restore the Lake Simcoe watershed by leading research, policy, and action.

Agency	Level	Powers, Duties and Functions
Regional Municipality of York	Municipal	The Regional Municipality of York governs the following in nine municipalities, including: Aurora, East Gwillimbury, Georgina, King, Markham, Newmarket, Richmond Hill, Vaughan, Whitchurch-Stouffville: • Public transit • Water • Emergency medical services • Policing
Town of Georgina	Municipal	The Town of Georgina is structured into several departments, including: • Mayor & Council. • Chief Administrative Officer (Communications). • Deputy Chief Administrative Officer (Office of the Clerk, Municipal Law Enforcement). • Development Services – (Building, Planning, Economic Development & Tourism, Development Engineering). • Operations & Infrastructure (Operations – Roads / Water / Wastewater, Parks, Capital Projects).

Federal Involvement

Neegan Burnside was retained by GIFN to complete a Preliminary Evaluation of Engineering and Environmental Alternatives (2008) including a summary of federal consultation. It should be noted that consultation and studies completed in 2008 would have been in the context of the *Canadian Environmental Assessment Act* (CEAA), which is a much older federal environmental assessment process that has changed significantly, as well as specific pieces of federal legislation that have also changed. Environment and Climate Change Canada (ECCC), Department of Fisheries and Oceans (DFO) and Transport Canada (TC) – Marine/Ontario Region, Canadian Coast Guard Central & Arctic Region HQ, and Natural Resources Canada (NRCan) were sent baseline information in early 2021.

ECCC

ECCC noted that it does not expect to have any obligations under the IAA. ECCC provided recommendations with respect to surface water quality, wildlife and wildlife habitat and air quality issues. ECCC requested to be kept informed about the Project.

DFO

DFO requested to be informed about the Project and expressed interest in participating in applicable project meetings. DFO requested receipt of additional information pertaining to the type of crossing structure before providing additional comments. DFO suggested engagement with the Lake Simcoe Region Conservation Authority (LSRCA) and Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) will hold fisheries data within the study area.

TC

TC – Marine provided *Canadian Navigable Waters Act* guidelines. TC – Ontario Region, and Canadian Coast Guard Central & Arctic Region HQ both confirmed that TC is responsible for the administration of the *Canadian Navigable Waters Act*. TC noted that if any permanent and temporary projects elements or activities cross or affect a potentially navigable waterway then the Project proponent (or their designate) is responsible for preparing and submitting a CWNA application to TC (via the online application process – see TC website).

NRCan

NRCan has determined that the effects of the Project are not associated with matters within their mandate and regulatory obligations under the *Explosives Act*.

ISC

ISC currently provides funding for the community's transportation system including the Aazhaawe Ferry, the Ari boats and the ice road currently operating between mainland and Georgina Island. There have been little communications with ISC at this time while the community educates itself on the entirety of the Project. GIFN will begin scheduling formal meetings with ISC in Fall of 2021 to initiate formal discussions pertaining to the desired alterations to the transportations system to and from the island.

IAAC

IAAC has been consulted in 2020 and 2021 to discuss the processes and requirements for Designated Projects. In January 2021, preliminary consultation with the IAAC and a preliminary

initial draft project description is being circulated to identify gaps and establish early consultation with interested parties and agencies.

CIB

CIB has been engaged throughout 2021 to initiate federal financial support for the Project.

Provincial Involvement

Neegan Burnside was retained by GIFN to complete a Preliminary Evaluation of Engineering and Environmental Alternatives (2008) including a summary of provincial consultation. A request for baseline information was sent to the Ministry of Environment, Conservation and Parks (MECP), Central Region Office and York – Durham District Office as well as the Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF), Aurora District Office on November 20, 2006. Correspondence with the above agencies indicated that a pre-feasibility study was underway, and once finalized, a formal consultation process would take place.

Following this work, GIFN maintained this information but did not formally pursue the Project due to a number of community-based factors (human and financial resources) led to a delay in formal pursuit of the fixed link at that time.

NDMNRF

NDMNRF provided wetland and greenbelt mapping to Neegan Burnside in 2008 and stated that the Project may trigger reviews or approval requirements pursuant to provincial legislation such as the *Public Lands Act*, *Environmental Assessment Act,* and the *Planning Act*. NDMNRF indicated interest in participating in the Project. No response has been received from the MECP – Central Region Office, while MECP – York – Durham District Office has requested a copy of future correspondence.

MECP

Additional consultation with MECP is required since initial contact in 2006. The GIFN has initiated outreach to the MECP in January 2021 to identify Individual or Class Environmental Assessment requirements and associated input that has been included in this IPD.

Municipal Involvement

Neegan Burnside was retained by GIFN to complete a Preliminary Evaluation of Engineering and Environmental Alternatives (2008) including a summary of municipal consultation. A request for baseline information was sent to York Region and the Town of Georgina on November 20, 2006.

York Region

York Region referenced maps 2-4 of the Official Plan and stated that potential ‘landing locations’ are located within the Rural Policy Area and listed under the Shoreline Area Policy/Greenbelt Plan.

Town of Georgina

The Town of Georgina confirmed participation in the Project and noted that planning land uses be considered. The Town of Georgina expressed concern for impacts on municipal roads and requested that a traffic study be provided based on the ultimate use of the island to enable the

Town to determine the impact on roads. The Town of Georgina noted concerns for increases in traffic volume, ultimately creating a need for road improvements in the surrounding area as well as potential pressure to locate ancillary or other types of uses on the mainland.

PART E – Potential Effects of the Project

19. CHANGES TO THE ENVIRONMENT UNDER FEDERAL LEGISLATION

A List of any changes that, as a result of the carrying out of the project, may be caused to the following components of the environment that are with the legislative authority of Parliament:

a. fish and fish habitat as defined in subsection 2(1) of the *Fisheries Act*;
b. aquatic species, as defined in subsection 2(1) of the *Species at Risk Act* (marine plants); and
c. migratory birds, as defined in subsection 2(1) of the Migratory Birds Convention.

Changes that, as a result of the carrying out of the Project, may be caused to components of the environment that are within the legislative authority of Parliament (i.e., fish, fish habitat, aquatic species, and migratory birds), are summarized below.

See **Table 20** for a list of potential effects and associated mitigation measures as a result of carrying out the Project.

In addition to the effects listed in **Table 20**, it is recognized that there is potential for impacts to natural heritage features and functions resulting from the two Option 3 alternatives that are presented in **Section 12(a) Alternative Means** and **Figure 7**. This includes potential direct and indirect impacts to aquatic and wetland habitats around the shallow peninsula of shoals around the Sand Islands. This area supports Muskellunge, Northern Pike, and other fish nursery/spawning habitat, PSW, SAR habitats (including for Blanding's Turtle and Snapping Turtle, and possibly, Northern Map Turtle, Least Bittern, Barn Swallow), as well as additional natural features and functions to be determined through further study.

Table 20 Changes to the Environment under Federal Legislation – Effects and Mitigation Measures

Factor	Potential Environmental Effect	Mitigation Measures
Fish, Aquatic Species and Aquatic Habitat, as defined in subsection 2(1) of the *Fisheries Act*	• Change to fish habitat (loss) as a result of infilling	• Minimize impacts through ongoing collaboration between fisheries ecologists and the design team to ensure aquatic habitat considerations are incorporated into the design. • Consult with regulatory agencies for permitting requirements (e.g., complete a Request for Review [RfR] for submission to DFO) when designs have progressed to a sufficient level of detail. • Complete a *Fisheries Act* Authorization (FAA) application and determine appropriate mitigation and compensation / Off-setting Plan through that process with DFO. • Potential to create new fisheries habitat at bridge abutments and piers
	• Change to fish movement as a result of construction and permanent foundations/piers	• Mitigation measures to be determined through permitting processes at future study phases.
	• Change to fish habitat as a result of shading from the bridge	• Mitigation measures to be determined through permitting processes at future study phases.
	• Change to fish habitat as a result of deck drainage	• Mitigation measures to be determined through permitting processes at future study phases.
	• Change to fish habitat as a result of run-off/soil erosion	• Develop comprehensive erosion and sediment control plan and maintain measures throughout construction. • Additional mitigation measures to be determined through permitting processes at future study phases.

Factor	Potential Environmental Effect	Mitigation Measures
	• Change to fish habitat as a result of snow removal	• Store plowed snow off the proposed bridge and causeway away from coastal areas to avoid erosion
	• Change to fish habitat as a result of increased salt runoff into lake Simcoe as a result of application of road salt on the bridges and road access	• Incorporate an appropriate stormwater management design, in accordance with MECP's Stormwater Management Planning and Design Manual (2003), to capture and treat run-off. • Develop a Salt Management Plan with guidelines on salt application as well as salt alternatives: • Acetate-based de-icers. • Carbohydrates. • Sanding/gritting • Stainless steel reinforcing steel should be used according to MTO directions/guidelines to reduce future maintenance of the structure. • Maintenance will depend on construction material, coating, etc. • Additional mitigation measures to be determined through permitting processes at future study phases.
	• Change to fish health or habitat as a result of accidental spills (leakage or contacting fluid-containing components) during earthworks or in-water works	• Vehicle refueling stations will be located in a centralized location and away from any sensitive receptors. • Develop and employ a Spills Management and Response Plan during construction. • Additional mitigation measures to be determined through permitting processes at future study phases.
	• Change to fish health or habitat as a result of fuel spills due to increased	• Incorporate an appropriate stormwater management design, in accordance with MECP's Stormwater Management Planning

Factor	Potential Environmental Effect	Mitigation Measures
	motor vehicle traffic on the proposed causeway/bridge	and Design Manual (2003), to capture and treat run-off. • Develop and employ a Spills Management and Response Plan during construction.
	• Change to waterflow, lake currents and fish movement resulting from the causeway infilling • Change to aquatic and riparian habitats from in-water machinery works.	• Mitigation measures to be determined through permitting processes at future study phases.
	• Change to waterflows and fish habitat as a result of construction of bridge foundations/piers/temporary cofferdams	• Mitigation anticipated to include but not be limited to the following measures: • Conduct in-water work during appropriate timing windows. • Use isolation methods (e.g., coffer dams) for the in-water work. • Additional mitigation / compensation measures to be determined through permitting processes at future study phases.
	• Change to waterflows as a result of dewatering from inside temporary cofferdams where required	• Conduct fish rescue operations to remove fish from construction zones prior to temporary dewatering of isolated areas.
	• Change to fish health and habitat as a result of barges to transfer materials and equipment for foundation/pier construction	• Mitigation measures to be determined through permitting processes at future study phases.
	• Change in shoreline habitat as a result of construction	• Minimize vegetation removal to the extent feasible. • Any vegetation removed to facilitate construction will be replaced with a mix of appropriate native vegetation. • Additional mitigation / compensation measures to be determined through permitting processes at future study phases.

Factor	Potential Environmental Effect	Mitigation Measures
	• Change in fish populations as a result of fishing from the bridge	• Fishing from the bridge shall be prohibited to eliminate any potential impacts on the existing fish communities. • The bridge portion of the fixed link will be at high elevation that will not allow for fishing from the bridge.
	• Various	• Utilize an Environmental Inspector during construction to ensure that the required protection measures are in place, maintained and repaired, and that remedial measures are implemented, where warranted.
Aquatic and Avian SAR, as defined in subsection 2(1) of the *Species at Risk Act*, as well as all SAR on federal lands	• No change to aquatic SAR or SAR habitat is anticipated as no aquatic SAR (i.e., fish and mussels) have been identified in the study area through the background review process.	• Additional consultation and field investigations and with DFO, MECP and LSRCA will occur during future study phases to confirm no aquatic SAR impacts.
	• Change to avian SAR and their habitats as a result of construction.	• Additional field investigations, including breeding bird surveys will be completed during future study phases to confirm species presence and/or habitat potential • Additional consultation with MECP and ECCC will occur during future study phases to quantify potential impacts and develop mitigation / compensation / overall benefit measures through the permitting process (if applicable).
	• Change to reptile SAR and their habitats as a result of construction.	• Additional field investigations will be completed during future study phases to confirm species presence and/or habitat potential • Additional consultation with MECP and ECCC will occur during future study phases

Factor	Potential Environmental Effect	Mitigation Measures
		to quantify potential impacts (if any) and develop mitigation measures. Consultation will also determine the permitting or registration process, if required.
	• Change to vascular plant SAR and their habitats as a result of construction.	• Additional field investigations will be completed during future study phases to confirm species presence and/or habitat potential • Additional consultation with MECP and ECCC will occur during future study phases to quantify potential impacts (if any) and develop mitigation measures. Consultation will also determine the permitting or registration process, if required.
	• Change to mammal SAR and their habitats as a result of construction.	• Additional field investigations will be completed during future study phases to confirm species presence and/or habitat potential • Additional consultation with MECP and ECCC will occur during future study phases to quantify potential impacts (if any) and develop mitigation measures. Consultation will also determine the permitting or registration process, if required.
Migratory Birds, as defined in subsection 2(1) of the *Migratory Birds Convention Act, 1994*	• Change to nesting migratory birds as a result of construction (e.g., during vegetation clearing, grubbing, grading, etc.)	• Minimize vegetation removal to only that which is required for construction. • Use timing windows to minimize potential for impacts. Specifically, no vegetation clearing, grubbing or other construction activities which may be disruptive to migratory birds to occur during the regional nesting period for the study area (i.e., April 1 through August 31).

Factor	Potential Environmental Effect	Mitigation Measures
		• Ensure all construction workers are trained in advance of starting work on the potential for encountering wildlife while undertaking their activities and the appropriate response if this occurs (e.g., contact the Environmental Inspector). • Utilize an Environmental Inspector during construction to ensure that all protection measures are in place, maintained and repaired, and that remedial measures are implemented, where warranted.
	• Change to habitat for migratory birds as a result of construction	• Consider restoration planting / compensation in consultation with relevant agencies and the Community.
	• Change to habitat for migratory birds as a result of introducing invasive plant species during construction (e.g., Phragmites)	• Utilize the Clean Equipment Protocol during construction to minimize potential for introduction of invasive species.
	• Change to migratory bird habitat as a result of increased lighting during both construction and operation	• Minimize lighting during construction to only that which is required for safety • Consider impacts to migratory birds when developing the lighting design for the bridge and causeway.
	• Change to migratory bird health as a result of increased vehicle collisions with birds	• Bridge design to consider and integrate design features that deter birds from the structure.
	• Change to migratory bird habitat availability as a result of new nesting habitat near/under the bridge	• Creation of new nesting habitat for species such as barn swallow could be viewed as a benefit; however, this can create potential issues for bridge maintenance work. • Mitigation measures, if required, to be determined during future study phases.

Factor	Potential Environmental Effect	Mitigation Measures
	• Change to migratory bird health and habitat as a result of soil and groundwater contamination	• Incorporate an appropriate stormwater management design, in accordance with MECP's Stormwater Management Planning and Design Manual (2003), to capture and treat run-off. • Vehicle refueling stations will be located in a centralized location and away from any sensitive receptors. • Develop a comprehensive soil and ground water management plan. • Develop a spills management and response plan. • Develop comprehensive erosion and sediment control plan and maintain measures throughout construction.
	• Change to migratory bird health and habitat as a result of spills during earthworks	• Employ a spills management and response plan during construction. • Develop comprehensive erosion and sediment control plan and maintain measures throughout construction. • Exposed surfaces and stockpiles to be stabilized and seeded with temporary seed mix.

20. CHANGES TO ENVIRONMENT ON FEDERAL LANDS AND ELSEWHERE

A list of any changes to the environment that, as a result of carrying out the project, may occur:

a. On federal lands
b. In a province other than the province in which the project is proposed to be carried out; and
c. Outside of Canada

In addition to the potential effects identified in **Section 19. Changes to the Environment under Federal Legislation**, changes to the environment that, as a result of carrying out the Project, may occur on federal lands or impact other aspect of the environment are summarized below, and include potential effects that may be covered under provincial and local legislation and requirements.

The Project is located on reserve lands, specifically Georgina Island No.33. Environmental changes that may occur on federal lands are limited to the Georgina Island portion, i.e., reserve lands, of the Project study area as delineated in **Figure 3**.

In addition to the effects listed in federal lands, it is recognized that there is potential for impacts to natural heritage features and functions resulting from the two Option 3 alternatives that are presented in **Section 12(a) Alternative Means** and **Figure 7**. This includes potential direct and indirect impacts to features that are not under federal legislation.

In addition, two Option 3 alternatives on the mainland, as currently situated, also have potential for direct and indirect impacts on various natural features and functions.

- Alignment #1 could impact woodlands, wetlands (currently mapped as non-PSW, but noted by NDMNRF to be proposed for classification as a PSW), and a tributary to Lake Simcoe.
- Alignment # 2 could impact a deer wintering area and woodland.

Both mainland alignments also have the potential to impact additional natural features and functions to be determined through further study. These impacts will be more thoroughly assessed through ecological field investigations in 2022 and results will be documented in the DPD.

The project is only located in Ontario and is not near interprovincial or international borders; therefore, no changes to the environment in another province or outside Canada are anticipated.

See **Table 20** for a list of potential effects and associated mitigation measures as a result of carrying out the Project.

Table 21 Changes to the Environment on Federal Lands and Elsewhere - Effects and Mitigation Measures

Factor	Potential Environmental Effect	Mitigation Measures
Vegetation, Wildlife and Wildlife Habitat	• Change to terrestrial and wetland vegetation (and associated wildlife habitat) as a result of the construction of bridge approaches	• Complete additional vegetation community assessment and botanical inventories to document rare or sensitive communities or species during future study phases. • Minimize impacts to significant or sensitive communities through ongoing collaboration between ecologists and the design team to ensure ecological considerations are incorporated into the design. • Minimize vegetation removal to only that which is required for construction. • Consider salvage and relocation of any significant species that could not be avoided. • Determine if restoration or compensation measures are required through consultation with regulatory agencies during future study phases.
	• Change to wetland and aquatic vegetation communities (and their associated wildlife habitat functions) as a result of the construction of the causeway	• Complete additional vegetation community assessment and botanical inventories to document rare or sensitive communities or species during future study phases. • Minimize impacts to significant or sensitive communities through ongoing collaboration between ecologists and the design team to ensure ecological considerations are incorporated into the design. • Minimize vegetation removal to only that which is required for construction. • Consider salvage and relocation of any significant species that could not be avoided. • Determine if restoration or compensation measures are required through consultation with regulatory agencies during future study phases.

Factor	Potential Environmental Effect	Mitigation Measures
	• Change to vegetation communities (and their associated wildlife habitat functions) as a result of the introduction of invasive plant species during construction (e.g., Phragmites)	• Utilize the Clean Equipment Protocol during construction to minimize potential for introduction of invasive species.
	• Change to vegetation as a result of construction effects beyond the working area	• Install tree protection fencing and ESC measures and maintain throughout construction.
	• Change to NDMNRF identified deer yard and associated wildlife movement corridors as a result of new road access	• Evaluate east-west wildlife movement and consider options for ensuring connectivity and reducing wildlife-vehicle collisions (e.g., funnel fencing, wildlife crossings, signage, reduced speed limits)
	• Change to vegetation, wildlife, and wildlife habitat as a result of soil and groundwater contamination	• Incorporate an appropriate stormwater management design, in accordance with MECP's Stormwater Management Planning and Design Manual (2003), to capture and treat run-off. • Vehicle refueling stations will be located in a centralized location and away from any sensitive receptors. • Develop a comprehensive soil and ground water management plan. • Employ a spills management and response plan during construction. • Develop comprehensive erosion and sediment control plan and maintain measures throughout construction.
	• Change to vegetation, wildlife, and wildlife habitat as a result of spills during earthworks	• Employ a spills management and response plan during construction. • Develop comprehensive erosion and sediment control plan and maintain measures throughout construction.

Factor	Potential Environmental Effect	Mitigation Measures
		• Exposed surfaces and stockpiles to be stabilized and seeded with temporary seed mix.
	• Various	• Utilize an Environmental Inspector during construction to ensure that all protection measures are in place, maintained and repaired, and that remedial measures are implemented, where warranted.
Air and Noise Emissions	• Change to air quality as a result of dust pollution from construction and operation activities (e.g., excavation)	• Prior to construction, develop a Best Management Practices Plan for Dust including the following mitigation measures: • Identification of the sources of fugitive dust emissions. • Review the composition and size range of the fugitive dust. • Identify fugitive dust control measures for each identified source. • Prepare a schedule by which the plan will be implemented. • Provide a description of how the plan will be implemented, including training of facility personnel. • Description of inspection and maintenance procedures; and • Description of methods of monitoring and recordkeeping to verify compliance with the plan. • If mobile mitigation equipment is required, obtain an Environmental Compliance Approval (ECA) from the Ministry of the Environment, Conservation and Parks (MECP), or engage equipment with a mobile ECA. • Regular bridge maintenance to limit dust. • Avoid excavating during high wind events.

Factor	Potential Environmental Effect	Mitigation Measures
		• Apply regular watering during excavation/material piles. • Move material off-site to avoid long term storage piles, minimize pile heights. • Notes: • Excavate soils in accordance with a fugitive dust Best Management Practice Plan (BMPP) to limit air emission impact off site. Those mitigation options listed above would be included in the BMPP
	• Change in noise emissions as a result of earthworks and construction machinery	• Excavation construction activities must comply with NPC-115, MECP noise guidelines for construction equipment. • As part of the design, assess if noise controls will be required on the fixed link (e.g., noise barrier).
	• Change in air emissions as a result of earthworks and construction machinery	• Existing air quality assessments are required to assess potential mitigation requirements as part of the Project impacts.
	• Change in air and noise emissions as a result of paving activities	• Document the existing air quality using publicly available data from nearby air quality monitoring stations as part of the Environment Assessment. • Avoid summer months when sensitive receptors in the area may have open windows, thus reducing the likelihood of receiving air and noise complaints. • Select road surfacing material to minimize GHG emissions • Limit the length of construction time on site, and the quantity of materials brought to the Project site; this will minimize the potential dust emissions and noise emissions from the paving activities.

Factor	Potential Environmental Effect	Mitigation Measures
		• Ensure the Construction Contractor is operating in accordance with a fugitive dust Best Management Practice Plan (BMPP): more specifically is using regular watering on short-term material piles, avoiding paving activities during high wind periods, performing street sweeping/roadway clean up in areas adjacent to the construction site, etc. Notes: • Mobile construction equipment to be used on site for paving (e.g., mobile asphalt or cement operations) must be operated in accordance with a mobile Air and Noise Environmental Compliance Approval (ECA). • Other construction activities must comply with NPC-115, MECP noise guidelines for construction equipment.
	• Change in air quality as a result of the use of barges to transport material in-water, construction foundations and piers in-water	• Reduce materials being handled (per hour and per day); minimize the number of trips made optimizing construction schedule. • Minimize the barge trip distance.
	• Change in air quality as a result of dewatering activities from inside temporary cofferdams	• Limit the number of pieces of mobile equipment operating at any time.
	• Change in air quality as a result of clearing of trees/relocating of utility poles	• Limit the number of pieces of mobile equipment operating at any time.
	• Change in GHG emissions to the air as a result of more vehicles using the proposed alternative (reduced emissions to the water as a result of no ferry service)	• Document the existing GHG levels as part of the Environment Assessment.
Soils and Groundwater	• Change soil or groundwater conditions as a result of accidental leaks or spills during construction	• Develop and employ a Spills Management and Response Plan during construction.

Factor	Potential Environmental Effect	Mitigation Measures
	• Change in soil conditions (e.g., soil exposure, stability, and erosion) as a result of construction activities including excavations, management, movement, and placement of soils	• A geotechnical assessment is required to understand aspects such as stability and settlement of embankments.
	• Change in soil conditions as a result of tree clearing/grubbing and the relocation of utility poles	• A geotechnical assessment must determine the most suitable foundation methods, slope angles of embankments and any potential ground improvement requirements.
	• Change in groundwater conditions as a result of the management of groundwater during construction (e.g., dewatering and discharge)	• Ground water or surface water that is pumped for dewatering will be in compliance with an Environmental Activity and Sector Registry (EASR) or permit to take water (PTTW) and discharged in accordance with an environmental compliance approval per section 53 of the *Ontario Water Resources Act*. • Sampling and monitoring maybe required for discharges.
	• Change in soil or groundwater conditions as a result of disturbance of pre-existing soil or groundwater contamination issues	• Completion of further investigations, including Phase I and II environmental site assessments, are recommended to confirm the presence or absence of soil and groundwater contamination within the Project study area. • If contamination is identified during environmental site assessments, delineation and appropriate mitigation/risk management would be required to address the exceedances. • Excess soil imported or generated by the Project should assessed for re-use on-Site or beneficial re-use off-Site in accordance with the *Ontario Regulation 406/19*: On-Site and Excess Soil Management.

Factor	Potential Environmental Effect	Mitigation Measures
	• Change in soil or groundwater conditions as a result of deleterious substances that may be used for maintenance	• Ensure product for removal of graffiti/murals/vandalism is controlled and does not percolate into the ground/Lake Simcoe.
Areas of Natural and Scientific Interest	• No changes to Areas of Natural and Scientific Interest are anticipated	• Avoid construction activities from occurring within the limits of Sibbald Point Provincial Park.

21. CHANGES TO INDIGENOUS PHYSICAL AND CULTURAL HERITAGE, TRADITIONAL LAND USE, OR ARCHAEOLOGY

With respect to the Indigenous peoples of Canada, a brief description of the impact — that, as a result of the carrying out of the project, may occur in Canada and result from any change to the environment — on physical and cultural heritage, the current use of lands and resources for traditional purposes and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, based on information that is available to the public or derived from any engagement undertaken with Indigenous peoples of Canada.

With respect to Indigenous peoples of Canada, **Table 22** provides a brief description of potential impact that, as a result of the carrying out of the Project, may result from any change to the environment on:

- physical and cultural heritage,
- the current use of lands and resources for traditional purposes, and
- any structure, site or thing that is of historical, archaeological, paleontological, or architectural significance.

Overall, GIFN views the benefits of the Project as benefits to physical and cultural heritage and the current use of lands and resources for traditional purposes.

Island Culture

Although the Project is considered to provide overwhelmingly positive benefits to Indigenous communities and populations, the traditional and historical community identity of being an Island Nation protected by Lake Simcoe will be compromised. The notion that GIFN is a community that is isolated from the non-Indigenous world, protected by the waters of Lake Simcoe, is one that will be forever altered. In community engagement activities, the First Nation community expressed considerable fear of outsiders, drugs, crime, and unwanted non-community members. This fear extended to a desired mitigation of a ‘gated’ or ‘toll’ on the fixed link to maintain some level of control of access to Georgina Island is maintained.

Invasive Species

Similarly, the potential environmental effects from the fixed link may result in additional, unwanted invasive species having easier access to Georgina Island. Invasive species may have harmful impacts on culturally significant species. These impacts will be further explored and analyzed in the DPD, once developed. The loss of the Aazhaawe Ferry which operated as an access bottleneck may allow invasive species to reach the island more freely. Although works and studies have clearly indicated the community is currently battling many invasive species, adding to the total number, type, and diversity of invasive species on the small land base of Georgina Island is of significant concern to existing resources. These concerns will be addressed through environment-based studies where mitigation measures will also be addressed.

Lake Simcoe

The final impact that will continue throughout this project is an ongoing community-based fear of accident and irreparable harm to Lake Simcoe. The potential of significant harm to the water and ecosystems throughout project construction as well as operations will result in a community that is burdened with a protectionist mentality. This potential negative impact will result in detailed community member oversight and investigations. The community is in the process of developing Environmental Principles, derived from the traditional teaching of the Seven Grandfathers. This process is intended to provide a 'good' path and intention consistent with Indigenous beliefs. This mitigation measure is intended to offset community fears and to provide context for community members to express concerns throughout the process.

Cultural Heritage

Aside from the fear of harm to Lake Simcoe, it is believed by GIFN that this project will have few additional impacts to the physical, spiritual, and natural heritage sites of the community. These significant sites are located at safe distances with ample buffer from the proposed fixed link location.

Other Indigenous Communities

The GIFN have received letters of support from all Williams Treaties Allies for this project and at a meeting of the Chiefs, the primary impact was how the federal government would be treating one of their allies as a Proponent. This project will bring to light some Treaty based responsibilities of the Crown and the Williams Treaties communities wanted to support and be informed when those discussions took place. It was believed that any impacts identified by the GIFN community members would be more significant and direct than to the other Williams Treaties communities. For that reason, Georgina Island was to keep the Williams Treaties First Nations informed and up to date on the progress of the progress and the relationship with the Crown as the Project proceeds.

In discussions with the Métis Nation of Ontario, their general response was that there is an economic opportunity for their population. Entrepreneurs, training opportunities and potential large-scale partnerships may all be realized through the inclusion of the Métis Nation during the study and constructions phases. The primary issues of concern for the Métis Nation were based on archaeology practices and general environmental issues with large infrastructure projects.

Initial discussions with the Huron Wendat community were very similar to those with the Métis Nation. The significant economic impact of the Project could benefit their community member businesses and workforce. The Huron Wendat indicated a trust of the Chippewa community assessments and process when evaluating the environment and would have little input in that area over and above any concerns that the GIFN community would have. The Huron Wendat community also expresses a desire to be aware of artifacts or archaeology matters as they progress. They notified the GIFN community of their joint venture in archaeology and indicated that using them would assist in transparency with the work to all Indigenous communities.

Following engagements with the Williams Treaties Frist Nation, Métis Nation and the Huron Wendat Confederacy, the First Nation intends to include Indigenous groups in the archaeology investigations at all stages. Although the process hasn't been fully identified, it is projected that any significant archaeological work would include the Huron Wendat Joint Venture to ensure an Indigenous lens is maintained. In addition, the GIFL Secretariat has been asked, and has agreed to provide project updates to all parties to within the William Treaty First Nations.

Table 22 Changes to Indigenous Physical and Cultural Heritage, Traditional Land Use and Archaeology

Factor	Potential Effects to Identified Activities	Proposed Protection/Mitigation Measures
Indigenous Culture and Heritage	• Loss of or disruption to current traditional land and resource uses such as hunting, gathering, fishing, trapping from possible direct project impacts to wildlife and fish habitats, plants, and water navigation.	• Application of appropriate habitat protection and mitigation measures.
	• Easier access to outside of community could put pressure or losses on traditional language, traditions, and culture; and/or decrease interest and participation in traditional land use activities (e.g., trapping, hunting, fishing, gathering, etc.).	• Effort to reinforce language and culture through changes to educational curriculum that provide additional cultural enrichment opportunities.
	• Possible for outsiders to access and affect cultural/spiritual/ sacred sites.	• Controlled road access/security
	• Potential to impact archaeological sites	• Include Indigenous groups in the archaeology investigations at all stages.

22. CHANGES TO INDIGENOUS HEALTH, SOCIAL OR ECONOMIC

A brief description of any change that, as a result of the carrying out of the project, may occur in Canada to the health, social or economic conditions of Indigenous peoples of Canada, based on information that is available to the public or derived from any engagement undertaken with Indigenous peoples of Canada.

CONDITIONS

Potential Effects

Potential effects (both positive and negative) on community in terms of their social, economic and health conditions, are anticipated as a result of the fixed link. **Table 23** provides a brief description of any change that, as a result of the carrying out of the Project, may occur to the health, social or economic conditions of the GIFN community.

Transportation

It is expected that the construction of a fixed link will provide an increased opportunity for public transportation in comparison to the current ferry system. The current ferry provides space for fifty walk-on passengers during operating hours (7am-7pm) and pedestrians must wait for ferry to arrive either to the island, or to Virginia Beach before proceeding to their destination. It is the communities desire, for historical importance, for the design of the fixed link to include a multi-use pedestrian path. From the Community Visioning Workshop, 63% of participants were interested in including a multi-use path or other form of connection and part of the Fixed Link Study. In the event of unfavourable weather and winter months, options such as a community shuttle bus, car-pooling or public transit busses can accommodate pedestrians to allow persons to reach their destinations.

Given Georgina Island's location in proximity to large municipalities like York and Simcoe, it can be anticipated that the preliminary discussions for public transportation will take place while the fixed link is being constructed. Access to centres like Newmarket, Orillia and Barrie can be achieved in approximately one hour, if travelling from the mainland. This can be projected as a priority for the community, for this access to be pursued in alignment with the completion of a fixed link, and ideally expanded upon. Having public transportation agreements into the community in place, for the completion of the fixed link will allow for those who relied on the walk-on passenger option of the ferry, to continue to have modes of transportation.

From the GIFN Community Skills Inventory Survey (2019), 41% of respondents were asked to indicate a barrier to employment. Transportation or the lack of driver's licence accounted for 21% and 21% of responses, respectively. The impact of the construction of a fixed link and how pertains to public transportation can be viewed as a positive as it creates the potential for safe, regularized public transit routes to and from the community, to access essential services, education opportunities, employment, as well as contribute to the local and regional economies.

Well-being and economic conditions

These are the known potential impacts at this time and have been identified through consultation and engagement with the community. Many of the positive effects are discussed following **Table 23**. Well-being and economic conditions of the community, include but are not limited to:

- Effects on housing pricing;
- Effects on human health of the community;
- Gender-based effects on human health;
- Effects to human receptors from changes to air quality, noise, water quality and country food quality;
- Effects on health conditions of the community as a result;
- Effects on economic conditions of the community; and
- Effects on social conditions and well-being of the community.

Table 23 Potential Health and Socioeconomic Effects of the GIFL Project

Factor	Potential Effects to Identified Activities	Proposed Protection/Mitigation Measures

Transportation and Infrastructure	• Change to local traffic (e.g., increased traffic, detours, intersection delays) during construction
	• Change to local traffic as a result of operations (e.g., change in traffic patterns)
		• Ensure proper signage directs different users (vehicles, ATVs, snowmobiles, pedestrians, etc.).
		• Increased traffic on local roads may require road improvements from the highway along Black River Road for safety and security.
		• Options, road widening, speed limit control, traffic flow control (spread out approach direction in and out for various vehicles, types, weight, frequency to avoid bottle necks), education, information, complaint phone line, suggestion box are all to be considered in a Transportation Impact Study.
		• A Transportation Impact Study is required to identify the impacts and potential improvements such as left-turn lanes, right-turn lanes, signalization, (if warranted) and recommend the lane configurations. Key intersections will include the fixed link at Black River Road, Hadden Road at Highway 48 on the mainland side and the intersection of Chief Joseph Snake Road and Bear Road on the island side.
		• The following additional detailed requirements for the Transportation Impact Study are necessary:
		  • study area limits;
		  • Horizon years for analysis;
		  • Peak periods for analysis;
		  • Method for predicting traffic volumes;

Factor	Potential Effects to Identified Activities	Proposed Protection/Mitigation Measures
		• Method for establishing background traffic volumes; • Software program for intersection capacity analysis; • Automatic traffic record data for Black River Road; and • Peak period (7 to 9 am and 4 to 6 pm) turning movement counts at the intersection of Hadden Road at Highway 48 and Chief Joseph Snake Road at Bear Road.
Navigation	• Potential temporary disruption to navigation associated with fixed link construction • Temporary minor delays possible during construction of fixed link.	• A Transportation Impact study will be prepared.
Health	• Increased dust and noise associated with road operations. • Localized, minor, and temporary impacts on water quality.	• Application of appropriate protection and mitigation measures (i.e., noise, dust control, erosion, and sediment control).
Access and Security	• May offer easier access to substances, possible causing more health and social issues in community.	• Controlled road access/security.
	• More outsiders (tourists) coming to Georgina Island, possibly causing social issues.	
	• Limited/no access to fishing areas or other points of interest in the community (e.g., the causeway may prevent boat access)	• Management of these sites or areas to be developed by community
Other	• Limited by-laws/by law enforcement for future land-use/development	• To be developed, supported, and enforced by community
	• Loss of staff and employees affecting government, education, and health services due to mainland opportunities	• Plan for retaining/recruiting staff will need to be explored

Benefits

The Fixed Link Socio-Economic Study (2019) prepared by CIPS finds that the fixed link will have a net positive impact on the community as a result of economic, community well being, educational, social, and human health improvements. A boost to the local economy of GIFN and the surrounding area is expected through the creation of direct and indirect jobs during construction and as a result of increased access to the community by the fixed link. Furthermore, access to commercial markets becomes simple via a trustworthy transportation route is the key reason for the positive feelings towards the fixed link and the economy. Overall, GIFN views the benefits outlined in **Table 24** as benefits to physical and cultural heritage and the current use of lands and resources for traditional purposes.

Table 24 List of Project Benefits to Indigenous Peoples of Canada

Type of Benefit	Project Benefit
Economic	• More employment opportunities between Georgina Island and the mainland; • Direct and indirect employment opportunities for construction; • Airboat Rescue Agreements possible with Town and surrounding areas; • Partnerships with small business between Band and others; • Opportunities for Band Members to start or expand small businesses; • More access to markets in the GTA; • The overall size of Georgina Island's economy is expected to grow; • Lower costs for food and other everyday necessities as travel time and ferry costs are eliminated and potential for businesses supplying necessities within community; • With the introduction of some of the preliminary recommended access and security crossing technologies/methods, including but not limited to gate arm, pedestrian/cyclist turnstile or gate, card reader and intercom for off hours, and sliding gate, will provide new employment opportunities to those that may be impacted by the expected employment losses due to the ferry no longer being in operation. Some of these new employment opportunities potentially include manning toll stations, security positions or service staff for additionally required road maintenance; • The development of the Project is expected to boost the local economy of GIFN and the surrounding area, both through the creation of direct and indirect jobs during construction and as a result of increased access to the community by the fixed link; • The demand for a variety of skills and labour that is involved with the construction of a fixed link will be identified as the Project progresses and procurement priority will be created for members and family members of Georgina Island to fill these demands; and • Upon completion of the fixed link, the community anticipates a demand for land development both residential and commercial, as a direct result of the regularized access created to the island.

Type of Benefit	Project Benefit
Community Well-Being	• Members wanting to move home will be more likely to return; • Opportunity for a more qualified work force in the lands department, instead of sourcing outside consultation, which may attract local service providers; • Improved housing opportunities; • Better access to experts and services needed at market rates without have to pay the 'Island premium;
Educational	• A managed entry point allowing for better security and scrutiny of visitors resulting in a safe school and student environment; • Students are able to stay at home throughout the whole school year without billeting during freeze up and thaw season; • Students will be able to travel by bus to school rather than bus/scoot/bus in the winter months or bus by ferry during warmer months which reduces travel time to and from school offering more free time for extra-curricular offerings; • Increased opportunities for youth employment; • There will be the opportunity to attract and hire qualified teachers at a lesser cost than those having to cross on ferry boat; and • Parents residing off territory will be able to send kids to community school to retain their "island identity' and teachings.
Social	• Lower costs for food and other everyday necessities as travel time and ferry costs are eliminated; • Reduction in the hauling of groceries, goods, and gas during scoot season; • More opportunity for physical activities/extra curricular activities; • Increased social activities planned and reductions in absence and cancellations due to transportation issues; • Social plans will not have to be cancelled as a result of ferry schedule and weather-related changes: • Gatherings can be held on Georgina Island without mainland attendees having to stay the night; • Increase in recreation opportunities as the current ferry schedule may not fit recreation offerings off territories; and • Greater ability to fit employment opportunities to any schedule, not just the ferry schedule.
Human Health	• Quicker, more reliable, and safer ambulance services especially in winter months; • Ambulance service in winter months as currently ambulances cannot travel on ice and stretcher cannot fit in scoot; • More services offered in the community from health professionals; • A reduction in overall costs of services from the hourly rates being charged now; • No missed health-care appointments as a result of poor access to the mainland; • Better food security and access to nutritious foods; • Less physical and mental stress for everyday living such as going out to get groceries or running other household errands;

Type of Benefit	Project Benefit
	• Members would be able to stay at home and get medical care and long-term care access 24/7; and • Current Georgina Island emergency responders could have new agreements put in place where services are contracted out to Township/Region for Airboat Rescue, Fire and other EMS Supports; • 24/7 services across all services resulting in a more safe, secure community; • A decrease in homeowner insurance with the perceived increase access to services; and • Reduced travel time and transportation costs will lower costs of food and necessities, improving mental health.

Fixed Link Benefits Compared to Existing Ferry

Additionally, in comparison to the existing ferry, the economic benefits of the fixed link include the following:

- Avoided ferry operating costs;
- Avoided costs of recurring ferry rehabilitation/ replacement;
- Salvage value of ferry at bridge completion;
- Transport time and cost savings compared to ferry/ice road;
- Transport time and cost savings during winter freeze-up and spring-thaw periods; and
- Increased regional and territorial economic development stimulated by the greater efficiency and reliability of the highway network and reduced transportation costs.

Avoided Ferry Operating Costs

The construction of the fixed link would negate the need to operate the ferry, thus avoiding the on-going costs of operation. Those costs include the contract outlays for the ferry operation, equipment rentals, fuel and utilities expenses, and costs of staff positions.

Avoided costs of recurring ferry rehabilitation/replacement

GIFN incurs recurring costs of a capital nature required to maintain the ferry. These costs include provision for ferry refits and ancillary facilities and equipment.

Salvage value of ferry at bridge completion

The construction of the proposed fixed link would allow for disposition of the existing ferry and alternative use of other water crossing vehicles (scoots, hovercrafts, and airboats)

Transport Time and cost savings compared to ferry/ice road

The economic benefits of the fixed link attributable to commercial and non-commercial traffic include the value of time saved compared to the ferry and ice road. The construction of a fixed link will:

- Reduce the travel time taken to cross the Lake Simcoe by ferry during the periods of open water (March to December). Users of the ferry incur a travel time that can include waiting for the ferry, loading and unloading, queuing during peak periods, occasional operational disruptions, restricted ferry operating hours and a reduced transit speed compared to road transport.

- Reduce travel times and the distance travelled for traffic utilizing the ice road during the winter season, generally from late December later March. The ice road involves a slower travel speed compared to transit on the proposed fixed link.

Transport time and cost savings during winter freeze-up and spring-thaw periods

Reduce transport costs incurred by commercial and non-commercial traffic during the spring break-up and fall freeze-up periods when neither the ferry nor the ice bridge is operational.

Increased regional and territorial economic development stimulated by the greater efficiency and reliability of the highway network and reduced transportation costs

The construction of a fixed link will regularize traffic movement to allow for local, regional, and provincial economic stimulation. The construction of the fixed link will also create opportunity for local and regional public transit services into Georgina Island First Nation to further reduce costs associated with transportation.

Workforce Recruitment Strategy

In addition, the GIFN will, as the study phases of the Project commence, provide the following unique employment opportunities:

Fixed Link Secretariat

The GIFL Secretariat has already developed a youth-based position for this Project, the GIFL Community Liaison. The community liaison position is currently filled by a youth member of the community. The liaison is supported by an employment program GenPower, supported by Indigenous Clean Energy (ICE). Taking a future-focused approach, the program introduces Indigenous youth to the growing clean energy sector in Canada and around the globe, and the broad range of energy careers that exist today as well those that are beginning to emerge. In addition to engagement and project management support duties, the Liaison position will achieve the following objectives through the completion of the program:

a) Explore the range of careers that encompass the energy sector
b) Gain exposure to clean energy projects through mentorship and on-the-land learning camp
c) Enhance understanding of the current and future energy landscape in Canada and globally
d) Develop leadership and essential employability skills
e) Leverage existing skills and experience to launch a career in the energy sector
f) Build a network of support with ICE's community

This position is intended to grow from a support to a leadership role for the Fixed link as experienced is gained.

Summer and Youth Opportunities

BEAHR Indigenous training programs (Eco Canada) offer locally customized learning that provide accessible and meaningful career development to First Nation, Métis, and Inuit members to overcome barriers to employment and develop competencies needed to actively contribute to Canada's growing environmental sector.

The courses offered provide introductory training to those who want to work in the environmental sector in Canada. Graduates will have all the necessary technical, cultural, safety and soft skills required to secure meaningful environmental employment. There are two streams, Workforce Training and Technician Training. The latter gives participants further recognition if they already have environmental experience or training.

GIFN will begin to provide BEAHR certified or unique opportunities for youth that includes on the job support. The summer of 2022 will provide a job shadowing opportunity for all high school and post- secondary aged youth. Managed by the GIFL Secretariat, the community will assign youth workers to shadow field professional as they undertake study work. With core training in field-based health and safety and the GIFL Environment Principles, youth will be encouraged to shadow study team members as they complete the multitude of activities over the course of the next two years.

The intent of this program will be to inspire youth and to build a legacy of knowledge of what work was completed and what results of the studies mean. This integration with western science will allow for community-based understanding of processes. It will also enhance work experiences to become more employable in the future.

Casual Employment Opportunities

There are several Georgina Island members that will realize project-based employment opportunities over the course of the next three years:

- Many members are currently certified harbour pilots and meet the necessary insurance requirements to transport study teams on the ice.
- Caterers will be provided opportunities to support team meals and field teams.
- There will be the need for traditional based services for meeting openings, closings, and areas where traditional knowledge is being shared.
- Those with boats, ATV's/UTV's and vans may be required to transport field teams around the island.

These types of positions will be offered through a 'community roster'. The roster will identify skill sets and abilities to be offered to contractors on the island. These opportunities will provide a more robust resume and experiences following their service. The GIFL Secretariat will continue to monitor and project the number of casual employment opportunities as the Project continues, and demand is better understood.

First Nation Employee Development

There are several skill development opportunities that will be offered because of the Project. GIFN employees will be able to learn through direct relationships with suppliers about their job, the analysis and interpretation of data and the recommendations that result from this work. The overall internal skill development for current employees will result in:

- A better understanding of the local environment
- A better understanding of western science-based methods of data collection on lands
- A better understanding of how to integrate community based ecological and traditional knowledge into western based scientific studies
- A better understanding of project management, deliverable assessment and financial modeling for projects being undertaken on community lands.
- A better understanding of the IAAC process to respond to other proponent's projects more effectively.

Employment Through Procurement Initiatives

There will be $2M worth of studies occurring over the next 18 months. These studies will require many team members from many different contractors. The GIFN procurement process is intended to award 'points' to those projects that incorporate employment opportunities for:

a) Members of the GIFN
b) Members of Williams Treaties ally communities
c) Members of the Indigenous community at large including Métis and Huron Wendat community members

The GIFL Secretariat will continue to monitor and project the number of employments through procurement opportunities available, as the Project continues and project deliverables, scopes of work are identified.

Additional investigations will be required to confirm any potential impact to physical and cultural heritage features of GIFN and Williams Treaties First Nations. GIFN acknowledges that this project will have an overall net gain in social and economic conditions for the community and will conduct investigations against their own traditional land use, knowledge, and cultural areas.

23. GREENHOUSE GAS EMISSIONS

An estimate of any greenhouse gas emissions associated with the project.

This section discusses the greenhouse gas (GHG) emissions from the two (2) phases associated with the Project: the construction phase and the operation phase. A qualitative GHG comparison was provided for the construction phase given the construction methodologies and details are not yet finalized. Detailed GHG calculations were conducted for the operation phase, and comparisons between the proposed fixed link design alternatives and the current Aazhaawe Ferry are presented below.

Construction

The Aazhaawe Ferry is the single largest energy user within GIFN. From 2014 to 2017, the Aazhaawe Ferry consumed approximately 244,600 L of diesel annually, accounting for 66% of energy consumption in the Band-owned sector and about 12% of all the energy used within the community as a whole. In addition, the Aazhaawe Ferry is responsible for the production of an estimated 676 tonnes of Carbon Dioxide equivalent (CO_2eq) annually, which is about 17% of the total GHG emissions produced by GIFN per year. Ensuring that GIFN members have access to the mainland is a critical consideration.

By building a fixed link, and eliminating the need for the Aazhaawe Ferry, there is a potential for annual GHG production (and energy use) to be reduced. A full analysis has considered the following factors:

- **Type of Fixed Link** – GHG emissions are associated with construction projects, including the operation of equipment, material manufacturing and material transportation. There are multiple fixed link types available (i.e., causeway, span bridge, etc.) each with a unique GHG emission rate. For the purposes of this analysis, GHG emission rates for the construction of a fixed link have been taken to be between 10 and 15 Tonnes of CO_2eq, depending on the structure type.

- **Fixed Link Length** – GHG emissions for any infrastructure project will be dependent upon the amount of work required to complete the Project. In the case of roads and bridges, this is most easily expressed by the length of the Project. There are several proposed routes available for the fixed link, the shortest being about 1.4 km and the longest being about 2.8 km.
- **Increased Vehicle Traffic** – If a fixed link was built, it is anticipated that vehicle travel by GIFN residents would increase. The rate of increase is difficult to determine, but for the purposes of this analysis, it is assumed that a range of increases will be between 5% and 25% of current use. Only vehicle traffic from year-round residents has been considered and it has been assumed that there will be no increase in efficiency of vehicles. Impacts due to growth within the residential sector are not included in this analysis.

Due to the unknowns that exist in relation to construction of the fixed link, potential GHG savings from the three proposed fixed link options have been calculated, using the variables shown in **Table 25**, below.

Table 25 Values Used in GHG Savings Estimation for Proposed Fixed Link Options

Variable	Option 1	Option 2	Option 3
Fixed Link Length (m)	1,400	2,800	2,800
GHG in Fixed Link Construction (tonnes CO_2eq/m)	10	15	15
Increase in Traffic (%)	5%	25%	25%

In addition to any assumptions listed above, the calculation also assumes: 1) The typical life of a ferry is 30 years. The current Aazhaawe Ferry will require replacement in 5 years. Replacement of a ferry results in approximately 1,000 tonnes CO2eq due to manufacturing. 2) Potential increase in the efficiency of any subsequent ferry's is neglected, as well as any need to increase the size of the ferry.

As demonstrated in the table above, actual GHG savings achieved over the life of the fixed link (estimated to be 100 years) varies greatly depending on the factors listed above. As a best-case scenario, which includes choosing the shortest possible route for the fixed link, choosing a low producing GHG emission construction (i.e., a causeway), and if driving does not significantly increase, the construction of a fixed link will save about 50,000 tonnes of CO_2eq over its lifetime. In comparison, if the longest route for the fixed link is chosen, along with a high producing GHG emission construction, and traffic significantly increases, the fixed link would be close to CO_2eq neutral over its lifetime. Realistically, the construction of a fixed link would likely be close to CO_2eq neutral in relation to GHG emissions over its lifetime, emitting about as much GHG emissions during construction as would be saved due to the elimination of the Aazhaawe Ferry. See **Figure 13** for a chart representing potential greenhouse gas emissions as a result of the proposed works.

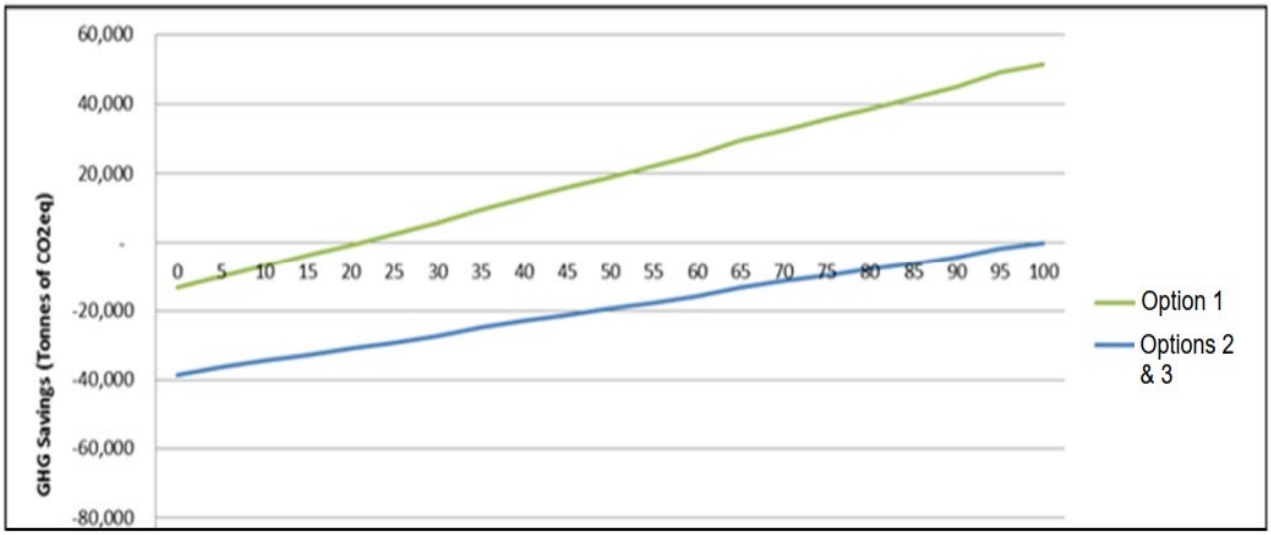

Figure 13 Potential Greenhouse Gas Emissions for a fixed link

Please note that the values presented in the chart above are intended to demonstrate the potential impacts of the fixed link design in relation to GHG emissions. That said, there are several considerations that should be made during the planning stages of the fixed link in order to increase the potential for a reduction in GHG emissions in comparison to the Aazhaawe Ferry. These considerations include:

- Choosing the shortest route for the fixed link;
- Decreasing overall construction time by selecting the shortest length fixed link, or employing construction efficiencies to shorten construction timelines;
- Choosing a construction method that limits GHG emission production (although this should be weighed in relation to potential physical impacts to the local environment); and
- Should a fixed link be built, actively attempting to reduce GHG emissions associated with residential transportation (encouraging carpooling and increasing personal vehicle efficiency).

Incorporating GHG considerations for the potential fixed link should occur on an as-needed basis and will be dependent upon development of the potential fixed link.

Operation

The Aazhaawe Ferry currently operates all year, Monday to Friday from 7:00 am to 7:30 pm for 13 trips per weekday, and on the Saturday to Sunday from 9:00 am to 7:30 pm for 11 trips per day. The Aazhaawe Ferry can accommodate 18 vehicles each trip. The vehicles ferried were assumed to be one-third as cars, one-third as sport utility vehicle (SUV) and the remainder one-third as trucks. It is also conservatively assumed 1% of the total vehicles would be heavier duty transport trucks delivering goods to and from Georgina Island.

When assessing GHG emissions associated with the Project, this assessment follows the instructions under the “Strategic Assessment of Climate Change (SACC)”, published in October 2020, section 4.1.1, and Equation 1 to quantify project emissions. The acquired energy GHG emissions, CO2 captured and stored, and offset credits were considered negligible for this

assessment when compared to the direct GHG emissions which already account of the avoided domestic GHG emissions in the comparison of alternatives. The assessment focused on the quantified the net GHG emissions as the direct GHG emissions in Equation 1.

Net GHG emissions (SACC Equation 1) = Direct GHG Emissions + Acquired energy GHG emissions – CO_2 captured and stored – Avoided domestic GHG emissions – Offset credits

= Direct GHG Emissions

Note: the acquired energy GHG emissions, CO_2 captured and stored, avoided domestic GHG emissions, and offset credits are considered negligible comparing to the direct GHG emissions in this project.

GHG emissions from the Aazhaawe Ferry include the emissions from its operation, and the vehicle activities, such as vehicle idling, embarking, and disembarking the Aazhaawe Ferry. To quantify the GHG emissions from the operation of the Aazhaawe Ferry, an annual diesel fuel consumption rate of 244,600 L was estimated based on current operations and emission factors were obtained from "Canada's Official Greenhouse Gas Inventory - Emission Factors" Table A6.1-14 Emission Factors for Energy Mobile Combustion Sources, Marine, Diesel. GHG emission from vehicle activities, were calculated from the estimated vehicle-kilometer travelled (VKT) and vehicle emission factors for the 2021 year were generated using the latest Motor Vehicle Emission Simulator (MOVES3) emission model. GHG emissions from the proposed fixed link options include the emissions from vehicle traveling on the fixed link which were quantified using the vehicles emission factors and the VKT calculated from the length of fixed link in each alternative.

Based on this assessment, it was estimated that the Aazhaawe Ferry generates approximately 677 tonnes of CO_2eq annually. The fixed link option 1 (1,400 m in length) is anticipated to generate approximately 299 tonnes of CO_2eq annually which would provide a 56% reduction in GHG emissions compared to the Aazhaawe Ferry. The fixed link options 2 and 3 (both 2,800 m in length) are both anticipated to generate approximately 598 tonnes of CO_2eq annually, resulting in an annual reduction of 12% GHG emissions compared to the Aazhaawe Ferry.

See **Table 26** for a breakdown by alternatives of the annual and daily GHG emissions.

Table 26 GHG Emission Calculations – Comparative Values

Alternative	Emission Sources	Greenhouse Gas	CAS #	Annual Emission Rate (tonnes/yr)	Daily Emission Rate (tonnes/day)
Current Aazhaawe Ferry	**Ferry**	Carbon Dioxide	124-38-9	656	2
		Methane	74-82-8	0.06	0.0002
		Nitrous Oxide	10024-97-2	0.02	0.00005
			CO_2eq	662	tonnes/year
	Ferry Vehicle Activity	Carbon Dioxide	124-38-9	14	0.04
		Methane	74-82-8	0.0003	0.000001
		Nitrous Oxide	10024-97-2	0.0001	0.000003
			CO_2eq	14	tonnes/year
			Total CO_2eq	677	tonnes/year

Alternative	Emission Sources	Greenhouse Gas	CAS #	Annual Emission Rate (tonnes/yr)	Daily Emission Rate (tonnes/day)
Fixed Link Option #1 (1,400 m)	**Bridge/Causeway Vehicle Activity**	Carbon Dioxide	124-38-9	298	1
		Methane	74-82-8	0.008	0.00002
		Nitrous Oxide	10024-97-2	0.002	0.000004
			CO_2eq	299	tonnes/year
Fixed Link Option #2 (2,800 m)	**Bridge/Causeway Vehicle Activity**	Carbon Dioxide	124-38-9	596	2
		Methane	74-82-8	0.02	0.00004
		Nitrous Oxide	10024-97-2	0.003	0.000008
			CO_2eq	598	tonnes/year
Fixed Link Option #3 (2,800 m)	**Bridge/Causeway Vehicle Activity**	Carbon Dioxide	124-38-9	596	2
		Methane	74-82-8	0.02	0.00004
		Nitrous Oxide	10024-97-2	0.003	0.000008
			CO_2eq	598	tonnes/year

See below as sample calculations for GHG emissions associated with fixed link option 3:

Carbon dioxide emissions from one car (g/V) = *Emission factor (g/VMT) x Fixed link length (m) x Conversion (mile/m)*

= *(315 g/VMT) x (2,800 m) x (1 mile/1609 m)*

= *548*

Methane emissions from one SUV/truck (g/V) = *Emission factor (g/VMT) x Fixed link length (m) x Conversion (mile/m)*

= *(0.01 g/VMT) x (2,800 m) x (1 mile/1609 m)*

= *0.02*

Nitrous oxide emissions from one transport truck (g/V) = *Emission factor (g/VMT) x Fixed link length (m) x Conversion (mile/m)*

= *(0.003 g/VMT) x (2,800 m) x (1 mile/1609 m)*

= *0.005*

Carbon dioxide annual emission rate (tonnes/yr)= *[CO_2 emissions per car (g/V) x # of cars (V/yr) + CO_2 emissions per SUV (g/V) x # of SUV (V/yr) + CO_2 emissions per truck (g/V) x # of trucks (V/yr) + CO_2 emissions per transport truck (g/V) x # of transport trucks (V/yr)] x Conversion (tonnes/g)*

= *[(548 g/V) x (33 V/hr) + (705 g/V) x (33 V/hr) + (705 g/V) x (33 V/hr) + (3,463 g/V) x (1 V/hr)] x (24 hr/d) x (365 d/yr) x (1 tonnes/1,000,000 g)*

= *596*

Option 3 GHG Emission Rate (tonnes/yr)=

CO_2 annual emission rate (tonnes/yr) x GWP (CO_2) + CH_4 annual emission rate (tonnes/yr) x GWP (CH_4) + N_2O annual emission rate (tonnes/yr) x GWP (N_2O)

= *(596 tonnes/yr) x 1 + (0.02 tonnes/yr) x 25 + (0.002 tonnes/yr) x 298*

= *598*

Canada's Climate Action Plan/Strategic Assessment of Climate Change

Under Canada's Climate Action Plan, Canada is committed to achieving net-zero emissions by the year 2050. As such, reductions in GHG emissions overall are required to meet this target. Under the Strategic Assessment of Climate Change (to support the Climate Action Plan) any project undergoing a federal impact assessment will be required to provide an estimate of the Project's GHG emissions. The proposed fixed link GHG emissions has been estimated to result in a decrease of 12% and shown to be less than the expected GHG emissions from the current Aazhaawe Ferry operations; thus, supporting the goals of Canada's Climate Action Plan.

Reducing Transportation Energy

Energy use related to transportation accounts for about 65% of the total energy used within the GIFN community. Although a significant portion of this energy (about 12%) can be attributed to the Aazhaawe Ferry, personal vehicle use in both the year-round residential and seasonal residential sectors make up a significant portion of the remainder.

Identifying ways to reduce energy consumption associated with transportation in the residential sectors should be a priority of the GIFN Community Energy Plan moving forward. Potential initiatives include:

- Encouraging methods of reducing transportation, such as carpooling and cycling;
- Educating the community on the impact of energy use related to transportation;
- Encouraging residents to purchase efficient vehicles, including hybrid and electric models; and
- Developing infrastructure within the community to support the use of electric vehicles, including electric vehicle charging stations.

In addition, efficient vehicles (including hybrid and electric models) should be considered when replacement of administrative vehicles is required (and where hybrid/electric models are suitable). Carpooling is organic to the island and already occurs on a regular basis. Given the controlled traffic and customs of carpooling, any carpooling will be encouraged to any extent for users of the fixed link. A pedestrian walkway will be included as part of the fixed link scope and will be wide enough to accommodate both pedestrians and bicycles. As such, cycling will be encouraged.

24. TYPES OF WASTE AND EMISSIONS

A list of the types of waste and emissions that are likely to be generated — in the air, in or on water and in or on land — during any phase of the project.

Although construction will have many impacts to the environment, it is believed many of the impacts will be mitigated akin to bridge construction projects of a similar scale. Streamlined construction mitigation measures in addition to increased security and safety of the proposed

alternative and elimination of environmental disasters as a result of ferry accidents are viewed as net positive impacts on the environment. See **Table 20** for a description of emissions/waste impacts and mitigation including: dust and other contaminants, erosion and sediment control, spills/runoff, air/noise emissions and soils and groundwater contamination. See **Table 26** for an in-depth breakdown of GHG emissions by alternative. See **Table 27** and **Table 28** for a summary of waste and emissions that are likely to be generated by the Project during each of phase of the Project.

Table 27 Summary of Waste Sources

Type of waste/ emission	Source	Management/Re-uses	Project phase
Excess Soil - To be identified in Phase II Environmental Site Assessment (ESA) - typically metals, petroleum hydrocarbons, Polycyclic aromatic hydrocarbons (PAHs), Electrical conductivity (EC)/ sodium adsorption ratio (SAR)	Excavated soil, topsoil, and sediment (Excess Soil)	To be re-used on-Site wherever possible or at a beneficial re-use site per Ontario Regulation 406/19. Liquid soils or sediment which does not pass slump test must be dewatered prior to testing for re-use, all in accordance with a Soil and Ground Water Management Plan prepared and approved for the Project.	Construction Post-operation (end-of-life)
Demolition materials - asphalt Metals, petroleum hydrocarbons [F3, F4, F4G] and PAHs are typical	Existing asphalt removal	Asphalt removal, if necessary, will be specified to be re-used on-Site as a compacted gravel base in gravel areas to prevent erosion, or may be included as re-cycled asphalt in asphalt design mixes on- or off-Site, or as a recycled asphalt product surface treatment on- or off-site.	Construction
Demolition materials Steel and other metals/alloys, concrete, asphalt, aggregate	Bridge and causeway structures/superstructure (steel, concrete, asphalt, aggregate)	Steel and other metals/alloys, concrete, asphalt, aggregate demolition materials to be segregated and assessed for re-use or recycling.	Post-operation (demolition)

Type of waste/ emission	Source	Management/Re-uses	Project phase
Geological Spill Metals, petroleum hydrocarbons (PHCs), EC/SAR, cyanide are typical	Spill/Erosion	Comprehensive erosion and sediment control plan. Spills management plan	Construction Operation (in the event of a spill; accumulation in storm water management pond/sediment basin/OGS) Post-operation (demolition)
Geological To be determined through Phase II ESA/soil characterisation sampling; metals, PHCs, EC/SAR, cyanide are typical	Pre-existing Contaminated soil/sediment Post-demolition soil/sediment	Contaminated soil or sediment passing slump test will be assessed for beneficial re-use wherever possible and for disposal when necessary, per Ontario Regulations 153/04, 406/19, and 347. Special requirements apply for the re-use of contaminated materials. Additional characterization (sampling and analysis) will be required for re-use/disposal purposes.	Construction Post-operation (demolition)
Hydrogeological/ Hydrological To be determined through Phase II ESA/environmental characterisation; metals, PHCs are typical	Ground Water/ Surface Water	Ground water or surface water that is pumped for dewatering will comply with a Permit to Take Water (PTTW) and discharged in accordance with an environmental compliance approval per section 53 of the Ontario *Water Resources Act*. Sampling and monitoring maybe required for discharges.	Construction Post-operation (demolition)

Type of waste/ emission	Source	Management/Re-uses	Project phase
Air Emissions Nitrogen dioxide, sulphur dioxide, particulate matter (total suspended particles, PM_{10}, $PM_{2.5}$), carbon monoxide, ozone, volatile organic compounds (VOCs), PAHs, metals, diesel, particulate matter (DPM), carbon dioxide, methane, nitrous oxide	Fossil fuel combustion, dust-generating activities	Develop a Best Management Practices Plan for Dust Manage construction timing and duration appropriately Construction equipment selection and maintenance	Construction (construction equipment, fugitive sources) Operation (vehicle activity)
Water discharge to lake, ground water Chloride, sodium, metals, PAHs, cyanide	Storm water runoff	Stormwater management plan to capture and treat runoff	Operation
Geological	Bedrock	Bedrock may be re-used as granular or dimensional stone assuming no evidence of contamination is observed. Crushing/screening may be required for re-use as granular if the re-use will be subject to Ontario Provincial Standard Specification (OPSS). Fine materials maybe considered soils for management purposes.	Construction
Fuel spill Petroleum hydrocarbons F1-F4, metals	Construction vehicles Traffic on causeway/bridge	Clean up/remediate per comprehensive spill management plan.	Construction Operation Post-operation (demolition)

Table 28 Summary of Emissions Sources

DIRECT EMISSIONS		
Option	**Source**	**Details**
Ferry	Ferry	The Aazhaawe Ferry operations emissions
	Vehicle idling	Vehicle fleets that travel via the Aazhaawe Ferry (Cars, SUVs, trucks, transport trucks)
	Vehicle embarking and disembarking the ferry	Vehicle fleets that travel via the Aazhaawe Ferry (Cars, SUVs, trucks, transport trucks)
Fixed link	Vehicle emissions	Vehicle fleets that travel on the fixed link (Cars, SUVs, trucks, transport trucks)

Appendix A
Proposed Fixed Link Study – Preliminary Evaluation of Engineering and Environmental Alternatives (Neegan Burnside Ltd., 2008)

NEEGAN BURNSIDE

Proposed Fixed Link Study – Preliminary Evaluation of Engineering and Environmental Alternatives
Chippewas of Georgina Island First Nation

Prepared by

Neegan Burnside Ltd.
15 Townline Orangeville ON L9W 3R4 Canada

January 2008

File No: FC010428

The material in this report reflects best judgement in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Neegan Burnside accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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Executive Summary

Neegan Burnside was retained by the Chippewas of Georgina Island to help complete a first step toward realizing a fixed link between their island community and the mainland. This report focuses on a preliminary evaluation of routes and alternative crossing methods to begin to answer the question of how to provide a more convenient and consistent mode of travel for the residents and their visitors.

The preliminary cost reviews estimate a capital requirement of between $60 million and $200 million, which is ambitious, but provides a starting basis for potential discussions on partnerships and investments.

Preliminary estimates on revenue generation are encouraging even when reviewing revenue independent of possible commercial development.

An estimate to complete the Final Feasibility Study to INAC requirements is provided. The cost is potentially estimated at $881,000, including geotechnical investigations for the final design.

1.0 Introduction and Background

1.1 Introduction

The Chippewas of Georgina Island First Nation has initiated a Preliminary Evaluation of Engineering and Environmental Alternatives Study for a proposed Fixed Link, a reliable all-weather transportation (vehicle and passenger) link from Georgina Island to the mainland. This project will affect not only the lifestyle of the community and its members but also cottagers and other visitors to the island.

The community is located in southern Lake Simcoe, approximately 2 km from the mainland shore. Access to the Virginia Beach Marina is provided from Highway 48. Figure 1.1 shows the community location.

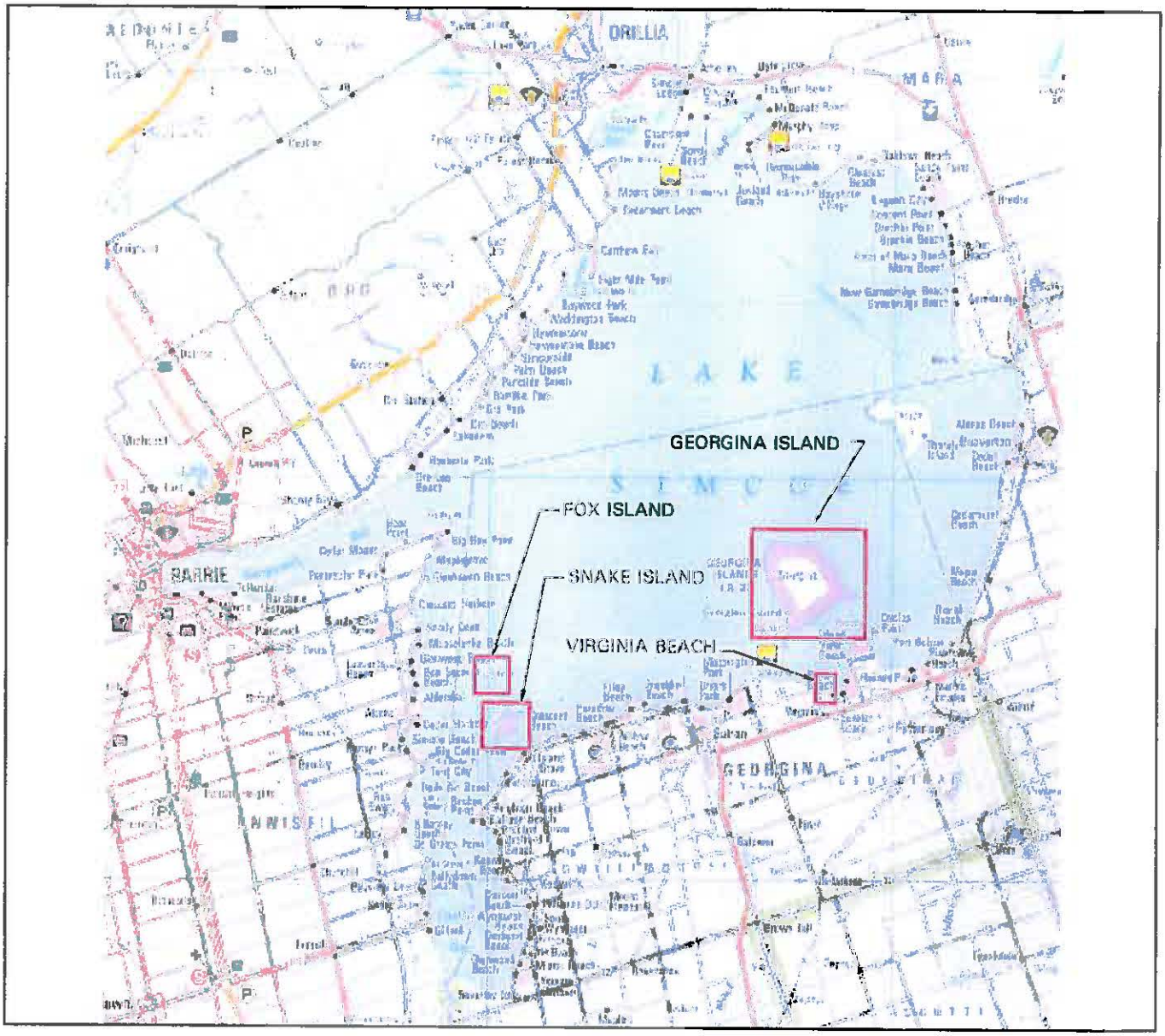
The proposed study limits are defined by Highway 48 to the south, Sibbald Point Provincial Park to the west, the north shore of Georgina Island and Duclos Point to the east (Figure 1.2).

The Chippewas of Georgina Island First Nation has retained Neegan Burnside Ltd. (Neegan Burnside) to undertake this study, which will identify existing conditions within the study area, identify and evaluate alternative solutions, routes and designs and determine a preliminary conceptual preferred design.

1.2 Study Background

In May 2006, a Capital Planning Study was prepared by Neegan Burnside to determine infrastructure and planning needs within The Chippewas of Georgina Island First Nation community. Based on the results of the community survey, administered as part of the Capital Planning Study Update, the need for a Fixed Link to the Mainland was identified as a high priority for the community members. Of the community facilities identified for prioritization, the Fixed Link ranked second out of 18 facilities identified. Of the 40 respondents to the community survey, 22 people identified it as one of their top three community facilities in terms of priority.

Seventy-five percent of respondents to an off-Reserve questionnaire, undertaken during the Capital Planning Study, said that they would consider returning to the community if there was a Fixed Link to the mainland. A total of 132 people would potentially return to the community.



Map Reference:
Map Art Publishing
Ontario Road Atlas



KEY MAP OF ONTARIO

FIGURE 1.1 - COMMUNITY LOCATION

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

PROPOSED FIXED LINK STUDY

August 2007
Project Number: FCO10428

Prepared by: C. Reynolds

Verified by: C. Jones

NEEGAN BURNSIDE

Revision #: 1

FCO10428 PFLS SL.DWG

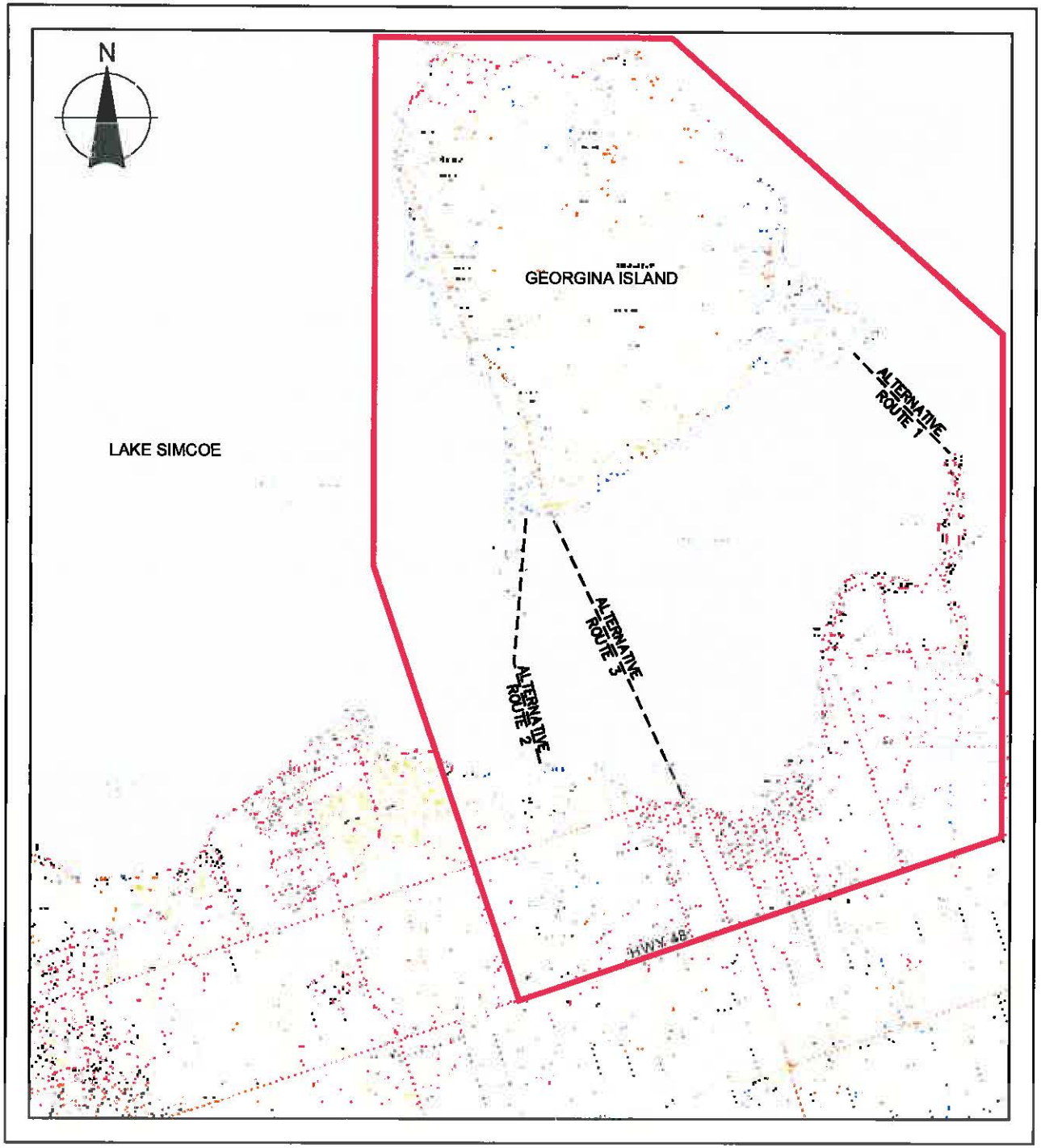


FIGURE 1.2

CHIPPEWAS OF GEORGINA ISLAND REGION OF YORK, TOWN OF GEORGINA *FIXED LINK STAGE 1 STUDY*

STUDY LIMITS

Legend

LIMITS OF STUDY AREA

PROPOSED FIXED LINK CORRIDORS

Map Source: Background 1:10,000 Ontario Base Mapping obtained from First Base Solutions Inc.

0 .40 .80 1.2 1.6 2.0 2.4 2.8 3.2 3.6 4.0 4.4 4.8

Kilometers

1:60,000
November 2006
Project Number: FCO10428

Projection: UTM Zone 17
Datum: NAD83

Prepared by: J. Amsen

Verified by: C. Jones

NEEGAN BURNSIDE

REVISION #: 1

FCO10428 RP.DWG

The Capital Planning Study stated that a Fixed Link to the mainland was an important step to increasing economic development, tourism, employment, health and safety for the community. It would also provide better opportunities for youth to become involved with educational and recreational programs outside of the community. However, a Fixed Link to the mainland has the potential to change the character of the island. The island would effectively become an extension of the mainland. With that come potential changes to the amount of traffic, the amount of vehicles and the amount of isolation that community residents have.

1.3 Existing Ferry Operations

Georgina Island is located approximately 3km from the mainland. During the months of April to December, when there is open water on Lake Simcoe, the Georgina Island First Nation relies on a passenger and vehicle ferry to transport community members between the island and the mainland. In addition to the 220 First Nation members living on the island, there are approximately 330 cottagers located on Georgina Island First Nation and additional island visitors which rely on the ferry service. The ferry is operated by the First Nation and has a capacity of 99 passengers and 17 vehicles. This ferry, known as the "Aazhaawe" has been in service since 2001. The weight capacity is 70 tons. The ferry has a regular daily schedule consisting of 10 to 17 return trips per day. Community members travel on a daily basis to the mainland for access to schools, shopping and employment. Access to the Island is required for construction vehicles, residents, cottagers and tourists. Docks for the Virginia and Georgina Island dock terminals were reconstructed in 2001 to accommodate the ferry. Construction involved additional sheet piling and channel dredging of Lake Simcoe to accommodate the draft of the ferry.

The existing ferry became operational in 2001. During 2001 there were some unexpected operational problems that caused the ferry to be out of operation for one week in April and two weeks in July. Passenger traffic did not recover following the July operational problems. Since that time, there have been intermittent problems resulting in lost travel days due to breakdowns and unforeseen problems.

During the freeze and thaw months of January to March, the ferry is winterized at the Virginia Beach site. Transportation is limited during this time to using scoots, which are 12 passenger air-propelled vehicles, snowmobile, or personal car across the ice. Vehicles cross on an ice road once the ice thickness is sufficient to accommodate their loading (i.e. about 30 cm minimum thickness is recommended for car travel) though there is no formal restrictions enforced by the First Nation. The scoot is considered a somewhat dangerous vehicle give its size. The Ferry Operation Business Plan (Neegan Burnside 2002) recommended that, as this time of year is considered quite dangerous for the community given the uncertain weather conditions and ice structure of the lake, a secure winter transportation method should be investigated.

Additional information on existing ferry operations is provided in Section 5.0.

2.0 Project Description

2.1 Project Site

Georgina Island First Nation is located in the southern portion of Lake Simcoe, in the Township of Georgina, Region of York, Ontario. The community is comprised of three islands: Georgina, Snake, and Fox (Snake and Fox island are located to the south west of the project study area). The First Nation community also owns a portion of land on the mainland at Virginia Beach (Figure 1.1). The existing community plan for Georgina Island is shown in Figure 2.1 and for the Virginia Beach Marina Parcel in Figure 2.2.

Chippewas of Georgina Island First Nation is approximately 1,295 ha. As of 2007, there were 214 people residing within the Georgina Island First Nation Community, including 190 band members and 24 non-band members. In addition, 330 cottagers have seasonal residences on the various Islands.

2.2 Purpose/Rationale of Project

The long-term goal of providing a Fixed Link for the community is to address safety concerns for residents, create potential economic and development benefits and provide positive social impacts to the community.

This study will provide a framework for moving forward with the additional studies and planning exercises required for a project of this size and importance. Once the studies outlined are completed, a better understanding of the design considerations and constraints will be available, as well as a clear picture of the best design alternative, taking into account social and economic costs.

2.3 Preliminary Project Alternative Solutions, Alternative Routes and Alternative Designs

To develop the preliminary study, it was necessary to first review alternative solutions that would satisfactorily meet the long term goals of the community.

The following alternative solutions have been considered:

- Do Nothing
- Improve existing ferry and ice road operations (larger ferry, ferry schedule, ice breakers, bubble system etc)
- Utilize existing Ferry and/or Hovercraft
- Utilize existing Ferry and/or Helicopter
- Utilize existing Ferry and Cable Car
- Implement new Fixed Link - Road link (tunnel)
- Implement new Fixed Link - Road link (bridge and/or causeway combination).

Potential routing of alternatives was also reviewed. For the purposes of this preliminary study, three routes within the study area were chosen as indicative of the potential positives and negatives that may be encountered throughout the study area.

The following alternative routes/corridors have been considered:

- Alternative 1 – South east Georgina Island to Duclos Point – this site offers the shortest connecting route with roads developed near each beach point

- Alternative 2 – South west Georgian Island to Doyle Beach/Virginia - this option provides a historically shallow route between the developed on-island marina and a potential beach road allowance on the mainland

- Alternative 3 – South west Georgina Island to Virginia Beach (existing ferry route) – this option uses the existing ferry route as a guideline. The termination point on both sides belongs to the Georgina Island First Nation and is environmentally disturbed.

A figure showing the proposed routes is included as Figure 2.3.

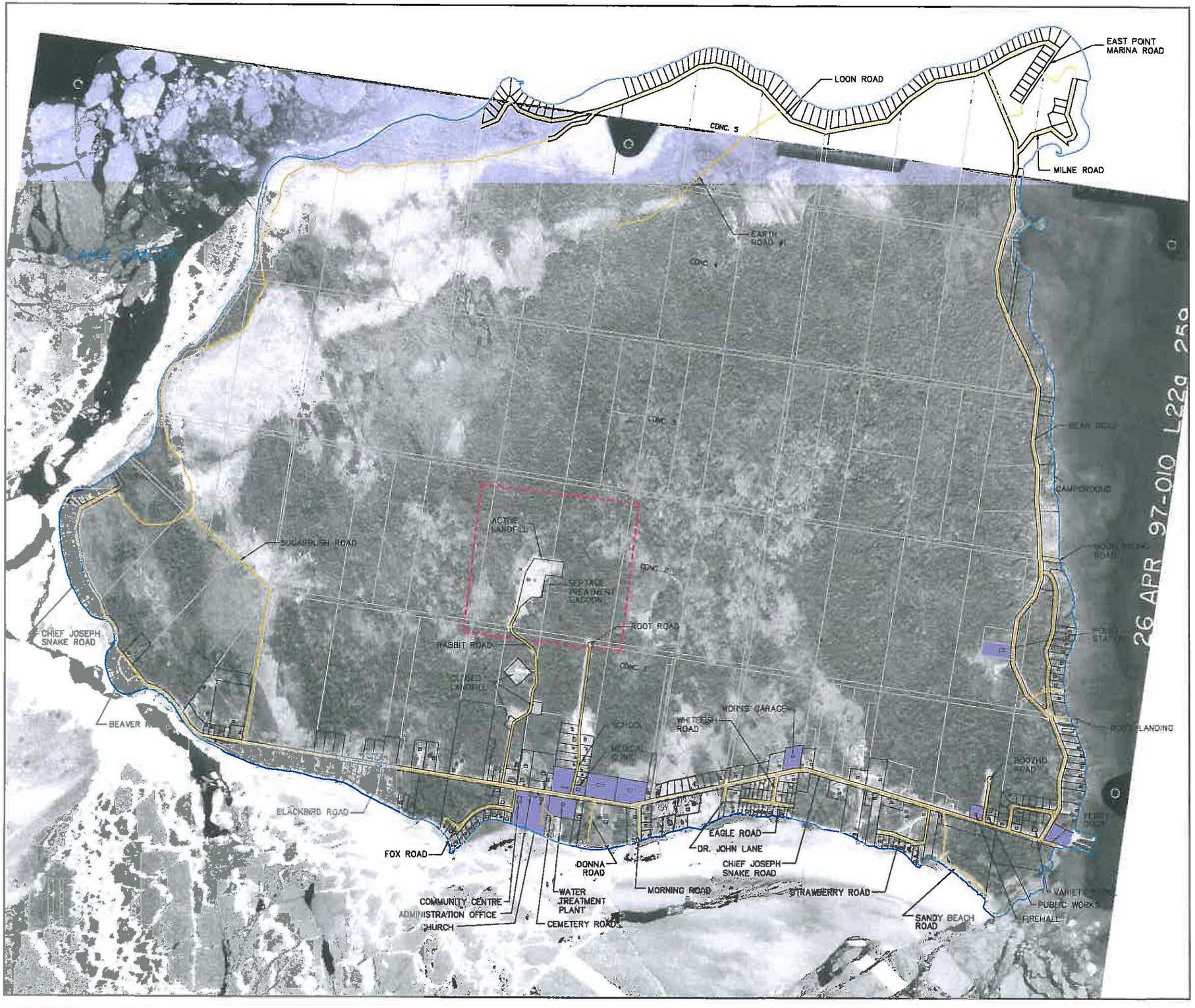


FIGURE 2.1

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

PROPOSED FIXED LINK STUDY

GEORGINA ISLAND COMMUNITY PLAN

Legend

EXISTING ROAD

N

0 200 400 600 800 1000 1200 1400

Meters

1:17,500
August 2007
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds

Verified by: C. Jones

NEEGAN BURNSIDE

Revision #: 1

FCO10428 PFLS GEORGINA CP.DWG



FIGURE 2.2

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
PROPOSED FIXED LINK STUDY

VIRGINIA BEACH COMMUNITY PLAN

Legend

APPROXIMATE FIRST NATION BOUNDARY

Airphoto Source:
Background 1999 airphoto obtained from Triathlon Inc.

N

0 10 20 30 40 50 60 70 80 90 100 110 120
Meters

1:1,500
August 2007
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds Verified by: C. Jones

NEEGAN BURNSIDE

Revision #: FCO10428 PFLS VIRGINIA BEACH CP.DWG

1. Georgina Island ANSI
2. Duclos Point Park Reserve ANSI
3. Georgina Island ESA
4. Big Shoal ESA
5. Duclos Point ESA
6. Mossington Park ESA
7. Virginia Beach ESA
8. Georgina Island PSW
9. Morning Glory Swamp PSW
10. Mossington Park NPSW
11. Riverview Beach Wetlands NPSW
12. Sibbald Point Provincial Park

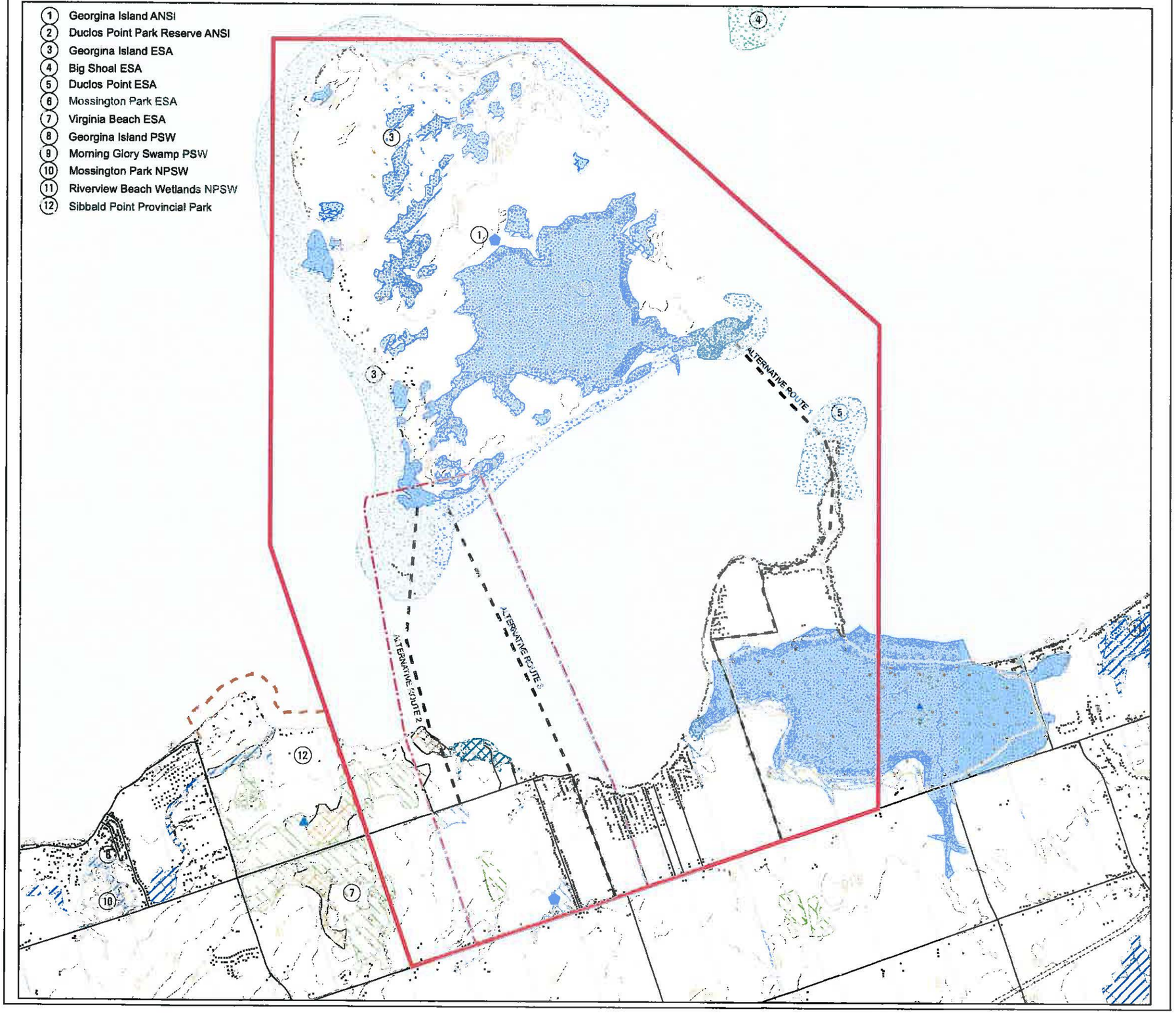


FIGURE 2.3

CHIPPEWAS OF GEORGINA ISLAND
REGION OF YORK, TOWN OF GEORGINA

PRELIMINARY EVALUATION OF ENGINEERING AND ENVIRONMENTAL ALTERNATIVES STUDY

PROPOSED ROUTES

Legend

- River/Stream: Seasonal
- River/Stream: Permanent
- Study Area
- Area Identified for Additional Studies
- Road
- Lot
- Utility Line: Unspecified
- Waterbody
- Provincial Life Science Areas of Natural and Scientific Interest (ANSI)
- Provincial Park
- First Nation Owned Land
- Shoal Environmentally Significant Areas (ESA)
- Old Growth Forest (>100 Years)
- Mid-to-Late Successional Forest (>4 ha)
- Non-Provincial Significant Wetlands (NPSW)
- Provincial Significant Wetlands (PSW)
- Biological ESAs
- Local Life Science Site
- Local Earth Science Site
- Buildings

Produced using information provided by the Ministry of Natural Resources, Copyright © Queen's Printer, 2007.
York Region, Town of Georgina Official Plan, Schedule B3, B4, B5, B6.

N

0 500 1,000 1,500 2,000 2,500
Meters

Scale: 1:40,000
Mapping Date: January 24, 2007

Projection: UTM Zone 17
Datum: NAD 83

Project: FC010428
Prepared By: B. Berry

Verified By: T. Radburn

NEEGAN BURNSIDE

X:\Project\Jobs\FC010428\Map\FC010428 PROPOSED ROUTES 2.3.MXD

3.0 Description of the Study Area

To enable the identification of feasible routes, alternatives and evaluate potential environmental effects, the study team reviewed and updated inventory information of natural and socio-economic features within the study area. In particular the inventory work included:

- Review and analysis of existing documentation:
  –Land ownership/zoning
  –Land uses
  –Ministry of Natural Resources (MNR) and Department of Fisheries and Oceans (DFO) resource information
  –Socio-economic review of INAC registration system
  –Review of Natural Heritage Information Center (NHIC), Environment Canada (EC) and Ontario Breeding Bird Atlas websites.

- Site reconnaissance:
  –Terrestrial ecosystems
  –Land use factors.

Field data and existing documents were supplemented with information obtained through pre-consultation with government agencies and stakeholder groups. For an overview of the public consultation activities refer to Section 4.0.

3.1 Climate, Geology and Soil

Climate

Within Lake Simcoe, precipitation is heaviest from June to January ranging from 79 to 95 mm; with lower amounts of precipitation from February to May ranging from 59 to 70 mm. Total average precipitation is approximately 932 mm annually. The mean average temperature for Lake Simcoe is 5.6°C, with cooler temperatures occurring between October and April ranging from -12°C to 7.4°C, and warmer temperatures occurring between May and September ranging from 13°C to 20.4°C.

Air quality within the study area can be characterized by the Ministry of Environment (MOE) Air Quality Index (AQI) reports based on monitoring results from MOE Air Quality Monitoring Stations. The closest air quality monitoring station to Georgina Island is the Barrie Station. The general trend for the AQI in this area, based on 2005 and 2006 data, tends to range from good to very good in January and February, good from March to October with a few poor days in early June and moderate days throughout the summer months. October and November range from good to very good with a few moderate days near the beginning of October.

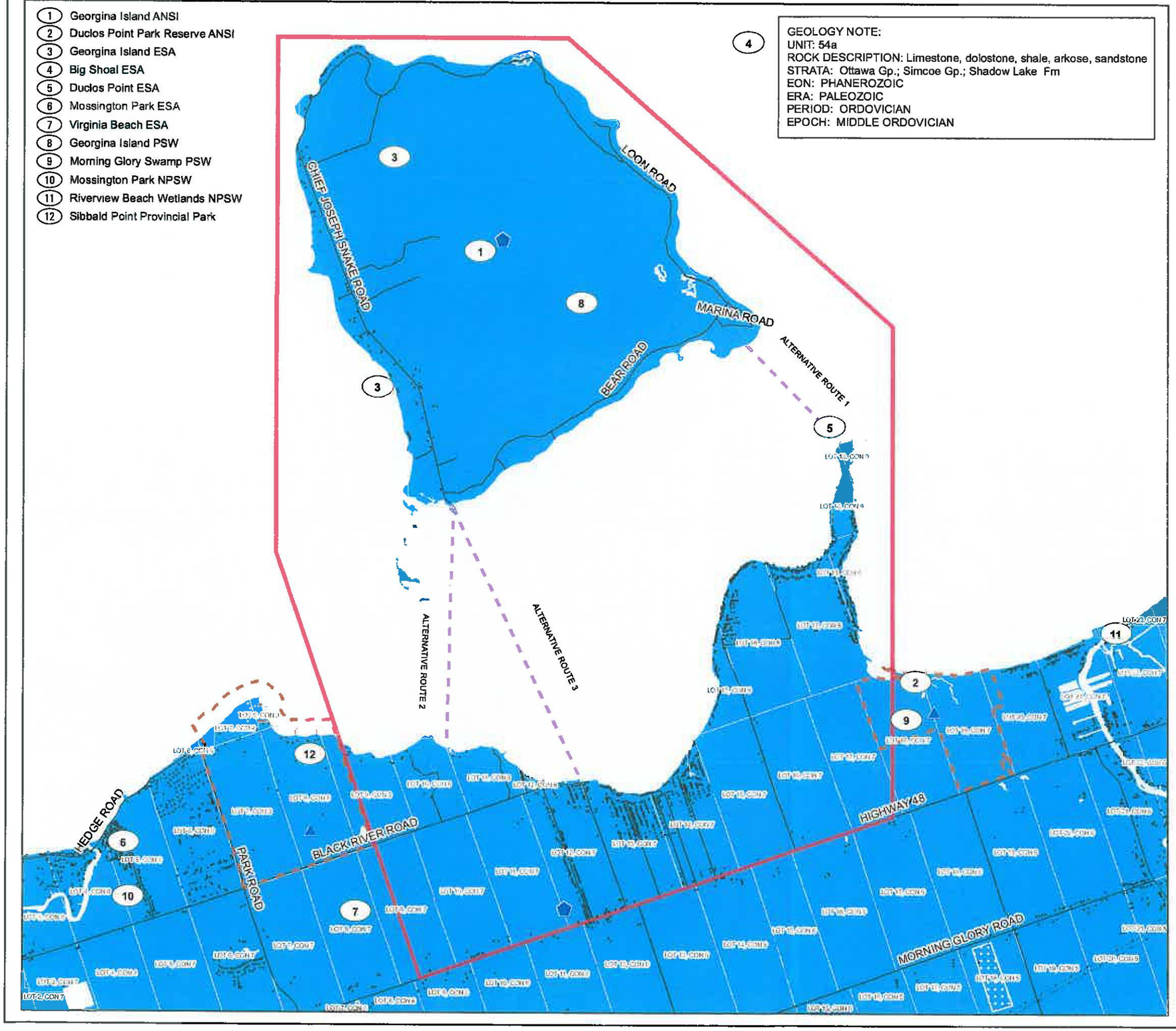
There is a gradual warming in the climate affecting Lake Simcoe that has impacted the ice cover and freeze-up/break-up trends for the Lake. Historical data shows that the lake currently freezes 1.3 days later and breaks up four days earlier than it did 140 years ago (Canadian Council of Ministers of the Environment, 2003). Environment Canada has stated that climate change could reduce water levels in the Great Lakes and related watersheds to lower than they have been in recorded history. These changes will impact shipping, power generation, and wildlife. Even though most climate scenarios predict increased precipitation for the region around the Great Lakes, higher temperatures will mean greater evaporation of water into the atmosphere. They will also mean less snow in winter, so less spring run-off and snow melt entering the lakes. According to researchers, the average temperature in the Great Lakes basin could go up by about 4.5°C by 2055, with slightly larger increases in winter than in summer. Higher rates of evaporation and drier soils would reduce runoff, and water levels in the Great Lakes could fall by an average of between 0.5 m and 1.0 m, according to typical scenarios.

Geology/Soils

Chippewas of Georgina Island First Nation is underlain by limestone bedrock which rises 8-10 m above Lake Simcoe on its northwestern and northeastern points. On these points the bedrock is covered by only 10 to 15 cm of sandy or clay loams. The bedrock is exposed as a cliff along the steep slopes of the north shore. Two former embankments along this shore have a series of post-glacial cobble beach ridges. To the south, the island slopes down into the lake with much of the land only 0.5 to 3 m above the lake. A former embayment along the southeast side has accumulated thick organic deposits in excess of 40 cm deep. Off the south shore, there are shallow silts over gley and, off the island's southwest corner; currents have deposited a series of small islands and spits known as the Sand Islands (Varga et al., 1998).

Georgina Island is part of the Drumlinized Till Plain Physiographic Unit. The surface soil cover consists of Otonabee sandy loam occupying gentle sloping areas and the king clay series found in more steeply sloping areas, which cover approximately 90 percent of the island. The soils are predominantly loam-textured with clays in the northern portion. The main soil type developed from loamy glacial till, is well drained, and occurs on moderately sloping topography. Because of these slopes, the soil is susceptible to sheet erosion. The clay soils were derived from till deposits intermixed with glaciolacustrine sediments and are well drained occurring on smooth, moderately sloping topography. This soil type is also susceptible to erosion. The remainder of Georgina Island is composed primarily of loam-textured soils similar to those described above. Figure 3.1 shows the underlying geology of the area, while Figure 3.2 shows the overlying soil structure.

1. Georgina Island ANSI
2. Duclos Point Park Reserve ANSI
3. Georgina Island ESA
4. Big Shoal ESA
5. Duclos Point ESA
6. Mossington Park ESA
7. Virginia Beach ESA
8. Georgina Island PSW
9. Morning Glory Swamp PSW
10. Mossington Park NPSW
11. Riverview Beach Wetlands NPSW
12. Sibbald Point Provincial Park



GEOLOGY NOTE:
UNIT: 54a
ROCK DESCRIPTION: Limestone, dolostone, shale, arkose, sandstone
STRATA: Ottawa Gp.; Simcoe Gp.; Shadow Lake Fm
EON: PHANEROZOIC
ERA: PALEOZOIC
PERIOD: ORDOVICIAN
EPOCH: MIDDLE ORDOVICIAN

CHIPPEWAS OF GEORGINA ISLAND
REGION OF YORK, TOWN OF GEORGINA
PRELIMINARY EVALUATION OF ENGINEERING AND ENVIRONMENTAL ALTERNATIVES STUDY

STUDY AREA GEOLOGY
FIGURE 3.1

Legend
- Local Earth Science Site
- Local Life Science Site
- Building: Not to Scale
- Study Area
- Utility Line: Unspecified
- Provincial Park
- Road
- River/Stream: Seasonal
- River/Stream: Permanent
- Lot
- Pit/Quarry: Unspecified
- Waterbody
- Geology (51a Ottawa Gp.; Simcoe Gp.: Shadow Lake Fm.)

Produced using information provided by the Ministry of Natural Resources, Ontario Geologic Survey
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York Region, Town of Georgina Official Plan, Schedule B3, B4, B5, B6.

0 500 1,000 1,500 2,000
Meters

N

Scale: 1:40,000
Mapping Date: June, 2007

Projection: UTM Zone 17
Datum: NAD 83

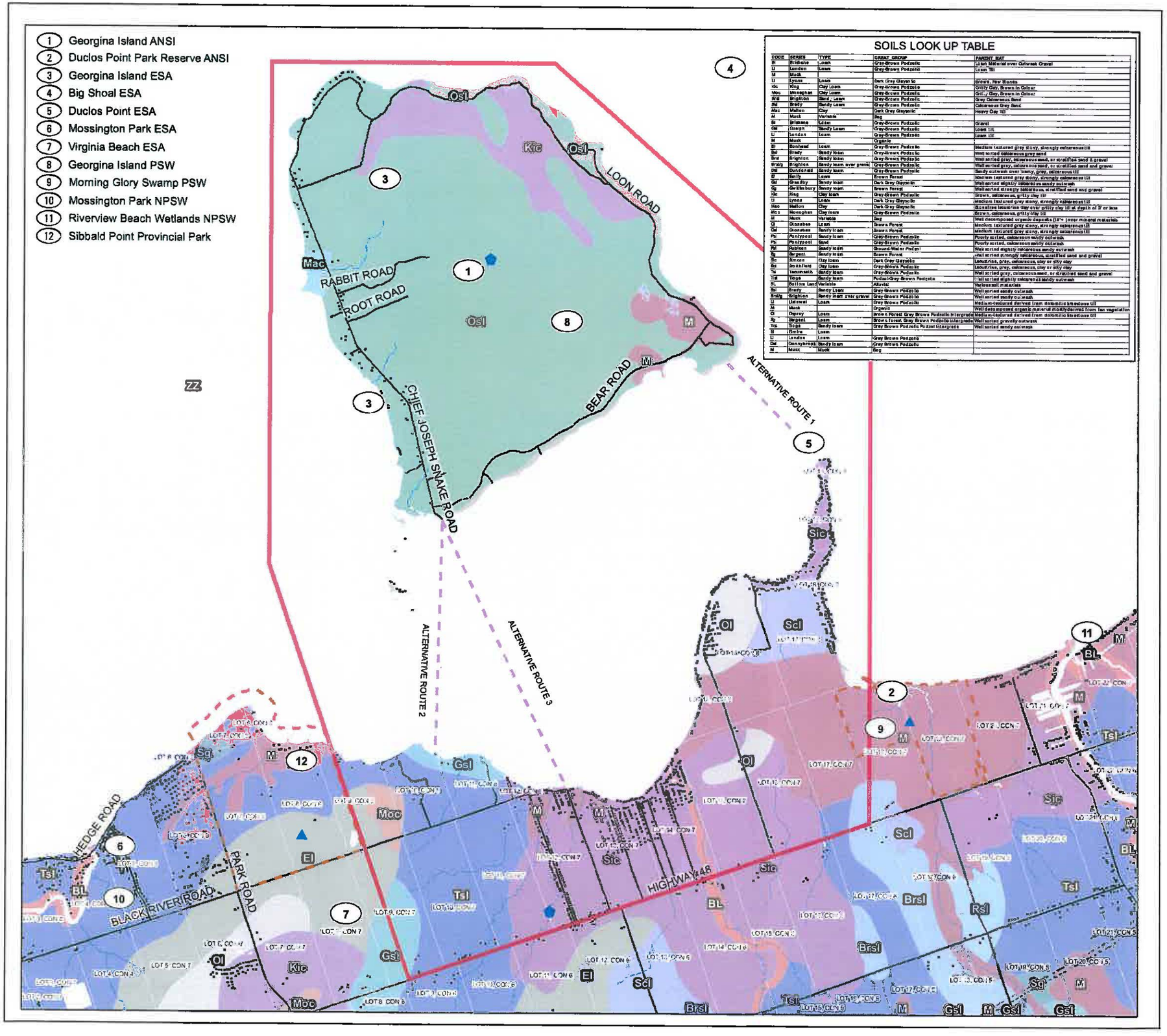
Project: FCD10428
Prepared By: Z. Jake Jakop

Verified By: Henry Centen

NEEGAN BURNSIDE

X:\Projects\FCD\FCD10428\Map\FCD10428 Figure 3.1 Study Area GeoCopy.mxd

1. Georgina Island ANSI
2. Duclos Point Park Reserve ANSI
3. Georgina Island ESA
4. Big Shoal ESA
5. Duclos Point ESA
6. Mossington Park ESA
7. Virginia Beach ESA
8. Georgina Island PSW
9. Morning Glory Swamp PSW
10. Mossington Park NPSW
11. Riverview Beach Wetlands NPSW
12. Sibbald Point Provincial Park



SOILS LOOK UP TABLE

CODE	SERIES	TYPE	GREAT_GROUP	PARENT_MAT
Bl	Brisbane	Loam	Grey-Brown Podzolic	Loam Material over Outwash Gravel
Ld	London	Loam	Grey-Brown Podzolic	Loam Till
M	Muck			
Ly	Lyons	Loam	Dark Grey Gleysolic	Grovers, Few Stones
Kic	King	Clay Loam	Grey-Brown Podzolic	Gritty Clay, Brown in Colour
Mnc	Monaghan	Clay Loam	Grey-Brown Podzolic	Grit.y Clay, Brown in Colour
Brd	Brighton	Sand, Loam	Grey-Brown Podzolic	Grey Calcareous Sand
Bd	Brady	Sandy Loam	Grey-Brown Podzolic	Calcareous Grey Sand
Mac	Mellon	Clay	Dark Grey Gleysolic	Heavy Clay Till
M	Muck	Variable	Bog	
Bl	Brisbane	Loam	Grey-Brown Podzolic	Gravel
Od	Oneida	Sandy Loam	Grey-Brown Podzolic	Loam Till
Ld	London	Loam	Grey-Brown Podzolic	Loam Till
M	Muck		Organic	
Bl	Bondhead	Loam	Grey-Brown Podzolic	Medium textured grey stony, strongly calcareous till
Bd	Brady	Sandy loam	Grey-Brown Podzolic	Well sorted calcareous grey sand
Brd	Brighton	Sandy loam	Grey-Brown Podzolic	Well sorted grey, calcareous sand, or stratified sand & gravel
Brd/g	Brighton	Sandy loam over gravel	Grey-Brown Podzolic	Well sorted grey, calcareous sand, or stratified sand and gravel
Dd	Dundonald	Sandy loam	Grey-Brown Podzolic	Sandy outwash over loamy, grey, calcareous till
Et	Emily	Loam	Brown Forest	Medium textured grey stony, strongly calcareous till
Gd	Granby	Sandy loam	Dark Grey Gleysolic	Well sorted slightly calcareous sandy outwash
Gg	Guelphsbury	Sandy loam	Brown Forest	Well sorted strongly calcareous, stratified sand and gravel
Kic	King	Clay loam	Grey-Brown Podzolic	Brown, calcareous, gritty clay till
Ly	Lyons	Loam	Dark Grey Gleysolic	Medium textured grey stony, strongly calcareous till
Mnc	Monaghan	Clay loam	Grey-Brown Podzolic	Brown, calcareous, gritty clay till
M	Muck	Variable	Bog	Well decomposed organic deposits (16"+ over mineral materials
Ot	Otonabee	Loam	Brown Forest	Medium textured grey stony, strongly calcareous till
Otd	Otonabee	Sandy loam	Brown Forest	Medium textured grey stony, strongly calcareous till
Pth	Pontypool	Sandy loam	Grey-Brown Podzolic	Poorly sorted, calcareous sandy outwash
Pts	Pontypool	Sand	Grey-Brown Podzolic	Poorly sorted, calcareous sandy outwash
Rd	Rubicon	Sandy loam	Ground-Water Podzol	Well sorted slightly calcareous sandy outwash
Sg	Sargent	Sandy loam	Brown Forest	Well sorted strongly calcareous, stratified sand and gravel
Sic	Simcoe	Clay loam	Dark Grey Gleysolic	Lacustrine, gray, calcareous, clay or silty clay
Slc	Smithfield	Clay loam	Grey-Brown Podzolic	Lacustrine, gray, calcareous, clay or silty clay
Ta	Tecumseth	Sandy loam	Grey-Brown Podzolic	Well sorted grey, calcareous sand, or stratified sand and gravel
Trd	Tioga	Sandy loam	Podzol-Grey-Brown Podzolic	Well sorted slightly calcareous sandy outwash
BL	Bottom Land	Variable	Alluvial	Various soil materials
Bd	Brady	Sandy Loam	Grey-Brown Podzolic	Well sorted sandy outwash
Brd/g	Brighton	Sandy loam over gravel	Grey-Brown Podzolic	Well sorted sandy outwash
Ld	Listowel	Loam	Grey Brown Podzolic	Medium-textured derived from dolomitic limestone till
M	Muck		Organic	Well decomposed organic material mostly derived from fen vegetation
Or	Osprey	Loam	Brown Forest Grey Brown Podzolic Intergrade	Medium-textured derived from dolomitic limestone till
Sg	Sargent	Loam	Brown forest Grey Brown Podzolic Intergrade	Well sorted gravelly outwash
Trg	Tioga	Sandy loam	Grey Brown Podzolic Podzol Intergrade	Well sorted sandy outwash
Bl	Elmira	Loam		
Ld	London	Loam	Grey Brown Podzolic	
Dd	Donnybrook	Sandy loam	Grey Brown Podzolic	
M	Muck	Muck	Bog	

CHIPPEWAS OF GEORGINA ISLAND
REGION OF YORK, TOWN OF GEORGINA
PRELIMINARY EVALUATION OF ENGINEERING AND ENVIRONMENTAL ALTERNATIVES STUDY
STUDY AREA SOILS
FIGURE 3.2

Legend

- Local Earth Science Site
- Local Life Science Site
- Building: Not to Scale
- Study Area
- Utility Line: Unspecified
- Provincial Park
- Road
- River/Stream: Seasonal
- River/Stream: Permanent
- Lot
- Pit/Quarry: Unspecified
- Waterbody

Soils

- BL
- Brsl
- El
- Gsl
- Kic
- M
- Mac
- Moc
- Ol
- Osl
- Rsl
- Scl
- Sg
- Slc
- Tsl
- ZZ

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York Region, Town of Georgina Official Plan, Schedule B3, B4, B5, B6.
1957 Bathymetry provided by Nautical Data International, Inc. (Chart File No #2790)

0 500 1,000 1,500 2,000
Meters

N

Scale: 1:40,000
Mapping Date: Jan, 2008

Projection: UTM Zone 17
Datum: NAD 83

Project: FC010428
Prepared By: Z. Jake Jakop

Verified By: Henry Centen

NEEGAN BURNSIDE

X:\Projects\FC0\FC010428\Map\FC010428 Figure 3.2 Study Area Soils.mxd

3.2 Bathymetry and Water Levels

Lake Simcoe is in the Severn River watershed and is part of the Trent-Severn waterway. Water levels and flows are managed by Parks Canada, an agency of Environment Canada. Dam settings are based on the establishment of trends, extremes and averages from level recording stations and from streamflow precipitation gauges. Lake Simcoe has been managed using a rule curve, in effect since 1918, which serves as a target or guide for water levels throughout the year. Due to its large size, Lake Simcoe reacts relatively slowly to climatic conditions and stop-log changes. Flows are also coordinated on the Black River to reduce the threat of flooding downstream on the Severn River and Sparrow Lake.

The minimum depth is 1.8 m in the Trent-Severn waterway, between the locks in Peterborough and the outfall to Georgian Bay at Port Severn. The minimum overhead fixed bridge clearance is 6.7 m (22 ft.) in the main Trent-Severn waterway channel. The locks along the waterway open in mid May. The entrance of the waterway into Lake Simcoe is located about 13 km to the north and east of Georgina Island. The exit of the waterway from Lake Simcoe is at the north end of the lake, crossing under the Atherley Narrows Bridge (clearance 7.0 m) and into Lake Couchiching.

To identify potential design heights of the water levels for clear opening and wave action, a study of local water elevations is needed. The Lake Simcoe Region Conservation Authority (LRSCA) has historical water level information. The chart datum (or level below which the water will seldom fall) is 218.7 m. This could be considered the low water level. The average annual high water mark (AAHW) for Lake Simcoe has been determined to be 219.5 m above sea level (asl) and could be considered the high water level expected. Over the past 100 years, records show the actual low and high water levels to have varied from 219.47 m to 218.37 m.

Annual variation in the water level in Lake Simcoe is about 0.5 m, with higher lake levels occurring in the summer and lower levels in the winter months. In addition, seiching (i.e. sloshing of water within the lake following an initial storm surge or setup on one part of the lake) may provide a short term increase in lake levels by as much as 0.15 m. Also waves will increase the depths in localized areas, depending upon the prevailing winds (i.e. prevailing winds from the northwest in the summer and from the southwest in the Fall). The bathymetry in the study area is shown in Figure 3.3 The depths from the chart level, as well as marine navigation constraints, are summarized as follows:

- Eastern Area (i.e. between Duclos Point and Georgina Island) – Shoals are shown to extend out from both the mainland point and the island in this area, with depths of less than 1.0 m. A marked shoal (Bald Shoal) also exists in the central area of the channel (although not shown on the bathymetry). Shallow draft boats can navigate through this area by staying to the north of the central shoal, where the depths are assumed to be in the order of 2.5 m within a relatively narrow channel.

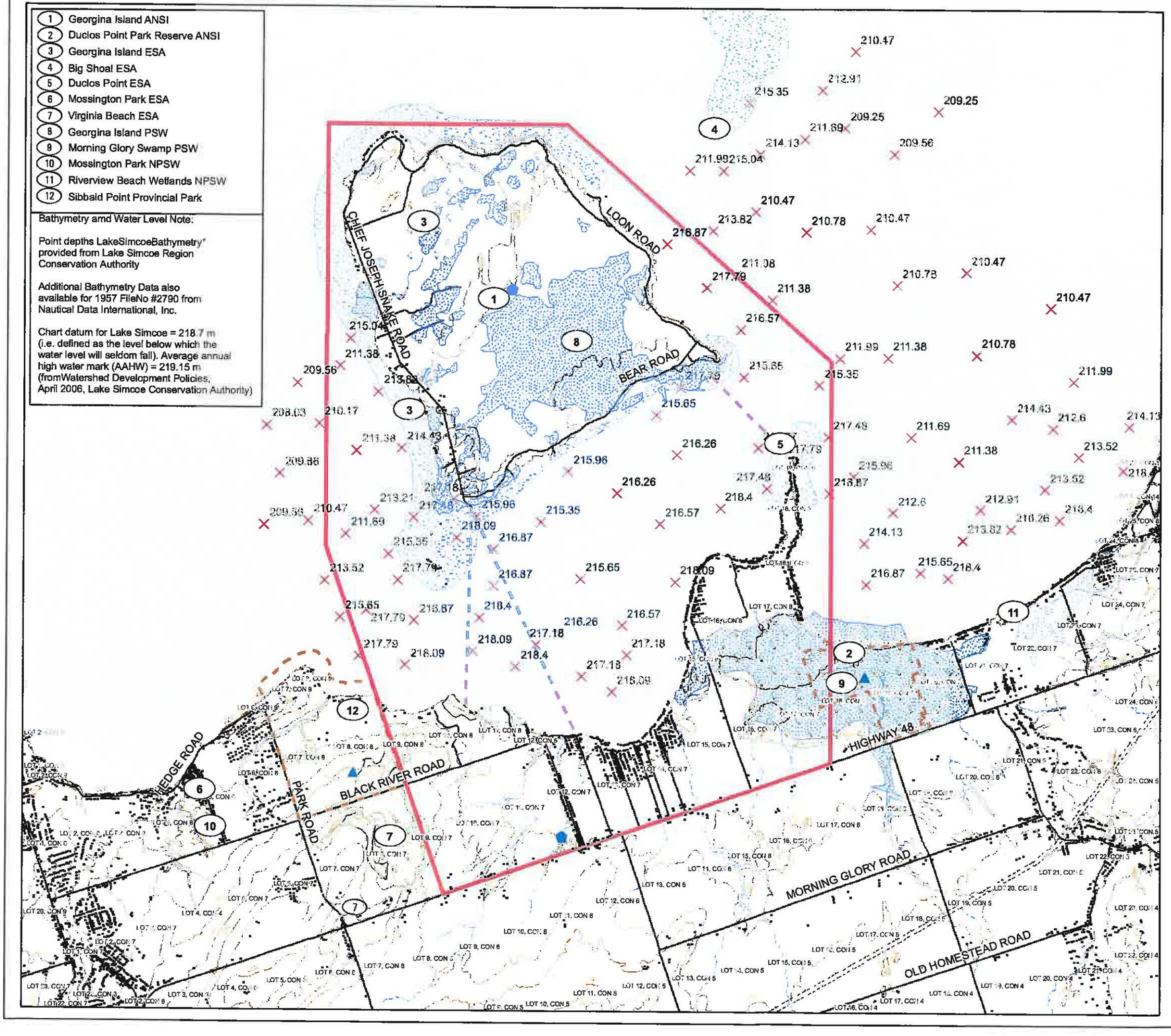
1. Georgina Island ANSI
2. Duclos Point Park Reserve ANSI
3. Georgina Island ESA
4. Big Shoal ESA
5. Duclos Point ESA
6. Mossington Park ESA
7. Virginia Beach ESA
8. Georgina Island PSW
9. Morning Glory Swamp PSW
10. Mossington Park NPSW
11. Riverview Beach Wetlands NPSW
12. Sibbald Point Provincial Park

Bathymetry amd Water Level Note:

Point depths LakeSimcoeBathymetry* provided from Lake Simcoe Region Conservation Authority

Additional Bathymetry Data also available for 1957 FileNo #2790 from Nautical Data International, Inc.

Chart datum for Lake Simcoe = 218.7 m (i.e. defined as the level below which the water level will seldom fall). Average annual high water mark (AAHW) = 219.15 m (fromWatershed Development Policies, April 2006, Lake Simcoe Conservation Authority)



CHIPPEWAS OF GEORGINA ISLAND
REGION OF YORK, TOWN OF GEORGINA
PRELIMINARY EVALUATION OF ENGINEERING AND ENVIRONMENTAL ALTERNATIVES STUDY

STUDY AREA BATHYMETRY
FIGURE 3.3

Legend

- Local Earth Science Site
- Local Life Science Site
- Building: Not to Scale
- Proposed Routes
- Study Area
- LakeSimcoeBathymetry
- Utility Line: Unspecified
- Provincial Park
- Road
- River/Stream: Seasonal
- River/Stream: Permanent
- Lot
- Biological ESAs
- Provincial Life Science ANSI
- Provincial Significant Wetlands
- Non-Provincial Significant Wetlands
- Mid-to-Late Successional Forest (>4 ha)
- Old Growth Forest (>100 Years)
- Shoal ESAs
- Waterbody

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York Region, Town of Georgina Official Plan, Schedule B3, B4, B5, B6.
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0 500 1,000 1,500 2,000 2,500
Meters

N

Scale: 1:40,000
Mapping Date: January 11, 2008

Projection: UTM Zone 17
Datum: NAD 83

Project: FC010428
Prepared By: Z. Jake Jakop

Verified By: Henry Canten

NEEGAN BURNSIDE

X:\Project\Jobs\FC010428\Map\FC010428 Figure 3.3 Study Area Bathymetry.mxd

- Western Area (i.e. between the southwest corner of the island and Doyle Beach) – A major shoal formation extends over a significant part of this area, in places extending above the surface as the Sand Islands. The Sand Island Shoals have depths of less than 1.0 m. Nearer to the mainland the depths are also very shallow, in the order of 0.6 m, extending to the area adjacent to Sibbald's Point Provincial Park. An area of deeper channel exists in the central area between the Sand Island shoals and the mainland, and is thought to have depths of about 1.8 m.

- Existing Ferry Crossing Route – The bathymetric information shown pre-dates the dredging work completed in 2001 to accommodate the new ferry, and therefore it is recommended that updated soundings be obtained to confirm depths in this area. However based on the bathymetric information available, it can be assumed the depths within a 20 metre span would be in the order of 1.5 metres.

Due to the significant area of shoals to the south of Georgina Island in the study area, most cruising boats would travel to the north of Blackbird Point on the north tip of Georgina Island, rather than to follow a route to the south of the island. However there are a number of marinas located in Beaverton, Pefferlaw and Virginia Beach that service recreational boats, as well as cottages, homes and a Provincial Park along the shoreline that have docking facilities.

3.3 Designated Sites and Species Within the Study Area

A review of the NHIC, EC database and Official Plans revealed the following records within the study area:

Georgina Island

- One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science)
- Two Environmentally Sensitive Areas (ESAs) – Georgina Island and Big Shoal
- One Provincially Significant Wetland (PSWs) – Georgina Island Wetlands
- Vulnerable, Threatened or Endangered (VTE) species - as determined by the Committee on the Status of Species At Risk (COSSARO) and identified on the Natural Heritage Information Centre (NHIC) website. Georgina Island First Nation falls within a provincially "unidentified" zone, meaning no inventory or recommendation on species for that area exist.

Mainland

- One Area of Natural and Scientific Interest (ANSI) – Duclos Point Park Reserve (Life Science)
- Two Environmentally Sensitive Area (ESAs) – Duclos Point and Morning Glory Swamp
- One Provincially Significant Wetland (PSW) –Morning Glory Swamp
- One Nature Reserve - Duclos Point Provincial Nature Reserve
- One old growth forest (>100 years) – near Doyle Beach

- Mid-to-Late successional forest (> 4 ha) – near Doyle Beach
- Butternut (SARA, Schedule 1 species)
- Red-Shouldered Hawk (COSEWIC, Special Concern).

The following designated sites are located on the mainland in close proximity to the study area:

- two Environmentally Sensitive Areas (ESAs) - Virginia Beach and Mossington Park
- two Non-Provincially Significant Wetlands (NPSWs) - Mossington Park and Riverview Beach Wetlands
- one Provincial Park - Sibbald Point Provincial Park.

In accordance with Environment Canada's letter of March 6th 2007, there are also records of the following federally designated species (Table 3.1) located within the study area (mainland and island). There are no federally designated aquatic species within the study area.

Table 3.1: Designated Species

Species	Designation	Habitat Preference	Potential to be located within study area
Birds			
Least Bittern	SARA Schedule 1 Threatened	Nest in freshwater marshes, where dense tall aquatic vegetation is interspersed with clumps of woody vegetation and open water. They are most regular in marshes that exceed 5 ha in area.	Yes
Reptiles and Amphibians			
Spotted Turtle	SARA Schedule 1 Endangered	Found in ponds, ditches, streams, swamps, bogs and marshes. They generally prefer soft (muddy) substrate and some aquatic vegetation.	Yes
Blanding's Turtle	SARA Schedule 1 Threatened	Found in a variety of habitats, including lakes, ponds, marshes, low fields, ditches, creeks, river sloughs, and bogs. Within these habitats, the species is associated with shallow water where submergent or emergent plants occur.	Yes
Plants			
American Ginseng	SARA Schedule 1 Endangered	Grows in rich, moist, undisturbed and relatively mature deciduous woods in areas of neutral soil (such as over limestone or marble bedrock). The forest canopy is usually dominated by Sugar Maple, White Ash, Bitternut Hickory, and Basswood.	Yes

Table 3.1: Designated Species – Cont'd

Species	Designation	Habitat Preference	Potential to be located within study area
Butternut	SARA Schedule 1 Endangered	Grows best in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone.	Yes
Branched Bartonia	SARA Schedule 1 Threatened	Occurs in open graminoid (grass-like vegetation) or low shrub sphagnum bog or fen habitat. It is usually found growing on a peat substrate, and is associated with Larch and Black Spruce	Yes

A summary of each of the ANSI, ESA, wetland and Park/Reserve designations, taken from the NHIC website, is provided in the following sections. Natural features are shown on Figure 3.4.

3.3.1 Areas of Natural Scientific Interest (ANSI) within the Study Area

Chippewas of Georgina Island First Nation

Chippewas of Georgina Island First Nation, which is located entirely on Georgina Island, is approximately 1,291 ha. The island supports a high diversity of 38 vegetation community types. These include 25 wetland communities, nine terrestrial communities and four human-influenced communities.

Most of the island is covered in broadleaf and mixed swamps with the mixed swamps largely confined to the southeast side of the island. The mixed swamps are dominated by White Birch and White Cedar as well as stands of Eastern Hemlock and Black Ash. In the northwestern portion of the island there are small mixed swamps of Black Ash and Green Ash, and Black Ash, Red Maple, White Cedar and occasionally Balsam Fir as secondary tree species.

The extensive broadleaf swamps are largely dominated by Silver Maple with smaller stands of Black Ash, Red Maple and Green Ash. Scattered among the swamps are small openings supporting cattail marshes and thicket swamps of Red-osier Dogwood, willow species and Speckled Alder.

1. Georgina Island ANSI
2. Duclos Point Park Reserve ANSI
3. Georgina Island ESA
4. Big Shoal ESA
5. Duclos Point ESA
6. Mossington Park ESA
7. Virginia Beach ESA
8. Georgina Island PSW
9. Morning Glory Swamp PSW
10. Mossington Park NPSW
11. Riverview Beach Wetlands NPSW
12. Sibbald Point Provincial Park

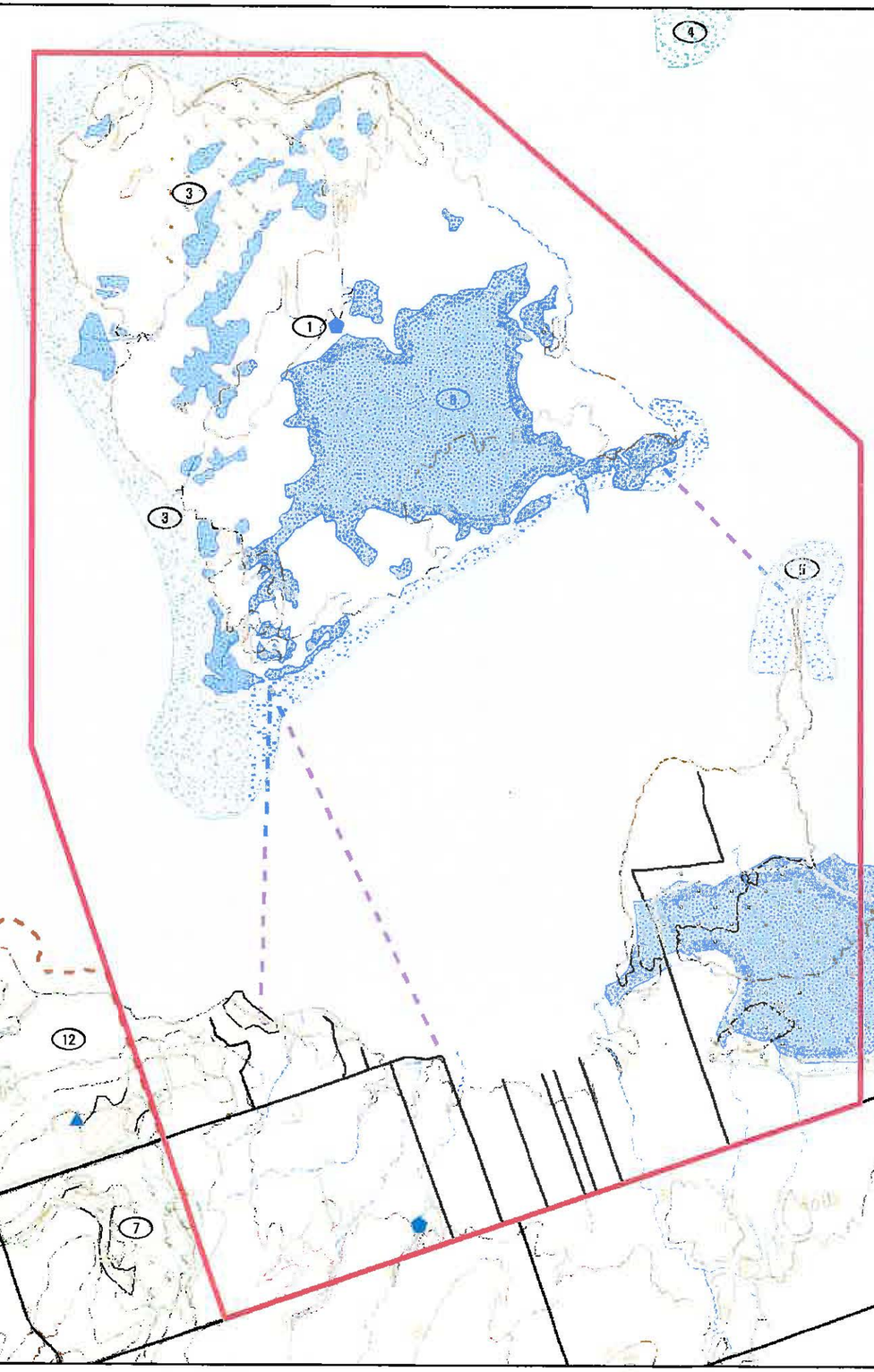

FIGURE 3.4

CHIPPEWAS OF GEORGINA ISLAND
REGION OF YORK, TOWN OF GEORGINA

PRELIMINARY EVALUATION OF ENGINEERING AND ENVIRONMENTAL ALTERNATIVES STUDY

NATURAL HERITAGE FEATURES

Legend

- River/Stream: Seasonal
- River/Stream: Permanent
- Study Area
- Road
- Lot
- Utility Line: Unspecified
- Waterbody
- Provincial Life Science ANSI
- Provincial Park
- Shoal ESAs
- Old Growth Forest (>100 Years)
- Mid-to-Late Successional Forest (>4 ha)
- Non-Provincial Significant Wetlands
- Provincial Significant Wetlands
- Biological ESAs
- Local Life Science Site
- Local Earth Science Site

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York Region, Town of Georgina Official Plan, Schedule B3, B4, B5, B6.

N

0 500 1,000 1,500 2,000 2,500 3,000
Meters

Scale: 1:40,000
Mapping Date: January 10, 2007

Projection: UTM Zone 17
Datum: NAD 83

Project: FC010428
Prepared By: B. Berry

Verified By: T. Radburn

BURNSIDE

X:\Project\Jobs\FC010428\Map\FC010428 Figure 3.4 Natural Heritage Features WD Routes.mxd

Cattail marshes are present on the south shores of Georgina Island with marshes of Water Sedge and Giant Bur-reed in the southeast portion. In the shallow waters of the south shore there are extensive emergent beds of Hard-stemmed Bulrush with submergent Slender Naiad and Tape Grass. In deeper waters, beds of Chara species, Tape Grass, Canada Waterweed and, in sheltered waters, Floating Pondweed are present. Close to shore, beds of Giant Bur-reed occur in association with Tape Grass and Common Coontail.

Upland forests on Georgina are largely found on the sloping north and eastern shores and on the northwest corner of the island. In the northwest, large broadleaf forests of Sugar Maple with Basswood and White Ash as secondary tree species are present. These forests occur over limestone bedrock with approximately 10 to 15 cm of sand loam or clay loam overburden. They have scattered shrubs of Bladdernut, Alternate-leaved Dogwood, and a rich understorey of Zig-zag Goldenrod, False Solomon's-seal, Large-flowered Bellwort, Early Meadow-rue, Wild Sarsaparilla, Peduncled Sedge and Wild Leek. Silver Maple swamps and White Cedar/Sugar Maple forests with Wild Sarsaparilla are present among the bedrock Sugar Maple forests. These bedrock forests are regionally significant in the Greater Toronto Area. The only other examples are found along the Niagara Escarpment in Halton and Peel and on Thorah Island in Durham.

The mixed upland forests occur predominantly along the northern and northeastern shores. On the northern shores, mixed forests of White Cedar scattered with Trembling Aspen are present on steep slopes capped by limestone cliffs with scattered herbs of Mackay's Fragile Fern, Divaricate Rock-cress and Herb Robert. Such limestone cliff communities are considered provincially rare (Bakowsky, 1996), with the only other examples in the Greater Toronto Area occurring along the Niagara Escarpment in Halton and Peel.

Post-glacial beach ridges in the northern embayment on the north shore supports a mature coniferous forest of Eastern Hemlock with White Cedar and a dense low shrub layer of Ground Yew with Wild Sarsaparilla.

Large stands of mixed and coniferous forests with a strong boreal element occur on the sloping northeast shores. White Cedar and Balsam Fir dominate with Trembling Aspen and White Birch as secondary tree species with a scattering of large White Spruce. Saplings of Balsam Fir are common in the understorey with Wild Sarsaparilla and Poison Ivy.

Low beach ridges along the south-central shore support mixed forests of Red Maple, White Ash and White Cedar with scattered tall shrubs of Mountain Maple and a low shrub layer of Ground Yew with Wild Sarsaparilla.

The former large agricultural lands on the eastern and northeastern side of the island are now regenerating fields, Staghorn Sumac thickets and young forests of White Ash and Trembling Aspen. In wetter areas young swamps of Trembling Aspen, Green Ash and White Elm have also developed (Varga et al., 1998).

Duclos Point Park Reserve ANSI

Duclos Point is characterized by a beach spit and backshore marsh and an extensive swamp extending inland from the storm beach. Two small unnamed streams empty into the east marsh. The park reserve represents 95 ha of the total 240 ha marsh-swamp wetland complex.

The Duclos Point Area of Natural and Scientific Interest illustrates a variety of different community types associated with wetland habitat. A progression of community types ranging from the open water of the lake and creeks to shallow marsh to deep marsh to thicket swamp and to deciduous and coniferous swamp forest occurs Moving inland from Lake Simcoe the vegetation pattern is as follows: Offshore sand bars are sparsely vegetated with bulrush (Scirpus americanus). A young forest of balsam poplar - willow - white birch - red ash - cedar is found on the lowlying wet beach bar. The west and east inlet marshes support cattail (Typha latifolia), bulrush, wild rice (Zizania aquatica) and water willow (Decodon verticillatus). These grade into reed (Phragmites australis) - blue joint grass (Calamagrostis canadensis) meadow and then into extensive alder, alder - red ash, silver maple - white birch, cedar and tamarack swamp. [Hanna 1984]

3.3.2 Environmentally Sensitive Areas (ESA) Life Science Sites within the Study Area

Georgina Island

This 363 ha Life Science Site is covered with second growth vegetation and overgrown orchards, as it was cultivated up until 20 – 30 years ago. Vegetation includes white birch, poplar, white cedar, black ash, hawthorn and red raspberry. In the north, a small area is covered with mature eastern hemlock, while the eastern side of the island contains limestone outcrops with a wide variety of sedges (Ecologistics Limited 1982).

Big Shoal

Big Shoal is a 109 ha Life Science Site located southwest of Thorah Island and northeast of Georgina Island. The shoal is nearly 2 km long with water depths ranging from 1 to 5 m, where substrate consists of cobbles and large gravel (Ecologistics Limited, 1982).

Duclos Point

Duclos Point is a 25 ha Life Science Site located south of Georgina Island on the south shore of Lake Simcoe between Sibbald Point Provincial park and the mouth of Pefferlaw Brook (Ecologistics Limited, 1982). The beach is generally pebbly turning rocky further out. Aquatic plants are not present due to heavy wave action in the area.

Virginia Beach Relict

The Virginia Beach Relict is a 52 ha Life Science Site located south of Sibbald Point Provincial Park off of Highway 48. This low-lying, damp area consists of a remnant of the old Lake Simcoe shoreline with large rocks and rocky patches including prominent features such as open damp meadows created by the retreat of the shoreline. This beach relict is surrounded by a solid wall of cedars on the east and west sides with a shrubby strip in the north (Ecologistics Limited, 1982). Vegetation includes scouring rushes with a variety of grasses, sedges and dwarfed white cedar, and thus is fen-like in appearance (Ecologistics Limited, 1982).

Morning Glory Swamp

Morning Glory Swamp is a 353 ha Life Science Site located South of Duclos Point and northwest of Pefferlaw on Lake Simcoe (Ecologistics Limited 1982). The eastern portion of the swamp is dominated by silver maple, with ground cover limited to drier hummocks around tree bases where standing water occurs during periods of abundant precipitation. Loesel's Twayblade is abundant in this community along with three-leaved false solomon's seal, tufted loosestrife, water hemlock and water parsnip. Groundnut was also found in this area near the lakeshore. Further west, the vegetation consists of round-leaved and red osier dogwood, and royal fern with red and black ash interspersed. Along the stream, sweet gale is the dominant species with speckled alder also being common (Ecologistics Limited, 1982).

Mossington Park

Mossington Park is a 32 ha Life Science Site located between Lake Drive and Black River Road half way between Jackson's Point and Sibbald Point. Black River is the western boundary of this site. This area is remnant of upland hardwood among cottage development (Ecologistics Limited, 1982). The hardwood forest adjacent to Black River is indented with a number of small ravines, each with characteristic swamp forest vegetation at the bottom. Very wet conditions occur along sections of the Black River in the form of alder thickets or open marsh. With the exception of the steeper slopes, most of the area has been logged.

3.3.3 Provincially and Non-Provincially Significant Wetlands within the Study Area

Georgina Island Wetlands

Georgina Island Wetlands is a 379 ha Provincially Significant Wetland, made up of 29 individual wetlands. This complex is composed of two wetland types including 93 percent swamp and 7.0 percent Marsh (Konecny et al., 1985). Dominant vegetation forms include 79 percent deciduous trees, 6.3 percent coniferous trees, 5.7 percent tall shrubs, and 2.3 percent low shrubs with 1 percent narrow leaved emergents, 4.5 percent robust-emergents and 1.2 percent submergent vegetation (Konecny et al., 1985). This wetland is located in an area that is 89 percent isolated with 11 percent lacustrine and

exposed to the lake. Soils within this PSW are 93 percent clay, loams or silts, with 5 percent organics and 2 percent undesignated.

Morning Glory Swamp

Morning Glory Swamp is a 345 ha, Provincially Significant Wetland, composed of two wetland types (88% swamp, 12% marsh) (Konecny et al., 1985), and is located in a 97.4 percent lacustrine area exposed to the lake and 2.6 percent riverine area. Dominant vegetation types include deciduous trees (43.1%), coniferous trees (2.7%), dead trees (0.8%), tall shrubs (46.6%), low shrubs (1.8%), narrow-leaved emergents (1.3%), robust emergents (3.1%), and submergent vegetation (0.7%). Soils consist mainly of organics (96%), clays, loams or mineral silts (2%), and undesignated (2%).

Mossington Park Wetlands

The Mossington Park Wetlands cover 3.62 ha and are classified as a non-provincially significant wetland complex made up of three individual wetlands and composed of two wetland types including swamp (84%) and marsh (16%) (Power et.al, 1984). Vegetation communities consist of deciduous trees (16%), tall shrubs (68%) and narrow-leaved emergents (16%). The Mossington Park Wetlands complex is located in an area classified as 84 percent riverine and 16 percent lacustrine in undesignated soils.

Riverview Beach Wetland

Riverview Beach Wetland Complex is a non-provincially significant wetland composed of four individual wetlands located in an area which is 80 percent riverine and 20 percent palustrine with permanent or intermittent outflow. This 33.7 ha complex consists of two wetland types including 95 percent swamp and 5 percent marsh (Dodge et al., 1985). Carex, Typha, and Boreal species are the dominant vegetation types including 70.36 percent deciduous trees, 24.67 percent tall shrubs, 3.05 percent herbs, and 1.92 percent robust emergents. Soils in this area are predominantly organic (97%) with 3 percent of the soils consisting of clays, loams, or silts. Vegetation includes mainly Typha, Carex, and Boreal species.

3.3.4 Provincial Parks/Reserves within the Study Area

Duclos Point Provincial Nature Reserve

Duclos Point Provincial Park is a 111 ha nature reserve located on the southeast shore of Lake Simcoe. Natural features include a swamp which is home to rare plants and bird species including the Marsh Wren, Osprey, and the Caspian Tern. Vegetation includes Silver Maple, Black Ash, cattails, bulrushes, wild rice and small pockets of thicket swamp. Offshore, there is also an extensive sand bar. There are no visitor facilities and camping is not permitted at this provincial park.

Sibbald Point Provincial Park

Sibbald Point Provincial Park is a 225 ha recreational park with facilities for tourists, campers, etc. Sibbald Point is also a major attraction with a beach area on Lake Simcoe. Vegetation in this area includes hardwood and cedar forests within the park.

3.4 Terrestrial Environment

A site reconnaissance was undertaken within the study area on November 24th 2006. During the site reconnaissance numerous ducks, predominately Mallards, were observed within the wetland located in the south west corner of the study area. The preliminary CEAA Screening prepared for the Capital Planning Study (Neegan Burnside 2005) also lists the following fauna present on the Island; moles, rabbits, hare, chipmunk, squirrel, beaver, coyote, fox, raccoon, deer and mice. Hepetofauna include newts, salamanders, toads, frogs, turtles and snakes.

Access to areas on the mainland was restricted due to land ownership constraints. The only fauna noted during the reconnaissance were white tailed deer on the mainland at the time of the survey. Photographs of the study area are provided in Appendix A.

A review of the Ontario Breeding Bird Atlas (OBBA) identified 110 bird species recorded in a 10 km square (17PK31) covering the project study area. The OBBA does not identify any species which are listed on Schedule 1 of the Species At Risk Act (SARA) in the study area. 106 species have a provincial (S-Rank) of S4-S5 (Apparently Secure-Secure). The Caspian Turn (Sterna caspia) is ranked as S3 (Vulnerable) and the Great Egret (Casmerodius albus), Trumpeter Swan (Cygnus buccinators) and Great Black-backed Gull (Larus marinus) are ranked as S2 (Imperiled).

EC confirmed in their letter of March 6, 2007 that one bird, three plants and two reptiles/amphibians (Table 3.1) listed on Schedule 1 of the Species at Risk Act, have the potential to be located within the study area.

A review of the NHIC Ministry of Natural Resources Website identified the Red-Shouldered Hawk (Buteo lineatus) as a species of special concern found near the southwestern perimeter of the project study area on the mainland. One threatened and two endangered unidentified sensitive species are listed on the island. The Butternut (Juglans cinerea) which is a SARA Schedule 1 species was also identified on the NHIC website within the study area. This species, which is located on the mainland in the south west of the study area, is also listed as endangered.

3.5 Aquatic Environment

Lake Simcoe Watershed

The Lake Simcoe watershed has a total land and water surface area of 3,303 km^2, of which the lake occupies about 20 percent or 722 km^2. Lake Simcoe is part of the Trent

Severn Waterway connecting Lake Ontario to Georgian Bay and is southern Ontario's largest body of water (excluding the Great Lakes).

The land portion of the watershed is approximately 2,581 km^2 and is drained by 35 tributary rivers, with five major tributaries accounting for over 60 percent of the total area. Most of these rivers originate along the southern boundary of the watershed in the prominent physiographic feature known as the Oak Ridges Moraine. These rivers then drain in a northerly direction before discharging to Lake Simcoe.

Lake Simcoe is approximately 30 km long, 25 km wide and roughly 725 km^2 with an average depth of 15 m, a maximum depth of 41 m and a water volume of 11.6 km^3. The Lake extends to Kempenfelt Bay on the west, Cook's Bay to the south, and Lake Couchiching on the north.

The fish population within the lake has shifted from coldwater species like lake trout, whitefish and herring to species preferring warmer water such as perch, bass and sunfish. These changes relate in part to changes in nutrient cycling and in dissolved oxygen concentrations, siltation over spawning sites, shifts in available food items, and the invasion of non native species. Several initiatives, including: the State of the Lake Simcoe Watershed 2003, the Lake Simcoe Environmental Management Strategy, the Lake Simcoe Conservation Foundation and the Lake Simcoe Region Conservation Authority are making efforts to rectify the lake environment.

Lake Simcoe is the most intensely fished inland lake in Ontario. Most of this fishing occurs during the winter fishery and is targeted towards yellow perch, lake trout and lake whitefish. Lake Simcoe fish have one of the highest 'safe-to-eat' rates in the province (MOE Contaminant Testing Program).

Table 3.2 indicates the four fish species that are provincially designated in the Lake Simcoe watershed.

Table 3.2: Designated Species in Lake Simcoe Watershed

Fish Species	Common Name	Provincial Rank (SRANK)	COSEWIC	MNR
Clinostomus elongatus	Redside Dace	S3	Special Concern	Threatened
Coregonus clupeaformis sp., (AFCHAO1200)	Lake Simcoe Whitefish	-	Threatened	
Etheostoma blennioides	Greenside Darter	S4 (Uncommon)	Special Concern	
Hybognathus regius	Eastern Silvery Minnow	S2	NAR	

Table 3.2: Designated Species in Lake Simcoe Watershed – Cont'd

- **S2 - Very rare** in Ontario; usually between 2 and 20 occurrences in the province or with many individuals in fewer occurrences; often susceptible to extirpation.
- **S3 - Rare to uncommon** in Ontario; usually between 20 and 100 occurrences in the province; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances. Most species with an S3 rank are assigned to the watch list, unless they have a relatively high global rank.
- **S4 - Common and apparently secure** in Ontario; usually with more than 100 occurrences in the province.
- **THR - Threatened.** A wildlife species likely to become an endangered species if nothing is done to reverse the factors leading to its extirpation or extinction.
- **SC - Special Concern (Formerly Vulnerable).** A species of special concern because it is particularly sensitive to human activities or natural events, but does not include an extirpated, endangered or threatened species.
- **NAR - Not At Risk.** A species that has been evaluated and found to be not at risk.

Fish

A total of 58 fish species have been captured and recorded in the Lake Simcoe watershed, of which approximately 20 species have been captured in near shore environments south of Georgina Island by MNR Lake Simcoe Fisheries Assessment Unit (LSFAU). The LSFAU has conducted numerous sampling programs from 1965 to present in the study area. A summer index netting program was initiated that concentrated mainly on the species composition of the near shore community. Coldwater fish species of Lake Simcoe (Lake trout, Lake whitefish, Lake herring, Rainbow smelt) are frequently captured north of Georgina Island and are not typically observed in areas along the southern shoreline of Georgina Island. Based on previous catch efforts by LSFAU, coldwater species have been captured on the north east corner of the island, and on spawning shoals that encompass the north side of the island. Based on the average depths and fish species captured north of the mainland shoreline between Duclos point, south-west to Sibbald point and south of Georgina Island (southern portion of the Study area), a warm water to cool water fishery exists.

A review of the NHIC database for the study area did not reveal any fish species listed as endangered, threatened, or vulnerable. The Lake Simcoe whitefish *(Coregonus clupeaformis)* has been listed as threatened under Committee on the Status of Endangered Wildlife in Canada (COSEWIC) status for Lake Simcoe. Based on verbal communication with the MNR (pers comm., Jason Borwick), Lake whitefish and Lake trout use an area near the northeast corner of Georgina Island for spawning.

The species listed in Table 3.3 have either been captured or observed in the southern part (southern shore of Georgina Island to the mainland) of the Study area based on reviewed records from the MNR Aurora District Library. Capture methods in near shore environments consisted of 15 m seine netting and deeper areas sampled with trapnets and gill nets. A full fish species list for the Lake Simcoe watershed was provided by MNR and can be found in Appendix B – Correspondence.

Table 3.3: Fish Species Observed in the Study Area

Common Name	*Scientific Name*
Banded Killifish	Fundulus diaphanous
Iowa Darter	Etheostoma exile
Johnny Darter	Etheostoma nigrum
Spottail Shiner	Notropis hudsonius
Spotfin Shiner	Notropis spilopterus
Emerald Shiner	Notropis atherinoides
Longnose Dace	Rhinichthys cataractea
Bluntnose Minnow	Pimephales notatus
Brook Stickleback	Culaea inconstans
Yellow Perch	Perca flavescens
Log Perch	Percina caprodes
Rock Bass	Ambloplites rupestris
Largemouth Bass	Micropterus salmoides
Smallmouth Bass	Micropterus dolomieui
Pumpkinseed	Lepomis gibbosus
Mottled Sculpin	Cottus bairdi
White sucker	Catostomus commersoni
Rainbow Smelt	Osmerus mordax
Northern Pike*	Esox Lucius
Muskellunge*	Esox masquinongy

**Species known to exist in the study area but were not captured during sampling efforts by LSFAU.*

The main game species of fish encountered in both nearshore and shallow to mid-depth habitats consisted of White sucker, Brown bullhead, Rock bass, Pumpkinseed, Smallmouth bass, Yellow perch. Numerous non-game species (cyprinids) were captured in shoreline seine netting efforts along the southern shore of Georgina Island and the north shore of the mainland between Duclos and Sibbald point. A total of 17 non-game species were observed with minnow species being most predominant and possibly a key forage species for local game fish.

Fish Habitat

Georgina Island - Southern Shoreline

In 1996 a littoral zone study was initiated for the shoreline of Georgina Island. Site specific information was collected from Bald point southwest to the southern tip of the island. Information collected during the sampling included: location, water depth, substrate type, vegetation, fish species, number of fish captured or observed and collection methods used. Based on the information collected, the south shore of Georgina Island is predominately characterized by gently sloping shorelines of sand and gravel with occasional rubble and muck. Near shore macrophytes were not observed but reed beds were noted in some sampling locations. Shallow water environments were more predominant near the south west corner of the island. Young of the year (YOY) perch, rock bass, smallmouth and largemouth bass were captured in near shore seine nets. YOY capture could indicate nearby spawning areas and based on the information from LSFAU, the southern shoreline of Georgina Island is used by pike and bass for spawning during spring months (See Spawning Map for Georgina Island provided by MNR in Appendix B – Correspondence.

Communication with the LSFAU indicated that the southeast shoreline of Georgina Island is one of the best muskellunge nursery habitats in the lake and is used as a stocking site for the Lake Simcoe Muskellunge Restoration Program (pers. Comm. Jason Borwick, MNR Aurora). The restoration program was initiated in 2000 as a result to bring back the native Muskellunge population after years of over-harvest in the early 1900's. The Lake Simcoe Muskellunge Restoration Project is a ten-year program of stocking, habitat rehabilitation, and assessment. Marked fish will be stocked for the first five years and assessed through juvenile and adult stages to evaluate the success of stocking in rebuilding the population. Spawning and nursery habitat assessment, rehabilitation and creation will continue throughout the ten-year life of the project. The goal of the Lake Simcoe Muskellunge Restoration Project is to restore a self-sustaining muskellunge population to Lake Simcoe through a long-term restoration effort, including habitat enhancement and stocking. Muskies Canada and the Ministry of Natural Resources anticipate that this effort will restore the population to once again sustain an important sport fishery (Lake Simcoe Muskellunge Restoration Project, Muskies Canada).

Mainland Shoreline - Duclos Point to Sibbald Point

A littoral zone study (Lake Simcoe Littoral Zone Study) was conducted from 1986 to 1996 to characterize littoral zone and shoreline habitat conditions on Lake Simcoe to determine spawning and nursery habitats critical to the sustainable future of fish populations in Lake Simcoe.

Habitat information was collected during fish sampling efforts by LSFAU during spring and summer site visits. Shorelines in the study area between Duclos and Sibbald points are characterized as low to moderately sloped foreshore consisting of sandy substrate and occasional muck with mixed gravel to boulder depending on location. Aquatic macrophytes were observed freely floating and could have originated from wind and wave action dislodging plants from the root base. Areas of detritus at creek mouths and beaches were observed and provided micro habitat for invertebrates and small fish. Species of macrophytes observed included: coontail, wild celery, common elodea, water milfoil, clasping leaf pondweed, sago pondweed, ranunculus species and bushy pondweed.

A Summer Index Netting Program was conducted by the LSFAU from 1965 to 1981 to provide trend trough time data on relative abundance, distribution, size and age composition, growth, diet, sexual composition and age of maturity for species comprising the near shore community (MNR Aurora, LSFAU 1982). Trapnets and gill nets were set to sample depths ranging from 2.5 to 18 m from May 13 to September 3 from 1965 to 1981. Based on the catch records for areas south of Georgina Island it appeared that Brown bullhead, Rock bass, Pumpkinseed, and Yellow perch were to most common species captured and consist of mainly warm-water species.

3.6 Land Use and Social Environment

3.6.1 Land Ownership and Use

Georgina Island

In 1996 the Chippewas of Georgina Island entered into a Framework Agreement on First Nation Land Management with Her Majesty the Queen in Right of Canada. Under this arrangement, the Georgina Island Community voted, on February 5, 1997, to opt out of the land management provisions of the Indian Act and into their own land regime.

The Chippewas of Georgina Island First Nation includes Georgina Island (1,295 ha), Snake Island (133 ha), Fox Island (19 ha), Sand Island (4 ha) and Gravel Island (0.4 ha). The First Nation residents reside on Georgina Island, while Snake, Fox and Sand Islands are "surrendered lands" and are currently leased to cottagers (according to the First Nation web site there are about 227 cottage lots on Snake Island, and about 64 lots on Fox Island). The Land Ownership Plan for Georgina Island is included as Figure 3.5 and the Land Use Plan is included as Figure 3.6.

In addition, the First Nation territory includes the parcel of land (Part of Lot 24 and 25 and road allowance between Concessions 7 and 8) in Georgina Township that is occupied by the Virginia Beach Marina and the Ferry Dock. The Virginia Beach Marina includes a restaurant, boat storage and maintenance area and a boat refueling area.

The Land Ownership Plan for Virginia Beach Marina Parcel is included as Figure 3.7 and the Land Use Plan as Figure 3.8.

The majority of the community's homes and community buildings are located on the west side of the island, along Chief Joseph Snake Road. Approximately 92 homes were identified on the island based on information from 2002. Cottages occupy lots along the northwest, south and eastern portions of the island. There are approximately 330 cottagers on Georgina Island. FN community buildings are concentrated in the area of Root Road. The community centre, administration office, school, medical clinic, and water treatment plant are located along Chief Joseph Snake Road. The ferry dock, located in the southwest corner of the island, is the main access point for residents, cottagers and visitors.

The Virginia Beach Marina Parcel is located approximately 7 km east of the community of Sutton. Virginia Beach is the main access point via the ferry to Georgina Island and includes a restaurant operated by the First Nation. This area is approximately 0.4 ha not including the in water boat marina.

A Phase 1 and 2 environmental audit was undertaken in the study area by Neegan Burnside in 1998 and 2000. Three inactive landfills were identified on Georgina Island. An active landfill is located adjacent to the sewage lagoon. The sewage treatment system on Georgina Island consists of a two cell lagoon and raised tile bed. The system has been in operation since 1993. The sewage system is used to treat septage pumped from septic tanks and holding tanks. A water treatment plant is also located on the island.

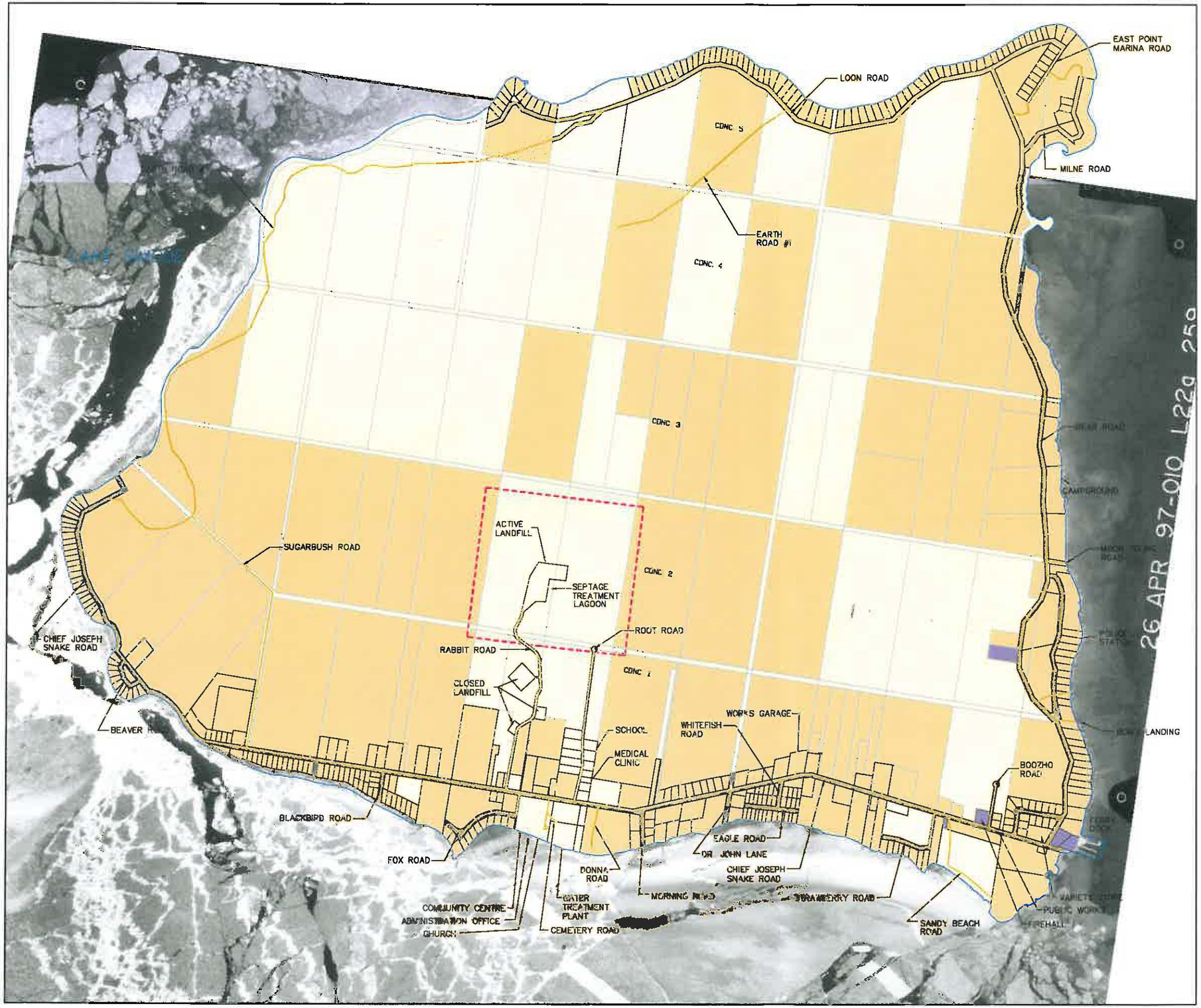


FIGURE 3.5

CHIPPEWAS OF GEORGIAN ISLAND FIRST NATION

PROPOSED FIXED LINK STUDY

GEORGINA ISLAND LAND OWNERSHIP

LEGEND

- CERTIFICATE OF POSSESSION
- BAND LANDS
- EXISTING ROAD

N E S W

Note:
Land ownership for the community are estimated based on Community Servicing Feasibility Study (Lathem, 1989) and information received from First Nation (July 2002).

0 200 400 600 800 1000 1200 1400
Meters

1:17,500
August 2007
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds

Verified by: C. Jones

NEEGAN BURNSIDE

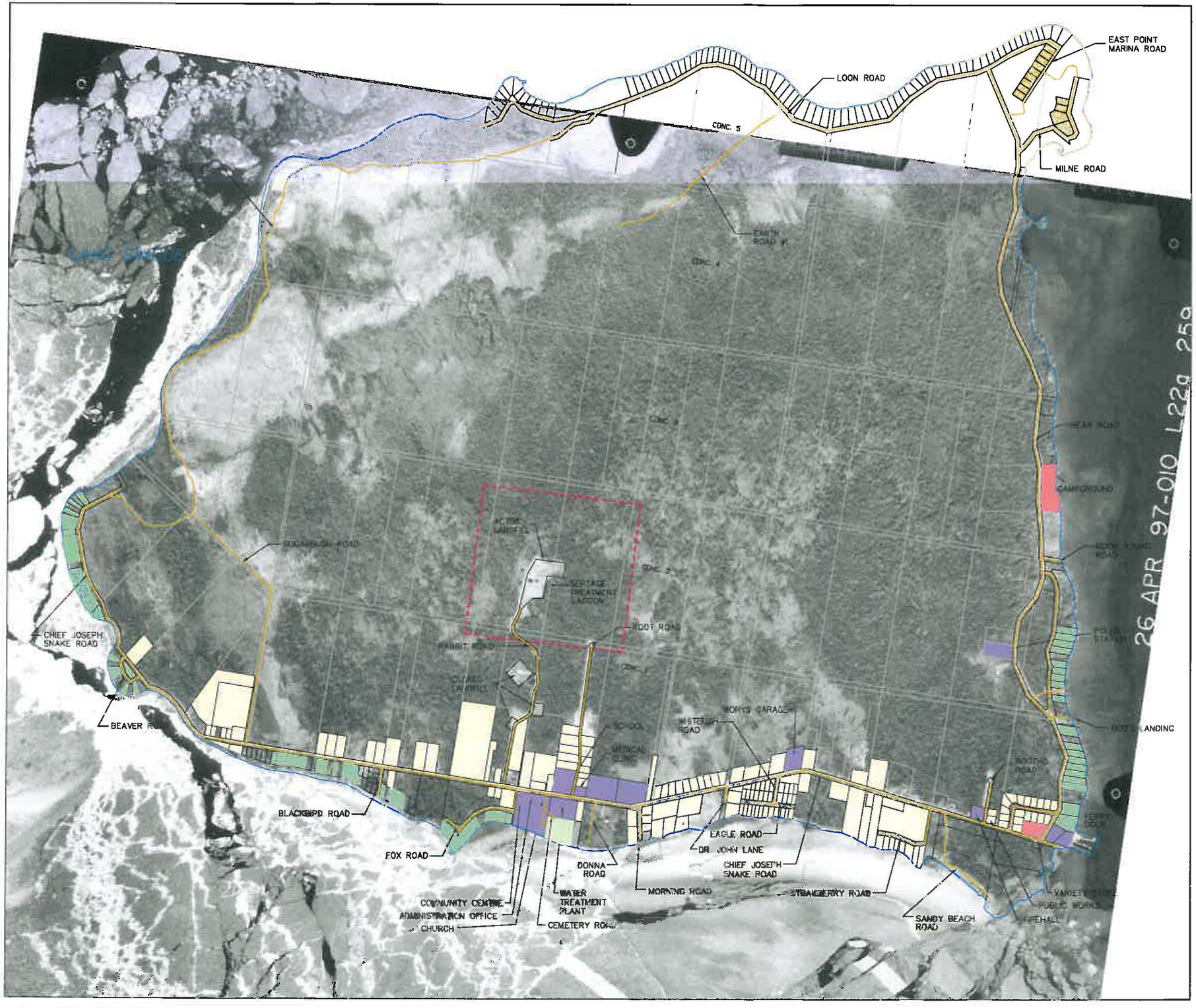
FCO10428 PFLS GEORGINA LO.DWG

FIGURE 3.6

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

PROPOSED FIXED LINK STUDY

GEORGINA ISLAND LAND USE PLAN



LAND USE LEGEND

- COMMUNITY BUILDINGS
- COMMERCIAL
- PARKS
- CEMETERY
- COTTAGES
- RESIDENTIAL
- EXISTING ROAD
- 300m BUFFER AROUND ACTIVE LANDFILL

Note:
Land classifications for community are estimated from the Community Servicing Feasibility Study (Lathem, 1989).

0 200 400 600 800 1000 1200 1400
Meters

1:17,500
December 2005
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds Verified by: C. Jones

NEEGAN BURNSIDE

FCO10428 PFLS GEORGINA LU.DWG



FIGURE 3.7

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
PROPOSED FIXED LINK STUDY

VIRGINIA BEACH LAND OWNERSHIP

LEGEND

- APPROXIMATE FIRST NATION BOUNDARY
- BAND LANDS (RESERVE NO. 33A)

N
W E
S

Airphoto Source:
Background 1999 airphoto obtained from Triathlon Inc.

0 10 20 30 40 50 60 70 80 90 100 110 120
Meters

1:1,500
August 2007
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds Verified by: C. Jones

NEEGAN BURNSIDE

FCO10428 PFLS VIRGINIA BEACH LO.DWG



FIGURE 3.8

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

PROPOSED FIXED LINK STUDY

VIRGINIA BEACH LAND USE PLAN

LEGEND

APPROXIMATE FIRST NATION BOUNDARY

COMMERCIAL

N
W E
S

Airphoto Source:
Background 1999 airphoto obtained from Triathlon Inc.

0 10 20 30 40 50 60 70 80 90 100 110 120
Meters

1:1,500
August 2007
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds Verified by: C. Jones

NEEGAN BURNSIDE

FCO10428 FCPS VIRGINIA BEACH LU.DWG

Mainland

The study area on the mainland is located within the Greenbelt Plan (November 2005), not including those on First Nation lands. The Greenbelt Plan identifies where urbanization should not occur in order to provide permanent protection to the agricultural land base and the ecological features and functions occurring on this landscape. The Greenbelt Plan includes lands within, and builds upon the ecological protections provided by, the Niagara Escarpment Plan (NEP) and the Oak Ridges Corridor Park Management Plan (ORMCP). Lands within the study area are designated as Protected Countryside/ Shoreline Areas Policy (4.1.3). The Protected Countryside lands identified in the Greenbelt Plan are intended to enhance the spatial extent of agriculturally and environmentally protected lands currently covered by the NEP and the ORMCP while at the same time improving linkages between these areas and the surrounding major lake systems and watersheds. The Greenbelt Plan builds upon the existing policy framework established in the Provincial Policy Statement (PPS), issued under section 3 of the Planning Act, and its implementation through municipal official plan policies and maps (Ministry of Municipal Affairs and Housing, 2006).

Land use within the study area is characterized in The York Region Official Plan (November 2005) and the Town of Georgina Official Plan.

The Regional Official Plan identifies Significant Natural Features, Significant Forest Resources and the Regional Greenland System (particularly around Georgina Island and Duclos Point) and Rural Policy Areas within the study area. The objectives of the Significant Natural Features and Forest Resources policies are to ensure that the features and functions are preserved, to ensure no loss of wetland function and to protect forested areas. The objective of the Rural Policy Areas is to retain the rural character of the lands and the viability of existing agricultural operations.

The Town of Georgina Official Plan identifies Environmental Protection Areas (1, 2 & 3), Core Conservation Lands and Waters, Lake Simcoe Shoreline and forest resources within the study area. The purpose of these policies is to identify and protect components of the Greenlands System.

3.6.2 Socio-Economic Profiles

According to information provided by the registration system for Indian and Northern Affairs Canada (INAC), the population of the Chippewas of Georgina Island First Nation grew by 1.94 percent per annum on-Reserve and 2.75 percent per annum off-Reserve between 1992 and 2002. In 2007, INAC data indicates that there were 190 First Nation members on-Reserve and 498 members off-Reserve, for a total of 688 members. The First Nation web-site lists the band population at 681 members. The Capital Planning Study for the Chippewas of Georgina Island First Nation recommended that on-Reserve population growth forecasts be based on a growth rate of 1.8 percent per annum (Neegan Burnside Engineering and Environmental Ltd, May 2006). The data in the Capital

Planning Study has been updated with 2003 to 2007 data. The recent on reserve growth rate (experienced from 1992 to 2007) is approximately 1.96%. The total population (including on and off reserve members) has increased at a rate of 2.12%. Population projections can be found in Appendix G. Therefore, for the purposes of this study, a growth rate of 1.96% percent per annum has been used for on-Reserve population growth. In addition a growth rate of 2.12% percent per annum has been used for the growth in population that may return to the Reserve and a growth rate of 2.0 percent per annum has been used for growth in cottage development.

For comparative purposes, information collected by the Statistics Canada in the 2001 and 2006 census provides the following data for Chippewas of Georgina Island First Nation (Table 3.4).

Table 3.4: Census Data for Chippewas of Georgina Island First Nation

Item	1996	2001	2006
Population (on-Reserve)	201	273	353
Percent change in population from previous census	-	35.8% (6.3% per annum)	29.3% (5.3% per annum)
Private dwellings	-	123	548
Private dwellings occupied by usual resident	-		129
Population density	-	18.8 /km^2	14.55 /km^2
Land Area	-	14.55 km^2	14.55 km^2

The Census data shows a higher population on-Reserve than the numbers provided by INAC as well as significantly higher population growth rates. Since the INAC data is collected directly by Georgina Island First Nation, we have used the population data from their figures for the population projections.

From the Census data it can be inferred that there are about 129 permanent dwellings on Georgina Island and about 128 seasonal dwellings (i.e. 548 – 129 – 227 (Snake Island) – 64 (Fox Island)). Data provided on the First Nation website indicate that there are about 98 houses and 200 leasing properties on Georgina Island, which is higher than the Census data indicates. The housing data provided by the First Nation has been used for the purposes of this present study.

There are a number of commercial/recreational facilities on the island including the following:

- Georgina Island craft store
- Georgina Campground
- island convenience store
- extensive hiking trails
- island arcade and volleyball court

- a number of small privately-owned businesses (e.g. winter ice-fishing huts, summer cabins, etc.).

About two-thirds of the labour force on the island is involved in government services, with about one-sixth in service industries and also some work in construction. The First Nation employs individuals through the Band office, the Marina, Restaurant and ferry/shuttle service. In addition the Band owns and operates the day-care centre, community hall, the water plant and the landfill site. The First Nation charges non-member cottagers for garbage disposal, policing, fire protection, road maintenance and water services on a cost-recovery basis.

Various economic initiatives have been investigated in the past by the First Nation including:

- a First Nation owned store
- a resort/recreation complex
- a golf course facility
- a conference centre and business facility
- a radio station
- a residential subdivision
- a community arena
- island based energy generation via wind farm.

These initiatives may be completed under direct First Nation ownership and control or through sponsorship by outside development corporations. In addition First Nation entrepreneurs have indicated they have considered various small business opportunities such as:

- gas station
- garage and auto repair
- laundromat
- tourism initiatives
- convenience/video store
- water taxi or shuttle boat
- craft shop, motel or hotel
- bakery
- community farming or green houses
- internet based virtual enterprises.

Many of the above noted initiatives are not presently viable due to the added expense and uncertainty associated with the existing transportation and isolation situation. During winter freeze-up and spring thaw, transportation is often suspended for weeks at a time.

Some forestry potential exists on Georgina Island and a fish hatchery has been previously identified as a possible future development project, subject to investment capital being available. There is also a partnership with Sibbald Point Provincial Park to allow for day camping for Provincial Park campers at the Georgina Island Youth Camp.

3.6.3 Cultural Environment Factors

Discussion with the First Nation (meeting of January 25, 2007) revealed that recreational fishing occurs within the study area. There are also some culturally significant/medicinal plants which are located along the southern shore of the island. These include Sweet Flag (heart remedy) and Pepper Weed (colds/congestion), however these are not actively harvested. The First Nation confirmed that there are no cultural resources/sacred places/burial sites within the study area. The First Nation has a community forest strategy for developing the trails on the island, with a program to teach traditions and historic activities of the Chippewa community.

There currently is no commercial fishing industry at Georgina Island. There is, however, a recreational winter fishery industry.

4.0 Pre-Consultation

The opportunity for public and stakeholder input is an important element of this proposed project and would be expected to be provided throughout the course of the project. At this point of the project planning process, pre-consultation has been initiated such that issues and recommendations from stakeholders can be addressed from the onset. Consultation will be undertaken in accordance with the formal EA process once an appropriate path forward has been identified from this study. A summary of all correspondence associated with pre-consultation is provided in the following sections. A copy of all correspondence is provided in Appendix B - Correspondence.

4.1 First Nation and Public Consultation

4.1.1 First Nation Committee Meetings

Meetings were held with Chippewas of Georgina Island First Nation Committee Members on the following dates:

- November 1, 2006
- January 25, 2007
- April 30, 2007.

The purpose of the eight-person committee from the First Nation was to help reflect the community thought process on the project, provide insight on matters from a resident point of view, and provide a group to the Neegan Burnside team to answer questions about the local environment and social structure.

4.1.2 Town of Georgina Meeting

A meeting was also held with the Town of Georgina on February 21, 2007. Copies of all meeting minutes are provided in Appendix B – Correspondence.

This meeting was held at the request of the Town of Georgina and in the interest of maintaining good relations between the Town and Georgina Island, was agreed to by the study team. As evidenced by the meeting minutes, it was successful in allowing the Town of Georgina to better understand the current project.

4.1.3 Community Survey Results

A questionnaire was also sent to First Nation community members, questionnaires were returned on March 9, 2007. A summary of the main comments received are presented below. A full summary of results is included in Appendix D. Copies of the completed comment forms are available on request in CD format.

A total of 80 questionnaires were returned (54 from on-Reserve residents and 26 from off-Reserve residents).

Respondents identified that the main reason they travel to the mainland is for shopping and going to the doctor or dentist (50% or respondents).When asked how many times they use the ferry and ice road when it is operational, 44 percent of on-Reserve respondents confirmed they use the ferry daily, while 78 percent use the ice road daily. This difference is potentially related to the convenience of using the ice road at any time and the cost of using the ferry. Alternative forms of transportation include private boat, ATV and snowmobile. Respondents noted average lost school days of ten days per year due to downtimes or inaccessible periods for the current transportation and 11 lost work days.

Respondents were asked to rank their three most preferred alternative solutions (listed in Section 6.3). The most preferred alternative was road link through bridge followed by road link through tunnel, followed by improve existing ferry and ice road.

Respondents were asked to indicate if they had a preference for alternative crossing route locations 1 (Duclos point), 2 (Doyle Beach), or 3 (Existing ferry route). The majority of on-Reserve respondents preferred location 2, followed by location 3. Off-Reserve respondents preferred location 3, followed by location 1.

Respondents were asked on a scale of 1 (none) and 10 (strong) how much they supported the idea of a fixed link, 67 percent on-Reserve and 66 percent off-Reserve strongly supported a fixed link (with a rank of 10), and 82 percent and 83 percent scoring it an eight or better.

The main advantages to a fixed link were identified as convenience (41%), safety (34%), medical/emergencies (33%), and economic development (14%). Disadvantages identified included none (20%), unwelcome guests (20%), traffic (11%), and a potentially increased crime rate (11%). When asked about potential use of the fixed link, 78 percent on-Reserve and 100 percent off-Reserve responded that they would go to the mainland more if a fixed link was available. 87 percent of on-Reserve respondents see the fixed link as increasing employment opportunities for local residents due to convenience and reduced costs. 84 percent of on-Reserve respondents see the fixed link as increasing education opportunities. Seventy-seven percent of on-Reserve respondents and 80 percent of off-Reserve respondents thought that people would move back to the island if a fixed link was provided.

It is apparent from the survey results that a majority of members support a more permanent link for the community. It is also apparent that doing so will change the culture of the island, though to what degree is uncertain.

4.2 Department/Agency Consultation

A request for baseline information was sent to the following agencies on November 20, 2006. A summary of responses received is provided in the following table. It should be noted that the correspondence sent to the agencies indicated this was a pre-feasibility study, and that once the feasibility study was underway, a formal consultation process would take place. The minimum response anticipated at this time from most of these agencies was a request to continue to be included in the process.

Table 4.1: Department/Agency Consultation Results

Department/Agency	Response
Ministry of Environment, Central Region Office	No response received to date
Ministry of Environment, York - Durham District Office	Requested that they receive a copy of future correspondence.
Ministry of Natural Resources - Aurora District Office	Invited Neegan Burnside to their office/library to make copies of relevant information. Provided wetland and greenbelt mapping. Stated that project may trigger reviews and/or approval requirements pursuant to provincial legislation such as the Public Lands Act, Environmental Assessment Act and the Planning Act. Stated that they would welcome the opportunity to participate in a meeting.
Lake Simcoe Region Conservation Authority	Forwarded information request to DFO. Stated MNR could provide information. Other issues will be dealt with as part of the LSRCA Permit process
Ministry of Transportation, Transportation Planning and EA Unit	No response received to date
Ministry of Transportation, Provincial and Environmental Planning Office	No response received to date
Ministry of Transportation Corridor Management Section	Any work done on a provincial highway will require an Encroachment Permit and any work done within MTO permit control will require a Building Land Use Permit. Ministry permit control is identified as 45 m from MTO ROW and a 400 m radius from the intersection point of a highway.
Ontario Realty Corporation	No response received to date
Environment Canada	Does not expect to have any obligations as an RA under CEAA. Provided recommendations with respect to surface water quality, wildlife and wildlife habitat and air quality issues. Would like to be kept informed about the project.
Department of Fisheries and Oceans	Confirmed that they would like to be kept informed about the project and would be available to participate in project meetings. Stated that they may be an RA within the federal EA process. DFO require additional information with regard to the type of crossing structure before they can provide additional comments. DFO stated that LSRCA and MNR will hold fisheries data within the study area.
Transport Canada - Marine	Provided Navigable Waters Protect Act (NWPA) guidelines.

Department/Agency	Response
Transport Canada - Ontario Region, Canadian Coast Guard Central & Arctic Region HQ	Confirmed that Transport Canada is responsible for the administration of the Navigable Waters Protection Act. If any of the related project elements or activities cross or affect a potentially navigable waterway we are requested to prepare and submit an application.
Health Canada	No response received to date
Town of Georgina	Confirmed that the Town would like to participate in the project. Requested a meeting to provide information and learn about the study process. Provided follow-up preliminary comments from meeting. Concerned with regard to impact on municipal roads. Both Black River Road and Hadden Road are under the jurisdiction of the Town. Requested that a traffic study be provided based on the ultimate use of the Island to enable the Town to determine the impact on roads. A significant increase in traffic volume may require road improvements and may trigger a Municipal Class EA. If the Island was to support a major tourist attraction as a result of the bridge/causeway, concerned with regard to potential pressure to locate ancillary or other types of uses on the main land. Would like to ensure that planning land use issues will be kept in mind.
York Region	Referred to maps 2-4 of the Official Plan. Stated that potential 'landing locations' are located within the Rural Policy Area. Also listed Shoreline Area Policy/Greenbelt Plan.
Ministry of Culture	Identified that the project may have the potential to impact archaeological sites. Recommended that a cultural resource assessment (land and marine) is undertaken once the preferred alternative has been determined. The assessment should included the ROW, construction impacts, detours, access roads, storage and staging areas etc
Ministry of Tourism and Recreation – Central Area	No response received to date
Canada Coast Guard, Central Region	No response received to date.

5.0 Transportation Assessment

5.1 Existing Ferry Operations

The existing ferry, named the Aazhaawe, meaning "to go across", was built in 1999 by Hike Metal of Nova Scotia and transported in sections through the Trent-Severn system for ultimate assembly at Georgina Island. The ferry is approved by Transport Canada and regularly inspected by the Coast Guard. The ship and crew meet Canadian Coast Guard Specifications and requirements. Data related to the ferry operations are summarized as follows:

- ferry capacity of 99 passengers and 15 vehicles; total weight capacity of 70 tons.
- existing ferry in operation since 2001
- between 10 and 17 Round Trips (RT) per day with 12 RT Monday and Wednesday, 15 RT Tuesday, Thursday and Saturday, 17 RT on Friday, and 10 RT on Sunday. This translates to 96 RT per week
- ferry service is only available from 6:15 a.m. (9:00 a.m. on Sundays) to 7:00 p.m. (Monday and Wednesday), 10:30 p.m. (Tuesday, Thursday, Saturday), 11:30 p.m. (Friday) and 9:00 p.m. (Sundays)
- ferry service is available between nine months (39 weeks) and 10 months (44 weeks) per year, depending on weather and ice formation. This means there are between 3740 and 4220 trips per year.
- passes are available for 20 round trips at a cost of $200 for First Nation members, and $540 for non-members
- $15 per round trip for cars/pickups for First Nation members and $30 per round trip for non-First Nation members. Oversized vehicles (i.e. 18 wheelers) are charged $120 per round trip, while tandems, dump trucks, concrete trucks, large hydro and Bell trucks are charged $70 for a round trip. Adult passengers are charged $3 per round trip, with reduced rates for children and seniors/disabled passengers
- a one way crossing takes approximately 15 to 20 minutes to complete
- total round trips on the ferry by passenger vehicles from April 7, 2006 to January 11, 2007 = 26,593, buses = 343, oversized vehicles = 461
- ferry operations tend to start mid to late March, and end in early to mid-January
- between April 7, 2006 and January 11, 207, the ferry was out of service for 12 days, due to mechanical problems (8 days) and inclement weather (4 days). An undetermined amount of days were affected by a reduced schedule due to similar problems.

Under the Canada Shipping Act, 2001, the ferry is classified as a "sheltered waters voyage", since the ferry is never further than one nautical mile from the closest shore. In addition this designation applies for the full calendar year period, since ice or weather (e.g. fall storms or dropping water temperatures) are not considered to be a significant factor that would require a risk assessment for operations during the higher risk periods.

Historically, the following negative impacts have been noted due to inadequate transportation service:

- economic development (commercial, recreational etc.) of the island is hindered due to additional development costs, resulting from the cost of transporting goods by ferry or barge. Generally this results in a lower standard of living due to loss of revenues and personal income. The long-range development plans for the island focuses on enhancing tourism
- students are required to use the ferry, or alternate crossing methods, to access schools on the mainland. Some students opt to board on the mainland during the winter periods due to transportation constraints (i.e. school buses require the ferry to be operative)
- hardships for the commuters (cost, lost time etc.) between the island and the mainland
- delays for seasonal users of the island facilities (e.g. cottagers)
- disruption of some social services
- difficulties in delivering services such as construction deliveries
- poor emergency service. Emergency travel service is normally provided by the ferry. Medical care is provided on the island via regular visitations from mainland physicians. Police and fire protection are provided by on-island forces, although their numbers are limited
- safety concerns regarding the hazardous conditions associated with the ferry, scoot and ice road operations. For example, as recently as March 16, 2007 a car traveling on the ice in the area of Virginia Beach went through the ice. In addition, there have been three drowning deaths on Lake Simcoe ice so far in the 2007/08 winter season. While the Ministry of Natural Resources recognizes the variability of ice conditions as evidenced by their March 15 deadline for ice hut removal, there are no restrictions in place on personal use via vehicle from the island to the mainland.

5.2 Existing Roads and Infrastructure

5.2.1 Georgina Island

The ferry terminal on Georgina Island connects to Chief Joseph Snake Road, which directs traffic to other local perimeter roads on the island (e.g. Bear Road). There are about 24 km of perimeter main roads on the island, many of which are gravel, plus a number of gravel local roads. The First Nation has some gravel reserves on their lands, but is unable to develop a commercial gravel crushing enterprise due to the costs associated with transporting gravel off of the island.

Bear Road has been developed as a paved local road having poor alignment, deficient right of way width and poor visibility in many locations. In addition, Bear Road presently traverses a Provincially Significant Wetland, with associated muck soils, along part of its length. Outside of this wetland area the soils are silty sand, underlain by limestone bedrock at depths of about 1.4 to 2.7 m.

General policing services to Georgina Island, Snake Island and Fox Island, as well as emergency response on the water and ice of Lake Simcoe, are provided by the Georgina Island Police, under the First Nation Policing Program administered by the Ontario Provincial Police. The police station is located at 217 Bear Road and there are three uniform officers and one civilian employee on staff.

The fire department is located at the corner of Chief Joseph Snake Road and Hello Road, and is equipped with a Fort Gary pumper truck and an ambulance. There is one full-time firefighter on staff, as well as trained volunteer fire fighters.

Members must be transported off by boat, scoot, or snowmobile in an emergency situation; off-Reserve response teams will not travel on the ice road. Air transport by helicopter requires excessive time and monetary cost.

The Georgina Island School is located on the east side of Chief Joseph Road and provides Junior Kindergarten through Grade 5 in two classrooms, a music/language room and two full-time teachers under the jurisdiction of the York Region District School Board. A library is part of the school. The language room is used for teaching in the native Ojibway language.

Currently, teaching staff travels from off-Reserve to the island, resulting in lost school days when transportation is not possible.

Students are bussed to Sutton on the mainland for Grades 6, 7 and 8, while Secondary school students are bussed to Pefferlaw. Some students board on the mainland during the winter periods when the ferry and bussing is not available.

Discussions with the First Nation revealed that as of November 2006 approximately 25-28 children travel to the mainland for social activities (hockey, dances etc). However, recreation activities must be limited to times which match ferry scheduling, and participants cannot guarantee 100 percent attendance due to the transportation situation. A number of First Nation members have moved off-Reserve as a result of having to travel on the ferry.

A medical building is located adjacent to the school and monthly visits are provided by doctors from the mainland.

5.2.2 Mainland

The ferry terminal on the mainland is on a parcel of land owned by the First Nation and connects to Black River Road, an east/west paved collector road under the jurisdiction of the Town of Georgina. A road connection is provided from Black River Road to the south to Highway 48 via Hadden Road. Hadden Road is also a paved collector road, under the

jurisdiction of the Town of Georgina, with a distance of about 1.5 km from the ferry terminal to Highway 48. This area is shown in Figure 5.1.

A second connection to Highway 48 can be made via Virginia Boulevard, a paved local road under the jurisdiction of the Town of Georgina, with a distance of about 1.6 km from the ferry terminal to Highway 48. The areas along Hadden Road and along Virginia Boulevard are part of the hamlet of Virginia. Some residential development has occurred along the north end of Hadden Road, but the route is primarily undeveloped (i.e. agricultural fields) to the south of this area along this route. Residential strip development has occurred along the majority of the Virginia Boulevard route. The area surrounding the north part of Hadden Road and Virginia Boulevard is designated as Corridors (EPA 2) in the Georgina Greenlands System (Town of Georgina Official Plan). Also the area in the northwest quadrant at the intersection of Virginia Boulevard and Highway 48 is designated as Core Conservation (EPA 1) (i.e. mid to late successional forest and a local life science ANSI). There are no ESA areas or areas of endangered, threatened, vulnerable or sensitive wildlife habitats along the Hadden Road or Virginia Boulevard connecting links.

Black River Road also connects to the community of Sutton, about 7.0 km to the west of the ferry terminal. Highway 48, via the Hadden Road, connects to the community of Pefferlaw, about 6.5 km from the ferry terminal.

The existing ferry/marina operations include a boat storage and maintenance area and a boat refueling area, including two active underground gasoline storage tanks, one above ground diesel fuel tank, a waste oil tank and a number of propane tanks. The proximity of these facilities to Lake Simcoe makes it very important that proper maintenance and operations be followed in order to protect against environmental impacts.

A large parking lot is also utilized at the marina location for day visitors to the island, as well as for community residents that do not wish to transport their vehicle repeatedly across the lake. This means some Georgina Island residents maintain two vehicles, one on the island, one off, expressly to avoid paying for the vehicle ferry service.

On the mainland, Duclos Point is presently connected to Highway 48 via Duclos Point Road and other local roads, an overall distance of about 5.5 km. These roads also presently serve the existing estate lot subdivision that is located on the Point. The roads traverse areas designated as Core Conservation (EPA 1), Corridor (EPA 2) and EPA 3 , with one location noted as being in proximity to endangered, threatened, vulnerable and sensitive wildlife habitat. The roads are in the area of a Class 2 wetland (Morning Glory Swamp), a mid to late successional forest, a Provincial Life Science ANSI, a Local Earth Science ANSI and a biological ESA. The road has a number of sharp bends and areas of poor visibility.



FIGURE 5.1

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
PROPOSED FIXED LINK STUDY

VIRGINIA BEACH LOCAL MAINLAND ROADS

LEGEND

APPROXIMATE FIRST NATION BOUNDARY

N
W E
S

Airphoto Source:
Background 1999 airphoto obtained from Triathlon Inc.

0 10 20 30 40 50 60 70 80 90 100 110 120
Meters

1:1,500
August 2007
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds Verified by: C. Jones

NEEGAN BURNSIDE

FCO10428 FCPS VIRGINIA BEACH LMR.DWG

5.3 Transportation Demands/Needs

Passenger and vehicle demands for 2006 are shown in Table 5.1 and are based on ferry receipt data.

Table 5.1: Summary of Existing Ferry Demands (April 2006 to January 2007)

Month	Passengers (Total 527)	Percent of Year (%)	Total Vehicles* (Total 27,397)	Percent of Year (%)
April (7 – 30)	40	7.6	2,471	9.0
May (1 – 31)	82	15.6	3,260	11.9
June (1 – 30)	108	20.4	3,734	13.6
July (1 – 31)	138	26.1	4,308	15.7
August (1 – 31)	70	13.3	4,398	16.1
September (1 – 30)	17	3.2	2,705	9.9
October (1 – 31)	46	8.7	2,168	7.9
November (1 – 30)	12	2.3	2,084	7.6
December (1 – 31)	12	2.3	1,746	6.4
January 1 - 11	2	>0.1	523	1.9

** includes passenger vehicles, buses, and oversized vehicles.*

As shown in the table, the maximum monthly usage of the ferry occurs in the summer with a maximum of 4,398 vehicles and 138 passengers in a month.

The number of vehicle trips utilizing the ferry link is significantly less than the number that would be expected to utilize a proposed fixed link, due to the cost and time constraints imposed by the ferry link. In a survey conducted as part of this study, only about 43 percent of the respondents indicated that they presently use the ferry at least once a day (1 trip out and 1 trip back, for a total of 2 daily trips), as compared to the typical vehicular trip rate of 4 to 10 trips per day for residential developments. It is noted that when a vehicular linkage is established (i.e. via the ice road), about 67 percent of the respondents indicated that they use such a connection on a daily basis. Over 90 percent of the residents surveyed indicated that they would access the mainland more often if a fixed link were provided. The incidence of car ownership is also expected to grow if a year-around vehicular linkage is established, since over 10 percent of survey respondents indicated that they presently do not own a car under the existing linkage conditions.

Operation and maintenance cost, directly attributable to the ferry was estimated in the 2001 Ferry Operation Business Plan in the order of $640,000 for 2006, escalating from a base of $590,000 in 2001. Fluctuating gas prices have likely increased this in the past years. There are also numerous indirect costs that are not quantifiable such as student boarding costs and risk factors such as ice road safety, poor off-Reserve emergency team response ability, and lack of economic opportunity.

Direct revenues from the fares amounted to approximately $570,000 for the period we received data, based on the current fees charged. The deficit between revenues and costs is provided through an agreement with INAC.

The winter passenger demands are met by a scoot service, an enclosed air propelled boat which can operate on broken ice, and open water. No data was available on usage or costs of this operation. In addition to the scoot service, residents utilize their own vehicles (cars, trucks, ATV's, etc.) to cross the ice.

This current system of switching the First Nation owned operation from the ferry service to the scoot service in the winter results in employee hours being reduced in the winter, due to the lesser demands of the scoot service.

On a daily basis, the existing ferry can accommodate the peak daily vehicular and passenger demands. However demands vary significantly, on a weekly, daily and hourly basis, with the result that some runs are over-subscribed during peak operational periods and users may need to wait for a subsequent ferry to be accommodated. The existing ferry schedule provides for a ferry departure about every hour at each of the terminals (i.e. half hour crossing/loading/unloading sequence). Since there is only one ferry in operation, and the crossing/loading and unloading time is already maximized, there is little flexibility to add additional runs beyond those presently provided, in order to address the capacity constraints at peak usage times. In addition there is no redundancy available to address periods when the ferry is out of service for repairs.

5.4 Potential Fixed Link Operations

5.4.1 Existing Development Conditions

The potential residential and cottage traffic to and from the island, under existing development conditions and including potential First Nation residents returning to the island, has been estimated based on the trip rate information contained in the Institute of Transportation Engineers Trip Generation Manual (7th Edition). The resulting data is summarized in the following table:

Table 5.2: Estimated Existing Residential and Cottage Traffic Potential For Fixed Link

Period	Type*	Trip Generation**	In	Out	Total	Total Per Period
AM Peak Hour	Residential	0.30/unit	13 vph	39 vph	52 vph	
	Cottage	0.16/unit	21 vph	11 vph	32 vph	84 vph
PM Peak Hour	Residential	0.404/unit	44 vph	26 vph	70 vph	
	Cottage	0.26/unit	21 vph	31 vph	52 vph	122 vph
Daily	Residential	3.828 /unit	329 vpd	329 vpd	658 vpd	
	Cottage	3.16/unit	316 vpd	316 vpd	632 vpd	1,290 vpd

* *based on 98 residential units and 200 cottage units existing on the island, and 132 people returning to the reserve after the establishment of the fixed link (i.e. equivalent to 74 residential units at 1.8 ppu).*

** *assumes a residential trip generation rate that is 40% of the ITE residential rate, to reflect the exclusion of trips internal to the island and the generally longer separation distance between origin/destination trips (i.e. to outside communities). Toll charges have not been considered as a factor in trip generation, since it is assumed that a yearly pass would be purchased by residents.*

As noted in the above table the short term demand on the fixed link is forecasted to be about 1,290 vehicles crossing the link per day, with about 84 vehicles crossing during the a.m. peak hour and about 122 vehicles crossing during the p.m. peak hour. The traffic volumes calculated account for only the residential/cottage traffic and would apply to the peak demand summer season, since cottage usage is expected to be much lower in the winter season. Commercial, development or business trips would be additional to this residential traffic. It is further assumed that any toll charges applied to the crossing would not prohibitively influence trip generation rates.

5.4.2 Future Conditions

A horizon period of 25 years has been chosen for traffic analysis of future conditions.

Table 5.3: Estimated Future Residential and Cottage Traffic Potential For Fixed Link (Year 2032)

Period	Type*	Trip Generation**	In	Out	Total	Total Per Period
AM Peak Hour	Residential	0.30/unit	23 vph	67 vph	90 vph	
	Cottage	0.16/unit	35 vph	17 vph	52 vph	142 vph
PM Peak Hour	Residential	0.404/unit	76 vph	45 vph	121 vph	
	Cottage	0.26/unit	35 vph	50 vph	85 vph	206 vph
Daily	Residential	3.828 /unit	572 vpd	572 vpd	1,144 vpd	
	Cottage	3.16/unit	518 vpd	518 vpd	1,036 vpd	2,180 vpd

* *based on 299 residential units (1.96 %/annum on-Reserve growth and 2.0%/assume off-Reserve growth) and 328 cottage units (2.0%/annum growth) on the island.*

** *assumes a residential trip generation rate that is 40% of the ITE residential rate, to reflect the exclusion of trips internal to the island and the generally longer separation distance between origin/destination trips (i.e. to outside communities). Toll charges have not been considered as a factor in trip generation, since it is assumed that a yearly pass would be purchased by residents.*

As noted in the above table the long term demand on the fixed link is forecasted to be about 2,180 vehicles crossing the link per day, with about 142 vehicles crossing during the a.m. peak hour and about 206 vehicles crossing during the p.m. peak hour. These volumes account for only the residential/cottage traffic and would apply to the peak demand summer season. Commercial, development or business trips would be additional to this residential traffic and would depend upon the type of development that is facilitated on the island by the fixed link connection. It is further assumed that any toll charges applied to the crossing would not prohibitively influence trip generation rates.

5.4.3 Commercial Development

The above analysis does not include any allowance for existing, or proposed, commercial development on the island. While the existing commercial development on the island is relatively minor presently, due to the restrictions imposed by the ferry connection, a fixed link will facilitate additional commercial development. The traffic generated by commercial development will depend on the type of development, however traffic volumes can be significant. For example the development of an 18 hole golf course may generate another 240 vpd utilizing the bridge during the golfing season, and 30 to 40 additional crossings during the peak hour periods. The table below outlines additional potential commercial developments and their estimated impact on daily traffic.

Table 5.4: Estimated Future Traffic Potential for Commercial Development

Period	Type	Trip Generation	In	Out	Total
Daily	9 Hole Golf Course*	20	20	20	40
Daily	18 Hole Golf Course*	60	60	60	120
Daily	Resort Development – 40 Rooms**	.25/unit	10	10	20
Daily	Resort Development – 80 Rooms**	.25/ unit	20	20	40
Daily	Arena**	5	5	5	10
Daily	Trailways**	5	5	5	10
Daily	Additional Tourism**	10	10	10	20

* *assume course is in operation from early April to Mid October (200 days)*

** *occupancy is averaged over the year*

5.4.4 Assessment of Traffic Linkages

A two-lane fixed link connection should be able to carry over 10,000 vpd without problem or congestion, although its capacity (i.e. under congested operating conditions, Level of Service E) may be more in the order of 15,000 vpd. On either side of the fixed link, the connecting roads serve the dual purpose of providing direct access to adjacent development and accommodating through traffic from the link. Under these conditions, these connecting roads are expected to function as a Class 2 Collector roadway, with a capacity in the order of 10,000 vpd as a two-lane facility. Therefore all roads within the

study area will function adequately as two-lane facilities, after the implementation of a fixed link. From a road surface perspective, typical practice is to utilize an asphalt surface for roads that experience traffic volumes exceeding 400 vpd, and therefore asphalt surfacing is recommended for all roads within the study area. Given the volume of traffic forecasted, it is also recommended that the connecting roads in the study area be upgraded to a collector road standard.

The majority of the traffic generated by the fixed link will ultimately connect to the Provincial Highway arterial road system (i.e. Highway 48) at either the intersection of Hadden Road /Highway 48 or at the intersection of Duclos Point Road / Highway 48. Both of these intersections are presently stop controlled. Highway 48 is classified as an Intermediate Recreational Route, which experiences intermediate seasonal variations in traffic volumes. The average traffic volumes on Highway 48 are about 60 percent higher in the summer months than in the winter months, and the weekend traffic is about 15 percent higher than weekday traffic, due to the recreational nature of the traffic in this area. Summer average daily traffic (two-way) on Highway 48 is in the order of 15,000 vpd in the study area, and growth in traffic has been very low in the past 10 years (i.e. about 0.5 percent per annum). Based on the volume of traffic on Highway 48, and the forecasted volume of traffic that may be generated by a fixed link connection, it is possible that traffic signals would be required at the connecting intersection with the Highway (i.e. Hadden Road or Duclos Point Road, depending on the route chosen) within the horizon period considered in this study. The Ministry of Transportation requires that signal warrant criteria be met, based on the heaviest eight hours of traffic on an average day, before traffic signals are installed at an intersection with a Provincial Highway. Further site specific review of turning movements at the connecting intersection would be required, as part of the detailed design work, to confirm the warrants and timing for traffic signal installation at this location.

6.0 Evaluation of Alternative Solutions

6.1 Approach

Steps involved in the identification of the preferred alternative solution included:

- definition of issues
- identification of conceptual alternatives to address the issues
- review of existing conditions to define potential constraints
- First Nation, Agency and public pre-consultation to define issues and concerns
- general effects assessment
- evaluation of alternatives based on environmental and engineering considerations and preference of the First Nation community
- identification of overall preferred alternative solution.

6.2 Constraints

In order to identify general planning alternatives, constraint factors were considered within the general study area. Key constraint features included:

- natural heritage features (terrestrial and aquatic)
- existing recreational activities (fishing boats and ice fishing)
- property holdings/land acquisitions
- existing road system
- existing built up areas (particularly on mainland)
- geomorphology and geology
- public safety
- engineering limitations.

6.3 Effects Evaluation

Through preliminary site assessments and review of existing conditions the following general alternative solutions were considered:

- do nothing – maintain the status quo
- improve existing ferry and ice road operations - larger ferry (capacity), improved ferry schedule (frequency), use of ice breakers and/or bubble system (bottom-lying pipe used to release air bubbles along the length of the passage) etc.
- existing ferry and/or hovercraft – maintain existing ferry service and/or use hovercraft as alternative transport mode
- existing Ferry and/or Helicopter - maintain existing ferry service and/or use helicopter as alternative transport mode
- existing ferry and cable car – maintain existing ferry service and use a passenger cable car system as an alternative transportation mode

- road link (tunnel) – fixed link via a tunnel under Lake Simcoe
- road link (bridge and/or causeway combination) – Fixed Link via a pontoon or piered bridge structure and/or causeway combination.

The general effects evaluation is presented in Table 6.1.

6.3.1 Do Nothing

The evaluation concluded that the '*do nothing*' alternative was not considered to be acceptable as it does not adequately address the transportation needs of the Chippewas of Georgina Island First Nation (a reliable all-weather transportation link from Georgina Island to the mainland which will provide positive benefits in health and safety, economic development, tourism and employment for the community) and therefore does not address the purpose/rationale for the project.

6.3.2 Improve Existing Ferry and Ice Road Operations

The '*improve existing ferry and ice road operations (larger ferry, schedule, ice breakers, bubble system)*' alternative was not considered a preferred alternative. It was determined that due to the ice conditions in the channel (thickness of between 150 mm and 600 mm) that a high ice-breaking capacity would be required. A vessel would require a significant increase in power and structural capacity. As well, the draft requirements would exceed the depth available. In addition, ice is extremely mobile in the passageway between the island and the mainland. Pack ice and corridor movement would present an ongoing problem. Also, no system exists which could better institute the ice road system. Due to ice conditions and the depth of the channel a bubble system is not feasible. Therefore this alternative is not technically feasible and has potential impacts on aquatic habitat and existing recreation. This alternative does not fully address the purpose/rationale for the project.

6.3.3 Existing Ferry and/or Hovercraft

The '*existing ferry and/or hovercraft*' was not considered a preferred alternative. Hovercraft can operate over both water and land, including ice, and would be able to provide year-round service, however hovercraft have limited combined passenger and vehicle capacity (assumes relatively minimal additional infrastructure requirements). The provision of a hovercraft passenger service is usually only economically viable on high demand routes where travel speed is important. This mode of transportation includes extremely high capital and specialized operations and maintenance staff that are not available to Georgina Island. Therefore this alternative is not technically or financially feasible and may have potential impacts on the natural aquatic environment.

	TABLE 6.1: ALTERNATIVE SOLUTIONS EVALUATION						
CRITERIA FOR EVALUATING ALTERNATIVES	**Do Nothing**	**Improve Existing Ferry and Ice Road Operations (larger ferry, schedule, ice breakers, bubble system etc)**	**Existing Ferry and/or Hovercraft (assume same route and minor infrastructure improvements)**	**Existing Ferry and/or Helicopter**	**Existing Ferry and Cable Car**	**Road Link (Tunnel)**	**Road Link (Bridge/Causeway)**
A Natural Environment *Rating:*	**Preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**
1 Designated Sites & Species	No impact over existing conditions.	No impact over existing conditions.	Increased noise/wake from hovercraft has potential to impact designated species, such as nesting water fowl and water birds.	Construction and operation of helicopter pad will impact designated sites and species.	Construction and operation of cable car will impact designated sites and species.	Construction and operation of road and tunnel will impact designated sites and species.	Construction and operation of road and bridge/causeway will impact designated sites and species. Potential for increased mortality from vehicle strikes.
2 Water Quality and Quantity	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	Potential temporary impacts on soils and surface water quality as a result of construction of helicopter pad.	Potential impacts on soils and surface water quality as a result of construction and operation.	Potential temporary impacts on soils and surface water quality as a result of construction activities. Potential groundwater impacts.	Potential temporary impacts on soils and surface water quality as a result of construction activities.
3 Floodplain Lands	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	Construction activities will occur within the floodplain of Lake Simcoe.	Construction activities will occur within the floodplain of Lake Simcoe.	Construction activities will occur within the floodplain of Lake Simcoe.	Construction activities will occur within the floodplain of Lake Simcoe.
4 Terrestrial Habitat	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	Potential habitat loss associated with the construction of a helicopter pad and associated infrastructure.	Potential habitat loss associated with the construction of the cable car system and associated infrastructure.	Potential habitat loss associated with the construction of a tunnel and associated infrastructure.	Potential habitat loss and fragmentation associated with the construction of a bridge/causeway.
5 Aquatic Habitat	No impact over existing conditions.	Potential impact on aquatic habitat as a result of ice breakers and bubble system.	Increased wake may impact aquatic vegetation and nesting water fowl.	Potential temporary impact on aquatic habitat as a result of construction activities.	Potential impact on aquatic habitat as a result of construction and operation activities.	Potential temporary impact on aquatic habitat as a result of construction activities.	Potential temporary impact on aquatic habitat as a result of construction activities.
B Socio-economic/Cultural Environment *Rating:*	**Not preferred from a social/cultural environment perspective**	**Not preferred from a social/cultural environment perspective**	**Not preferred from a social/cultural environment perspective**	**Not preferred from a social/cultural environment perspective**	**Not preferred from a social/cultural environment perspective**	**Preferred from a social/cultural environment perspective**	**Not preferred alternative from a social/cultural environment perspective**
1 Existing recreation	No impact over existing conditions.	Increased boat traffic may negatively impact recreational boating and fishing on the lake. Ice breakers may impact ice fishing.	Increased boat traffic may negatively impact recreational boating and fishing on the lake.	May impact existing recreational land uses depending on location of helicopter pad.	May impact existing recreational land uses depending on location of infrastructure.	No impact on existing recreational land uses (boating/fishing).	No impact on existing recreational land uses, such as boating/fishing, assuming navigation is maintained.
2 Supports local economic growth and development (community development)	No.	Partial support.	Partial support.	Partial support.	Partial support.	Supports local economic growth and development.	Supports local economic growth and development.
3 Heritage Resources /Traditional lands (archaeological features, built heritage, and cultural heritage landscapes)	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	Potential impact on heritage resources within the study area.	Potential impact on heritage resources within the study area.	Potential impact on heritage resources within the study area.	Potential impact on heritage resources within the study area.

Understanding the Rating System:

Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion

Increase in preference

Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

	TABLE 6.1: ALTERNATIVE SOLUTIONS EVALUATION						
CRITERIA FOR EVALUATING ALTERNATIVES	**Do Nothing**	**Improve Existing Ferry and Ice Road Operations (larger ferry, schedule, ice breakers, bubble system etc)**	**Existing Ferry and/or Hovercraft (assume same route and minor infrastructure improvements)**	**Existing Ferry and/or Helicopter**	**Existing Ferry and Cable Car**	**Road Link (Tunnel)**	**Road Link (Bridge/Causeway)**
4 Nuisance Impacts/Air quality & Noise/Aesthetics	No impact over existing conditions. However existing ferry is relatively noisy.	No impact over existing conditions. However existing ferry is relatively noisy.	Potential impacts on air quality, dust emissions) and noise as a result of construction and operation activities.	Potential impacts on air quality, dust emissions) and noise as a result of construction and operation activities.	Potential impacts on air quality, dust emissions) and noise as a result of construction and operation activities.	Potential impacts on air quality, dust emissions) and noise as a result of construction activities.	Potential impacts on air quality, dust emissions) and noise as a result of construction activities. Aesthetic changes following construction.
5 Land Acquisition	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	Land acquisition may be required.	Land acquisition may be required.	Land acquisition may be required.	Land acquisition may be required.
6 Public Safety (emergency response)	No impact over existing conditions.	No impact over existing conditions.	Minor improvements to emergency response capabilities due to higher speeds of hovercraft.	No impact over existing conditions – helicopter is currently used for emergency situations.	No impact over existing conditions – cable car would be a passenger service only and will therefore not provide the opportunity for improved response times.	Provides opportunity for EMS vehicles to directly access the island and reduces response times.	Provides opportunity for EMS vehicles to directly access the island and reduces response times.
7 Community Character	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	Potential to change the character of the island. The island would effectively become an extension of the mainland. With that change comes changes to the amount of traffic, the amount of vehicles and the amount of isolation that community residents have.	Potential to change the character of the island. The island would effectively become an extension of the mainland. With that change comes changes to the amount of traffic, the amount of vehicles and the amount of isolation that community residents have.
C Financial Factors *Rating:*	**Preferred from a financial perspective**	**Not preferred from a financial perspective**	**Not preferred from a financial perspective**	**Not preferred from a financial perspective**	**Not preferred from a financial perspective**	**Not preferred from a financial perspective**	**Not preferred from a financial perspective**
1 Estimated Capital Costs and Total Estimated Cost (25 year planning horizon)	No impact over existing conditions.	Relatively low expense.	Moderate-High expense.	Moderate-High expense.	Moderate expense	Extremely High expense.	High expense.
2 Estimated Operation & Maintenance Costs (25 year planning horizon)	No impact over existing conditions.	Low-moderate expense - Would require operation and maintenance of improved existing ferry.	High - Would require operation and maintenance of existing ferry and/or hovercraft.	High - Would require operation and maintenance of existing ferry and/or helicopter.	High - Would require operation and maintenance of existing ferry and cable car.	Moderate - Would require operation and maintenance of roadway and tunnel (air exchanges, lighting, emergency access secondary tunnels).	Moderate - Would require operation and maintenance of roadway (ploughing, sanding, salting, repairs to roadway and structure(s) and resurfacing).
D Transportation/Technical Factors *Rating:*	**Not preferred from a technical perspective**	**Not preferred from a technical perspective**	**Not preferred from a technical perspective**	**Not preferred from a technical perspective**	**Not preferred from a technical perspective**	**Not preferred from a technical perspective**	**Preferred alternative from technical perspective**
1 Accommodates Transportation Needs (Capacity etc)	Does not accommodate future growth.	Partial accommodation of future growth.	Partial accommodation of future growth.	Partial accommodation of future growth.	Does not accommodate future growth.	Fully addresses needs.	Fully addresses needs.
2 Addresses Transportation Technical Safety Concerns/Strategies	No.	No.	Minor improvements to safety concerns.	Minor improvements to safety concerns.	No.	Opportunity to address safety concerns. Concerns regarding safety during construction.	Opportunity to address safety concerns.

Understanding the Rating System:

Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion

Increase in preference

Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

	TABLE 6.1: ALTERNATIVE SOLUTIONS EVALUATION						
CRITERIA FOR EVALUATING ALTERNATIVES	**Do Nothing**	**Improve Existing Ferry and Ice Road Operations (larger ferry, schedule, ice breakers, bubble system etc)**	**Existing Ferry and/or Hovercraft (assume same route and minor infrastructure improvements)**	**Existing Ferry and/or Helicopter**	**Existing Ferry and Cable Car**	**Road Link (Tunnel)**	**Road Link (Bridge/Causeway)**
RECOMMENDED SOLUTION	Not Carried Forward	Not Carried Forward	Not Carried Forward	Not Carried Forward	Not Carried Forward	Not Carried Forward	Carried Forward

Understanding the Rating System:

● Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion

◕ ↑ ◑ Increase in preference

◔ Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

6.3.4 Existing Ferry and/or Helicopter

The '*existing ferry and/or helicopter*' was not considered a preferred alternative. Helicopter can provide year round service however has limited passenger capacity and no vehicle capacity. The provision of helicopter passenger service is very expensive due to the high capital and operating/maintenance costs. Therefore this alternative is not technically or financially feasible and may have potential impacts on the natural environment as a result of additional infrastructure requirements. As this alternative has no vehicle capacity it does not fully address the purpose/rationale for the project.

6.3.5 Existing Ferry and Cable Car

The '*existing ferry and cable car*' was not considered a preferred alternative. Although the cable car can provide year round service it has no vehicle capacity and the speed of transportation is relatively slow. The provision of a cable car service is expensive due to the high and specialized operating/maintenance costs. Therefore this alternative is not technically or financially feasible and may have potential impacts on the natural environment as a result of infrastructure requirements. As this alternative has no vehicle capacity it does not fully address the purpose/rationale for the project

6.3.6 Road Link (Tunnel)

The '*road link (tunnel)*' was not considered a preferred alternative. The provision of a Fixed Link through a tunnel to the island is very expensive due to the extremely high capital costs. Therefore this alternative is not financially feasible and may have potential impacts on the natural environment.

6.4 Road Link (Bridge and/or Causeway Combination)

The '*road link (bridge and/or causeway combination)*' was considered the ***preferred alternative*** which has been carried forward. This is based on the preliminary technical evaluation and was the preferred option gathered from the community survey. The provision of a Fixed Link through a bridge/causeway combination fully addresses the technical needs of the First Nation and would be financially viable. As well, this option requires minimal specialization for operations. With the implementation of appropriate mitigation measures this alternative will have limited impacts on the natural, socio-economic/cultural environment.

7.0 Preliminary Evaluation of Alternative Routes/Corridors

7.1 Approach

Steps involved in the identification of the preferred alternative routes/corridors included:

- definition of issues
- identification of conceptual alternatives to address the issues
- review of existing conditions to define potential constraints
- First Nation, Agency and public pre-consultation to define issues and concerns
- general effects assessment
- evaluation of alternatives based on environmental and engineering considerations
- identification of overall preferred alternative route/corridor.

7.2 Constraints

In order to identify alternative routes/corridors, constraint factors were considered within the general study area. Key constraint features included:

- natural heritage features (terrestrial and aquatic)
- existing recreational activities (fishing boats and ice fishing)
- property holdings/land acquisitions
- existing road system
- existing built up areas (particularly on mainland)
- geomorphology and geology
- public safety
- engineering limitations.

7.3 Effects Evaluation

Through preliminary site assessments and review of existing conditions the following general alternative routes/corridors were considered for the proposed road link (bridge and/or causeway combination), Figure 7.1.

- **Alternative 1** - South East Georgina Island to Duclos Point

  This option was investigated because it offered the shortest physical route from the island to the mainland, within the study area.

- **Alternative 2** - South West Georgian Island to Doyle Beach/Virginia

  This option was investigated because it offered the shallowest route between the island and mainland, and may lend itself to a causeway option.

1. Georgina Island ANSI
2. Duclos Point Park Reserve ANSI
3. Georgina Island ESA
4. Big Shoal ESA
5. Duclos Point ESA
6. Mossington Park ESA
7. Virginia Beach ESA
8. Georgina Island PSW
9. Morning Glory Swamp PSW
10. Mossington Park NPSW
11. Riverview Beach Wetlands NPSW
12. Sibbald Point Provincial Park

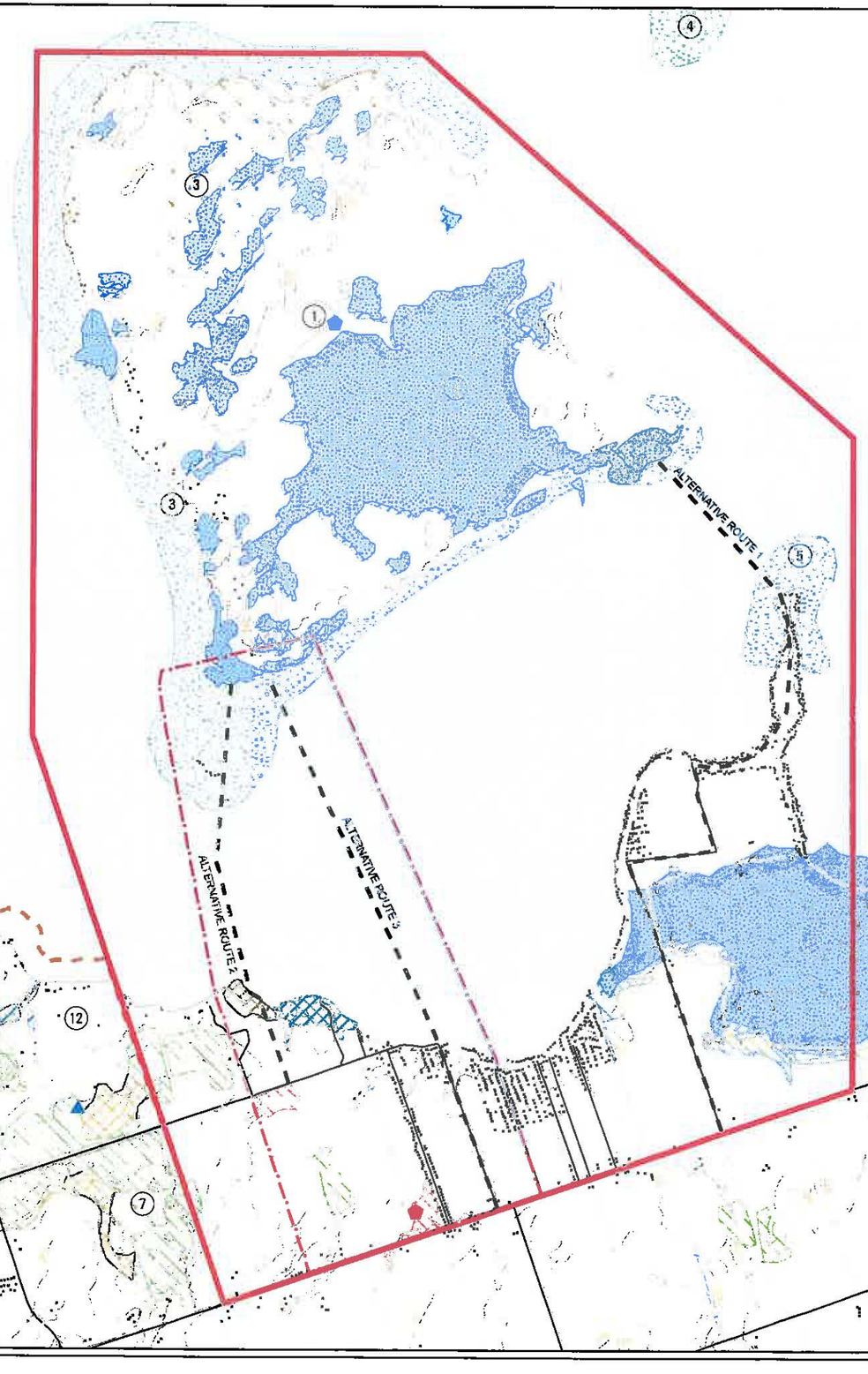


FIGURE 7.1

CHIPPEWAS OF GEORGINA ISLAND
REGION OF YORK, TOWN OF GEORGINA

PRELIMINARY EVALUATION OF ENGINEERING AND ENVIRONMENTAL ALTERNATIVES STUDY

PROPOSED ROUTES

Legend

- River/Stream: Seasonal
- River/Stream: Permanent
- Study Area
- Area Identified for Additional Studies
- Road
- Lot
- Utility Line: Unspecified
- Waterbody
- Provincial Life Science Areas of Natural and Scientific Interest (ANSI)
- Provincial Park
- First Nation Owned Land
- Shoal Environmentally Significant Areas (ESA)
- Old Growth Forest (>100 Years)
- Mid-to-Late Successional Forest (>4 ha)
- Non-Provincial Significant Wetlands (NPSW)
- Provincial Significant Wetlands (PSW)
- Biological ESAs
- Local Life Science Site
- Local Earth Science Site
- Buildings

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York Region, Town of Georgina Official Plan, Schedule B3, B4, B5, B6.

N

0 500 1,000 1,500 2,000 2,500
Meters

Scale: 1:40,000
Mapping Date: January 24, 2007

Projection: UTM Zone 17
Datum: NAD 83

Project: FC010428
Prepared By: B. Berry

Verified By: T. Radburn

NEEGAN BURNSIDE

X:\Project\FJohn\FC010428\Map\FC010428 PROPOSED ROUTES 7.1.MXD

- **Alternative 3** - South West Georgina Island to Virginia Beach (existing ferry route)

  This option was chosen because it is the current travel route and the land on both sides of the crossing belongs to Georgina Island.

The general effects evaluation is presented in Table 7.1.

7.3.1 Alternative 1 - South East Georgina Island to Duclos Point

After our review, Alternative 1 was not considered a preferred alternative. There are no practical connection points for a Fixed Link on the island or the mainland at this location. A private residential development is located on Duclos point and a private marina is located on the Island. The public resistance to this option would be extreme. Although this location is the shortest crossing point it has the deepest water which would potentially result in high capital costs. This alternative also has the potential to affect a large number of designated sites and species, particularly on the mainland.

A new road connection would be required from the shore to Bear Road, a distance of about 0.5 km, and the route would need to work around the existing marina and cottage development in that area. Since the primary area of development on Georgina Island is presently along the west side of the island, a major upgrading of Bear Road would be required to accommodate the additional traffic, from the relocated connection westerly to Chief Joseph Snake Road, a distance of about 3.5 km. A major upgrading of Duclos Point Road would also be required to accommodate the additional traffic if the connection point is relocated to Duclos Point.

In addition, land would need to be purchased on Duclos Point for access development, as well as a possible parking lot. The potential for ill feelings amongst the mainland private landowners is high for this option.

Therefore this alternative was not considered to be feasible from a natural environment, or technical perspective.

7.3.2 Alternative 2 - South West Georgian Island to Doyle Beach/Virginia

Alternative 2 was considered a **preferred alternative** which has been carried forward for further assessment. This alternative route/corridor fully addresses the technical needs of the First Nation and would appear to be financially attainable.

CRITERIA FOR EVALUATING ALTERNATIVES	TABLE 7.1: ALTERNATIVE ROUTES/CORRIDORS EVALUATION		
	Alternative 1 **South east Georgina Island to Duclos point**	**Alternative 2** **South west Georgian Island to Doyle Beach/Virginia**	**Alternative 3** **South west Georgina Island to Virginia Beach (existing ferry route)**
A Natural Environment *Rating:*	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Preferred from a natural environment perspective**
1 Designated Sites & Species	Potential to effect following designated sites: **Georgina Island** • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science) • One Environmentally Sensitive Area (ESA) – Georgina Island • One Provincially Significant Wetland (PSW) – Georgina Island Wetlands **Mainland** • One Area of Natural and Scientific Interest (ANSIs) – Duclos Point Park Reserve (Life Science) • One Environmentally Sensitive Area (ESA) – Duclos Point • One Provincially Significant Wetland (PSW) –Morning Glory Swamp Potential to effect the following designates species: • VTE (SARA Schedule 1) species on Georgina island	Potential to effect following designated sites/species: **Georgina Island** • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science) • One Environmentally Sensitive Area (ESA) – Georgina Island • One Provincially Significant Wetland (PSW) – Georgina Island Wetlands **Mainland** • Old growth forest (>100 years) Potential to effect the following designates species: • Butternut (SARA, Schedule 1) on Mainland • Red-Shouldered Hawk (Special Concern) on Mainland • VTE (SARA Schedule 1) species on Georgina Island	Potential to effect following designated sites/species: **Georgina Island** • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science) • One Environmentally Sensitive Area (ESA) – Georgina Island • One Provincially Significant Wetlands (PSW) – Georgina Island Wetlands Potential to effect the following designates species: • VTE (SARA Schedule 1) species on Georgina Island
2 Water Quality and Quantity	Greatest water depth 3.0 m. Potential impacts on soils/sediments and surface water quality as a result of construction and operation.	Water depth 1.8 m. Potential impacts on soils/sediments and surface water quality as a result of construction and operation.	Water depth 2.0 m. Potential impacts on soils/sediments and surface water quality as a result of construction and operation.
4 Terrestrial Habitat	Potential habitat loss and fragmentation on Island and Mainland	Potential habitat loss and fragmentation on Island and Mainland	Some habitat loss and fragmentation associated with upgrading existing infrastructure, however terrestrial habitat is already relatively disturbed.
5 Aquatic Habitat	Potential aquatic habitat loss and fragmentation, although this would be the shortest crossing (1.4 km) point	Potential aquatic habitat loss and fragmentation, also affects islands and associated aquatic habitat off the south west tip of Georgina Island	Potential aquatic habitat loss and fragmentation, longest crossing point (3.0 km). Existing ferry route is already relatively disturbed due to dredging activities in ferry channel
B Socio-economic/Cultural Environment *Rating:*	**Not preferred from a social/cultural environment perspective**	**Preferred from a social/cultural environment perspective**	**Preferred from a social/cultural environment perspective**
1 Existing recreation (boating, fishing, beaches, ice fishing etc.)	Navigation will be maintained to facilitate recreational boat traffic, however relocation of marina on Georgina Island will need to occur.	Navigation will be maintained to facilitate recreational boat traffic.	Navigation will be maintained to facilitate recreational boat traffic. However relocation of marina on Mainland and Island will need to occur. This may impact the ability to launch recreational boats
2 Land use consistency	None	None	Partial
3 Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes)	Potential impacts on heritage resources	Potential impacts on heritage resources	Potential impacts on heritage resources
4 Aesthetics	Potential aesthetic impacts	Potential aesthetic impacts	Potential aesthetic impacts
5 Land Acquisition and Residential/Business Displacements	Land required (Mainland) and potential for residential displacements.	Land required (Mainland) but no displacement of existing development.	None

Understanding the Rating System:

● Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion

◕ ↑ ◑ Increase in preference

◔ Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

CRITERIA FOR EVALUATING ALTERNATIVES	TABLE 7.1: ALTERNATIVE ROUTES/CORRIDORS EVALUATION		
	Alternative 1 **South east Georgina Island to Duclos point**	**Alternative 2** **South west Georgian Island to Doyle Beach/Virginia**	**Alternative 3** **South west Georgina Island to Virginia Beach (existing ferry route)**
C Technical Factors *Rating:*	◔ **Not preferred from a technical perspective**	◕ **Preferred from a technical perspective**	◑ **Not preferred from a technical perspective**
1 Technical Feasibility	Shortest crossing point (1.4 km) Greatest water depth (3.0 m). Would impact existing marina on Georgian Island and residential development on Duclos point	Medium length crossing point (2.4 km) Shallowest water depth (1.8 m) Moderate impact to existing development	Longest crossing point (3.0 km) Medium water depth (dredged for existing ferry operations) Moderate impact to existing development
2 Traffic and Pedestrian Circulation	Circuitous route between major points of origin and destination (existing or potential development areas and emergency services)	Relatively direct route between major points of origin and destination (existing or potential development areas and emergency services)	Relatively direct route between major points of origin and destination (existing or potential development areas and emergency services)
3 Road Connections	Major upgrading required on both Island and Mainland (7.3 km); Areas of organic soils and flooding potential along existing road connections; Existing development constrains the upgrading of the road geometrics (horizontal alignment, sight lines) to meet minimum standards	Requires establishment of new road corridor on Mainland (0.8 km); Increases potential for traffic impacts (noise, dust etc.) on existing Provincial Park	Existing ferry road connections (Hadden Road, Virginia Boulevard) are in place to connect to Highway 48.
4 Marine Navigation	To be maintained through bridge section	To be maintained through bridge section	To be maintained through bridge section.
5 Impact On Existing Infrastructure (water intakes, sewage outfalls, servicing corridors)	Locations of existing infrastructure and utilities to be confirmed in future feasibility study work and fixed link designs to mitigation impacts to such existing facilities	Locations of existing infrastructure and utilities to be confirmed in future feasibility study work and fixed link designs to mitigation impacts to such existing facilities	Locations of existing infrastructure and utilities to be confirmed in future feasibility study work and fixed link designs to mitigation impacts to such existing facilities
6 Geotechnical Considerations (rock, swamp, stability of marine bed, impact on coastal processes etc.)	Preliminary geotechnical investigation to be completed as part of future feasibility study work to confirm geotechnical constraints. New road connection crosses about 0.4 km of provincially significant wetland on Georgina Island (organic soils) and road upgrading crosses about 1.0 km of provincially significant wetland on the mainland (organic soils).	Preliminary geotechnical investigation to be completed as part of future feasibility study work to confirm geotechnical constraints. New road connection crosses about 0.2 km of provincially significant wetland on Georgina Island (organic soils).	Preliminary geotechnical investigation to be completed as part of future feasibility study work to confirm geotechnical constraints.
7 Operational Constraints (wave impacts, wind impacts, snow, ice, fog)	Design to address operational constraints.	Design to address operational constraints.	Design to address operational constraints.
D Cost Factors *Rating*:	◕ **Preferred from a financial perspective**	◕ **Preferred from a financial perspective**	◑ **Not preferred from a financial perspective**
1 Construction/Operation/Maintenance	Moderate	Moderate – High	High
RECOMMENDED SOLUTION	Not Carried Forward	Carried Forward for Additional Study	Carried Forward for Additional Study

Understanding the Rating System:

● Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion

◕ ◑ Increase in preference

◔ Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

If the connection between Georgina Island and the mainland is relocated to Doyle Beach, the road linkage on the island would require a new road connection of about 0.3 km to connect from the shore to Chief Joseph Snake Road. The new road would traverse a Provincially Significant Wetland in this area, but the effects are mitigatable. On the mainland, a new road connection would be required from the shore to Black River Road, a distance of about 1.0 km, over lands that are presently privately owned. Preliminary communication with the Town of Georgina has indicated that this road would probably not be a municipal road, but if it were to be constructed as a municipal road that it would require the completion of a Class Environmental Assessment (Class EA) under the requirements of the Environmental Assessment Act. The location of this connection should also recognize the constraint imposed by the relatively small area of Old Growth Forest in this area.

The Town of Georgina has requested that a traffic study be provided to assess the impacts on the Town's roads that may result from a fixed link and ultimate development on the island. They have also noted that the potential for impacts on land use planning on the mainland should be considered, especially if major tourist facilities are anticipated that may put pressure to locate ancillary or other types of uses on the mainland.

With the implementation of appropriate mitigation measures this alternative should have limited impacts on the natural, socio-economic/cultural environment; however additional studies/inventories are required as part of the Feasibility Study in order to accurately determine potential effects and mitigation measures (refer to Section 10).

7.3.3 Alternative 3 - South West Georgina Island to Virginia Beach (existing ferry route)

Alternative 3 was also considered a ***preferred alternative*** which has been carried forward for further assessment. This alternative route/corridor fully addresses the technical needs of the First Nation and appears to be comparatively financially viable. Minimal land acquisition would be required for this alternative. This route is also relatively disturbed environmentally due to existing ferry activities/infrastructure, therefore this alternative would result in relatively limited effects to the natural environment. Based on DFO's "no net loss" policy for fish habitat, Alternative 3 would have the lowest potential loss to fish habitat based on existing access on both mainland and island access point to the existing ferry.

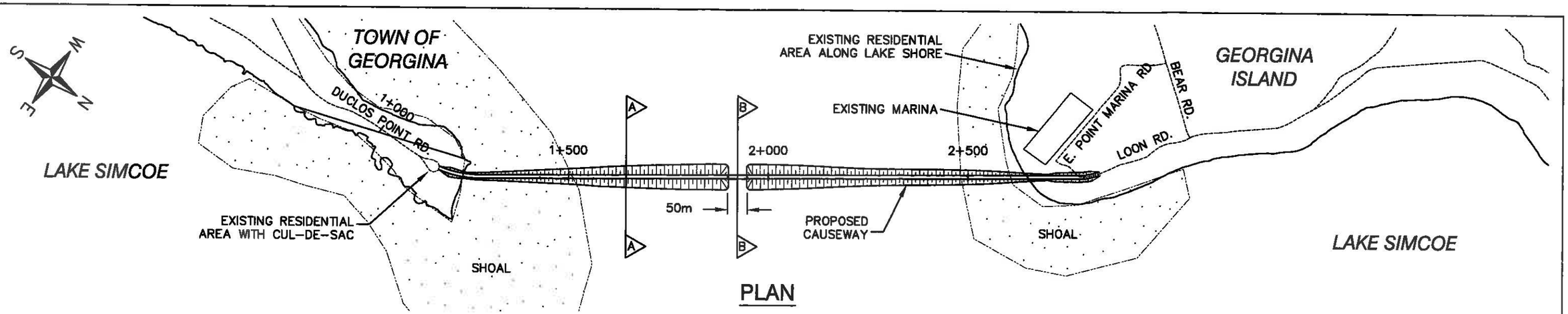
As stated above, the Town of Georgina has requested that a traffic study be provided to assess the impacts on the Town's roads that may result from a fixed link and ultimate development on the island. They have also noted that the potential for impacts on land use planning on the mainland should be considered, especially if major tourist facilities are anticipated that may put pressure to locate ancillary or other types of uses on the mainland.

With the implementation of appropriate mitigation measures this alternative will have limited impacts on the natural, socio-economic/cultural environment. However, additional studies/inventories are required as part of the Feasibility Study in order to accurately determine potential effects and mitigation measures (refer to Section 9).

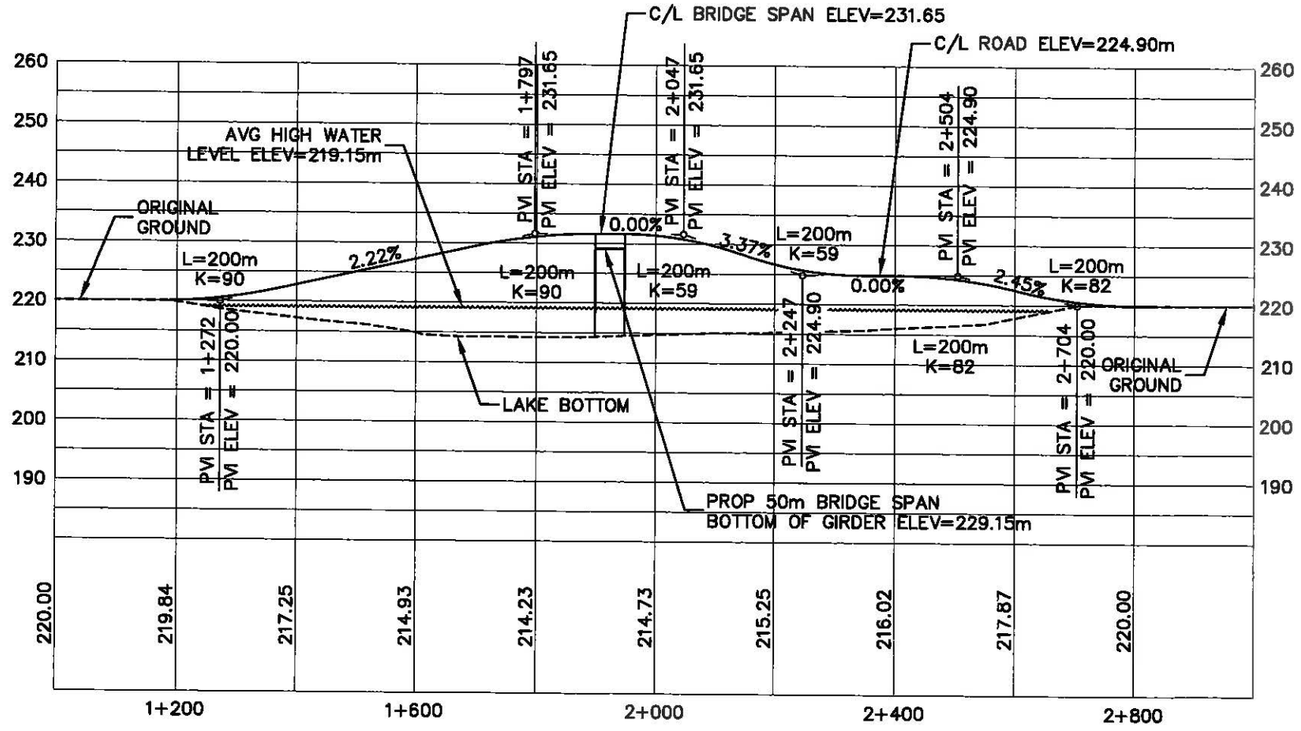
7.4 Preliminary Profiles For Alternative Crossings

Based on the above design considerations, a preliminary plan and profile has been established for each the preferred alternative routes being considered, as shown on Figure 7.2 to Figure 7.7. Figure 7.2 and 7.3 relate to Alternative Route 1. Figures 7.4 and 7.5 relate to Alternative Route 2. Figures 7.6 and 7.7 relate to Alternative Route 3. The bridge structure to accommodate marine navigation is located approximately in the centre of each crossing, with the ultimate connections to the mainland and the island being made by either a causeway or a lower bridge. It should be confirmed, as part of the detailed designs, whether additional waterway openings (e.g. culverts) are required through the causeway section, to address water flow requirements or fish migration requirements.

Preliminary discussions with Transport Canada (personal communication, Rebecca Earl, Environmental Officer, Transport Canada), indicate that final clearance requirements can not be provided until the exact location of any bridge structure had been established. However, at a minimum, Transport Canada has indicated that the structure would require a clearance of 6.7 m (22 ft.) above the normal high water level. In order to fully assess the proposed works, Transport Canada will require a navigation study to be conducted. This study would consist of identifying the types of vessels and the clearances already in place. Based on these preliminary discussions, and for the purposes of this study, we have assumed that a minimum bridge clearance of about 7 m and span of 50 m would be required to accommodate the marine traffic in this area. Considering the annual average high water mark in Lake Simcoe as being 219.15 m asl, a fixed link structure would require a clearance elevation of approximately 226.15 m. These assumptions are subject to verification as part of the Feasibility Study.



PLAN



PROFILE

NOTE:

SEE FIGURE 8.1 FOR TYPICAL CROSS SECTIONS

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0	ISSUED FOR PRELIMINARY REVIEW	JULY, 2007

Client: CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

Drawing/Project Title: PLAN & PROFILE
ROUTE 1 OPTION A – CAUSEWAY

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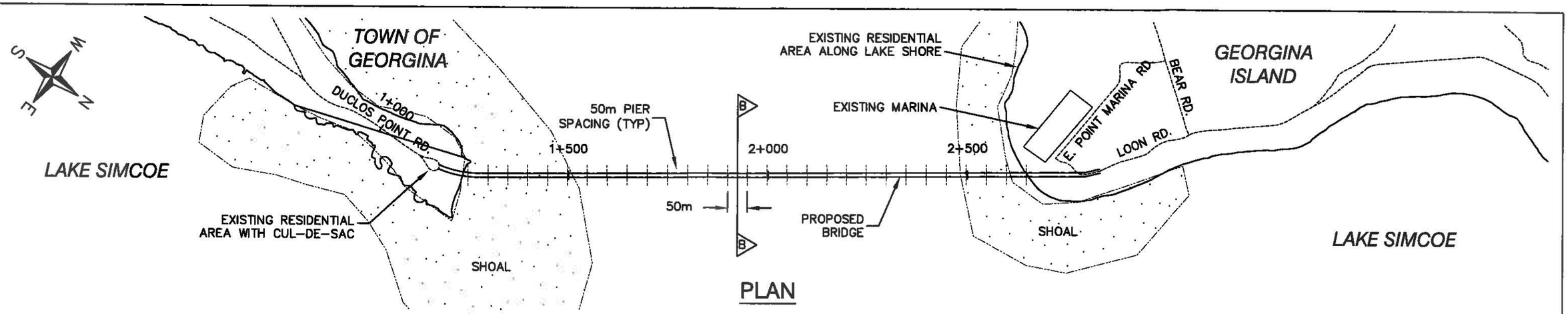
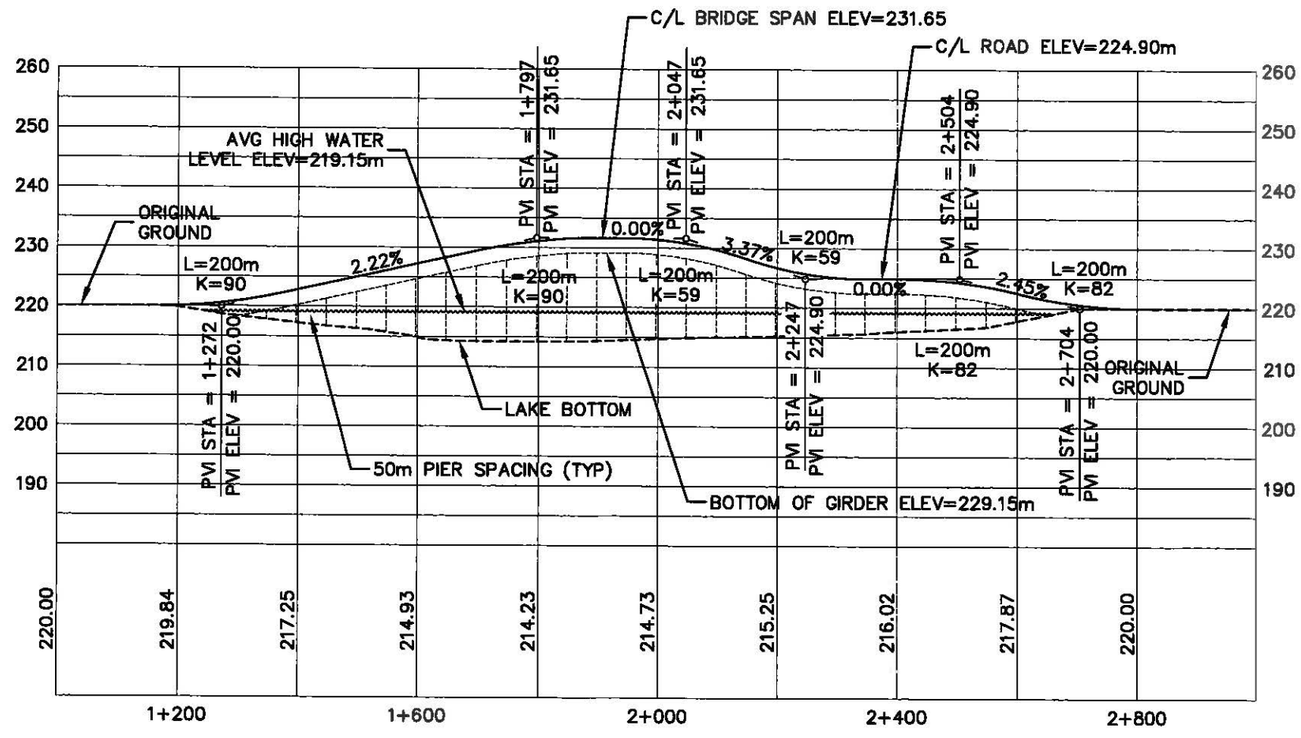
Drawn By	Checked By	Figure No.
B. Jensen	H. Centen	7.2
Scale: 1:10,000 H 1:1,000 V	Project No.: FCO–10428	

FC010428P1A.DWG



PLAN



PROFILE

NOTE:

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Client: CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

Drawing/Project Title: PLAN & PROFILE
ROUTE 1 OPTION B – BRIDGE

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Drawn By	Checked By	Figure No.
B. Jensen	H. Centen	7.3
Scale: 1:10,000 H 1:1,000 V	Project No.: FCO-10428	

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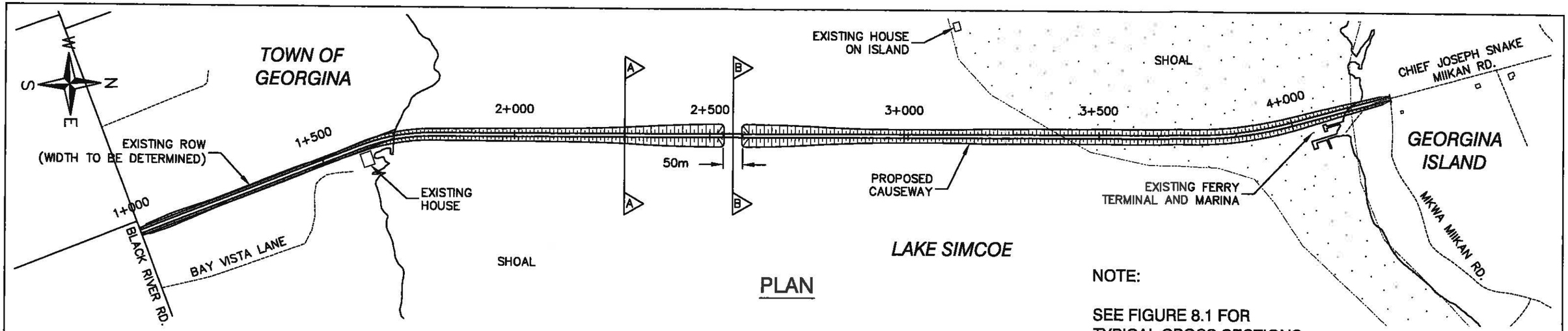
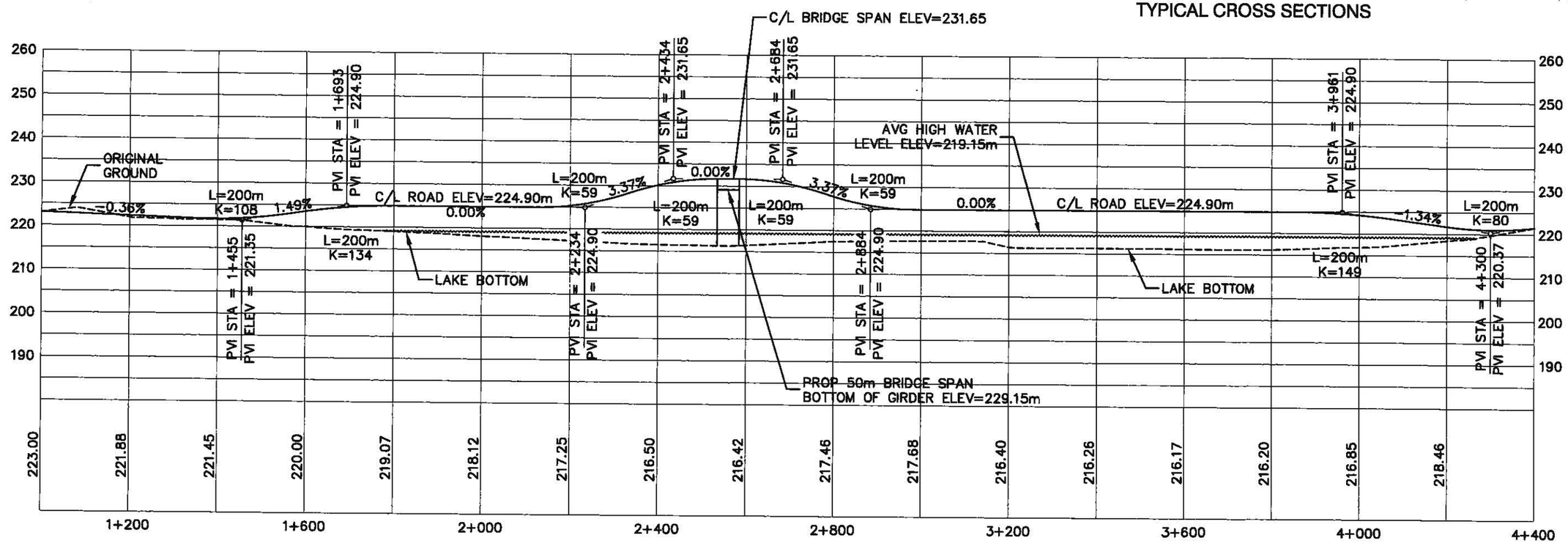


PLAN

NOTE:

SEE FIGURE 8.1 FOR TYPICAL CROSS SECTIONS



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Client
CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

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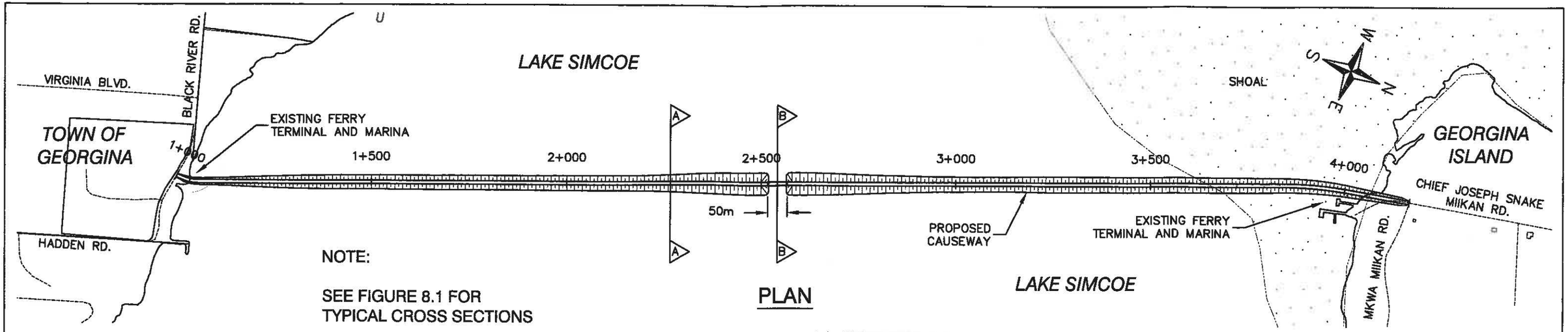
Drawing/Project Title
PLAN & PROFILE
ROUTE 2 OPTION A – CAUSEWAY

Drawn By	Checked By	Figure No.
B. Jensen	H. Centen	7.4
Scale: 1:10,000 H 1:1,000 V	Project No.: FCO-10428	

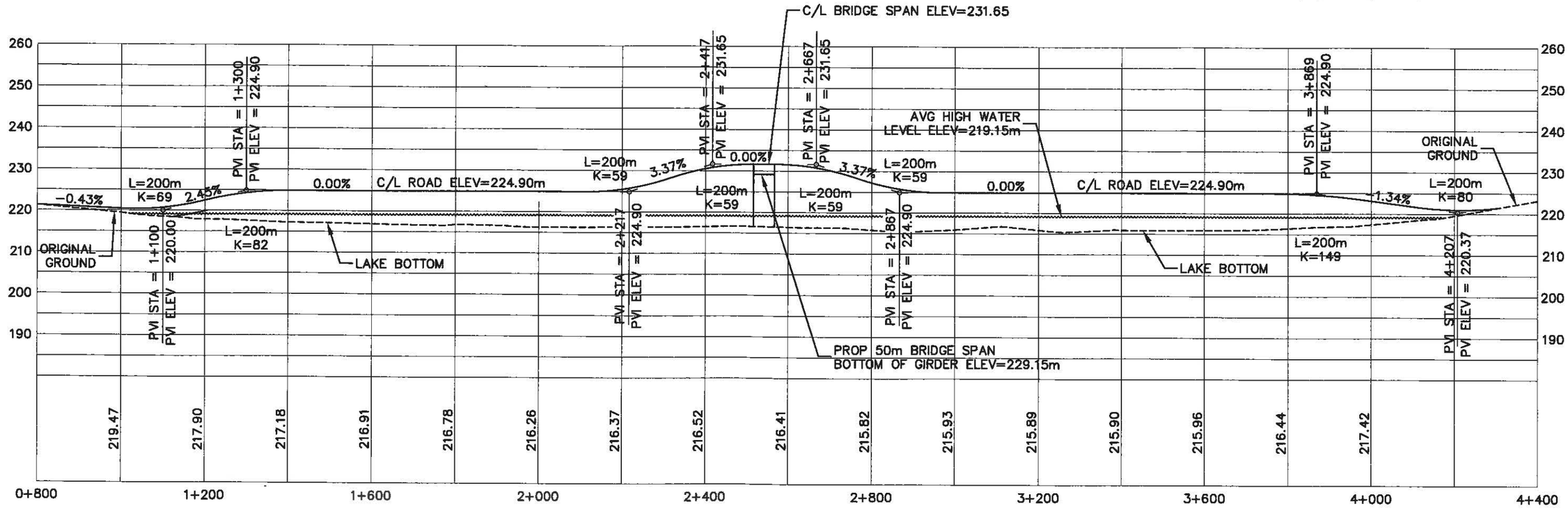
FCO10428P2A.DWG



NOTE:

SEE FIGURE 8.1 FOR TYPICAL CROSS SECTIONS

PLAN



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0	ISSUED FOR PRELIMINARY REVIEW	JULY, 2007

Client: CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

NEEGAN BURNSIDE
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Drawing/Project Title: PLAN & PROFILE
ROUTE 3 OPTION A – CAUSEWAY

Drawn By	Checked By	Figure No.
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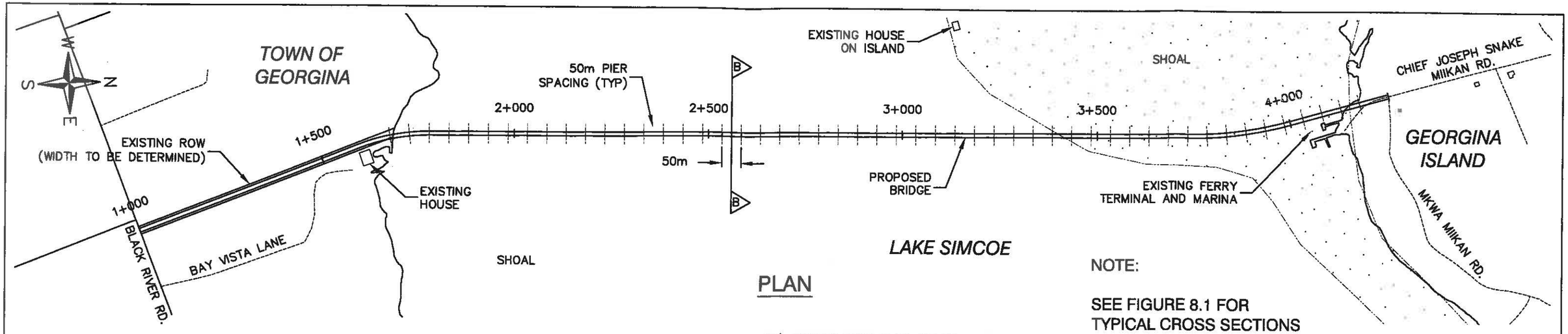
Scale: 1:10,000 H 1:1,000 V	Project No.: FCO–10428	

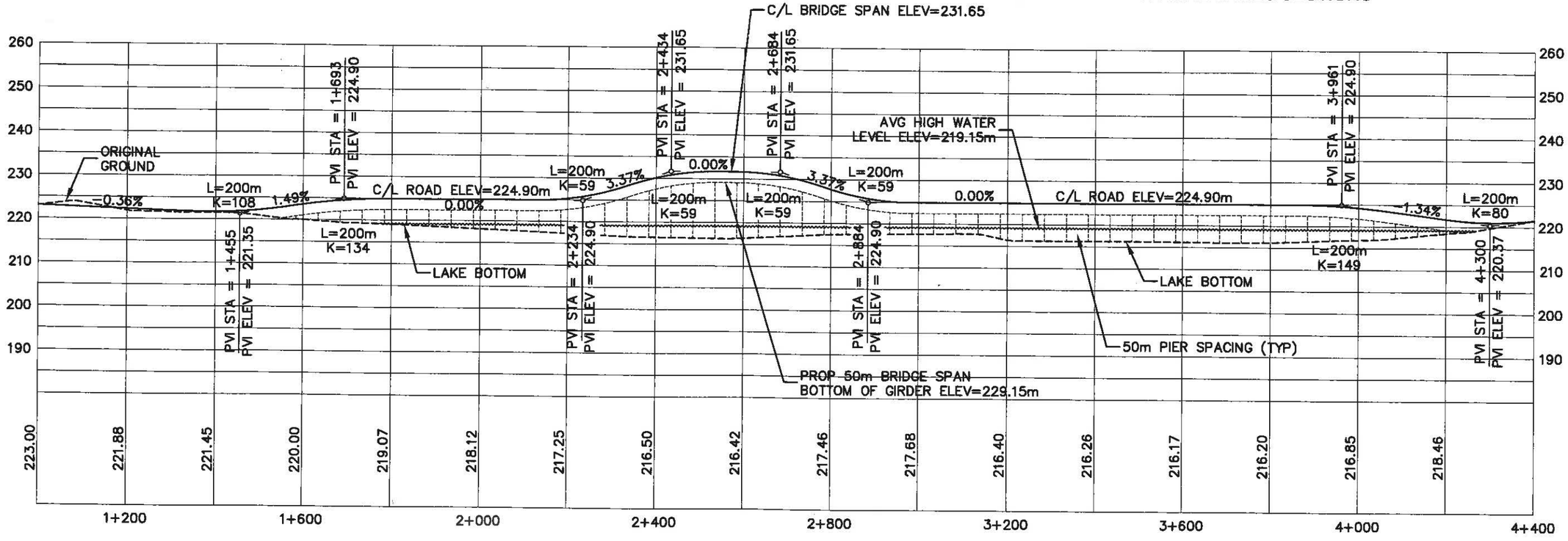
FCO10428P3A.DWG



PLAN

NOTE:

SEE FIGURE 8.1 FOR TYPICAL CROSS SECTIONS



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Client
CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

NEEGAN BURNSIDE
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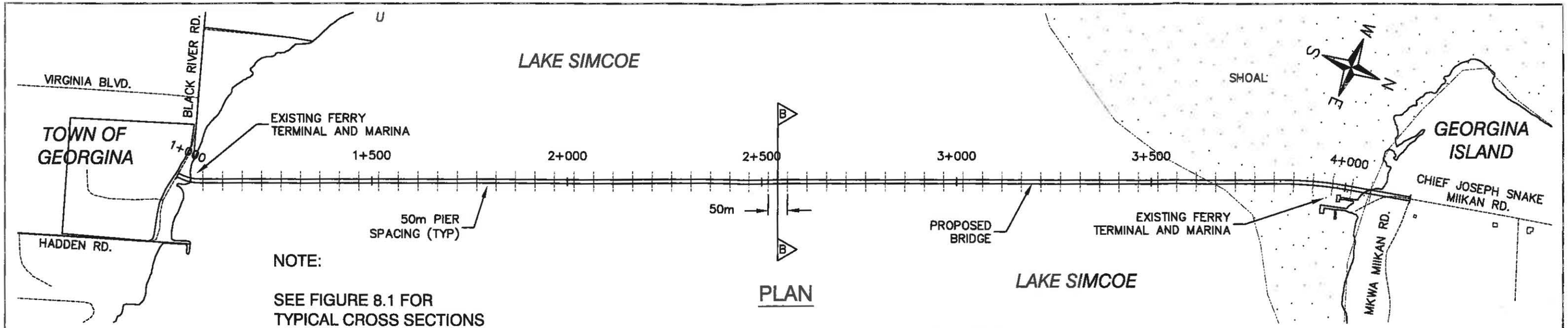
Drawing/Project Title
PLAN & PROFILE
ROUTE 2 OPTION B – BRIDGE

Drawn By: B. Jensen
Checked By: H. Centen
Scale: 1:10,000 H 1:1,000 V
Project No.: FCO–10428
Figure No.: 7.5

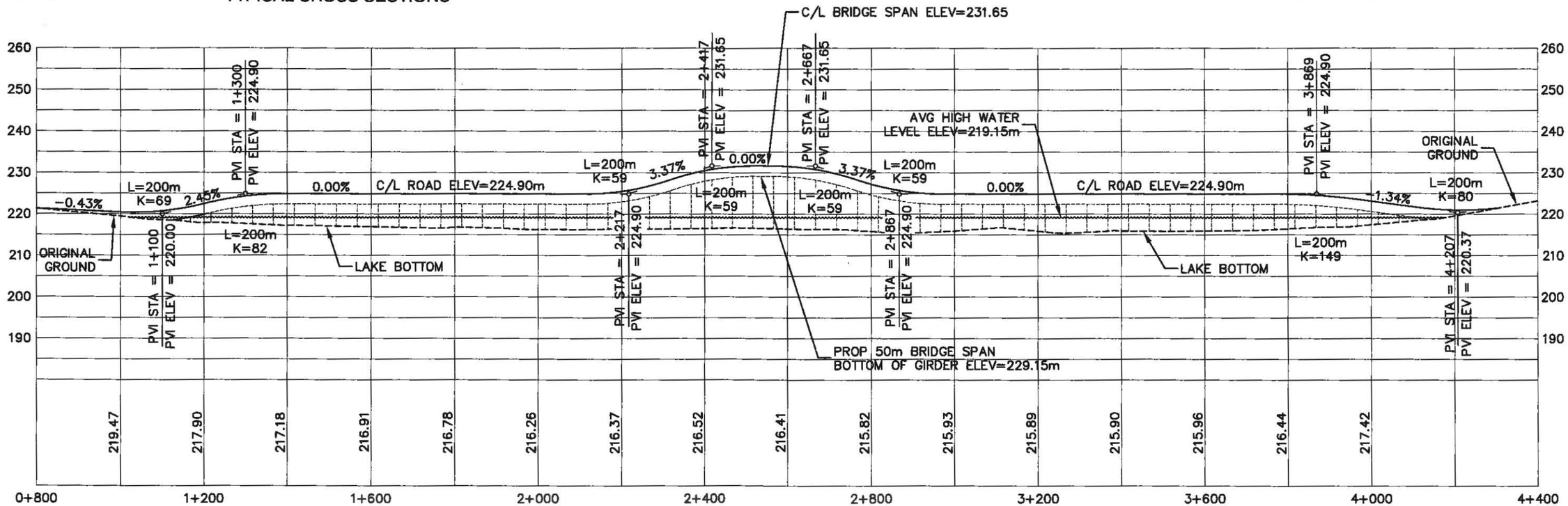
FCO10428P2B.DWG



NOTE:

SEE FIGURE 8.1 FOR TYPICAL CROSS SECTIONS

PLAN



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Client
CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

NEEGAN BURNSIDE
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Drawing/Project Title
PLAN & PROFILE
ROUTE 3 OPTION B – BRIDGE

Drawn By	Checked By	Figure No.
B. Jensen	H. Centen	7.7
Scale: 1:10,000 H 1:1,000 V	Project No.: FCO-10428	

FCO10428P3B.DWG

8.0 Preliminary Evaluation of Alternative Designs

8.1 Approach

Steps involved in the identification of the preferred preliminary designs included:

- Definition of issues
- Identification of conceptual designs to address the issues
- Review of existing conditions to define potential constraints
- General effects assessment
- Evaluation of alternatives based on environmental and engineering considerations
- Identification of overall preferred alternative design.

8.2 Constraints

In order to identify general design alternatives, constraint factors were considered within the general study area. Key constraint features included:

- natural heritage features (terrestrial and aquatic)
- existing recreational activities (fishing boats and ice fishing)
- property holdings/land acquisitions
- existing road system
- existing built up areas (particularly on mainland)
- geomorphology and geology
- public safety
- engineering limitations.

8.3 Alternative Designs

Through preliminary site assessments, review of existing conditions and technical design considerations the following general alternative designs were considered for the proposed road link (bridge and/or causeway combination).

- Pontoon Bridge – Structure floats on the surface of the water
- Piered Bridge – Bridge piers/footings are located within the water, creating a spanning structure
- Bridge/Causeway – Spanning structure and causeway combination. The causeway would consist of a road located onto of an elevated bank located above shallow water. The bridge structure would be located, as necessary, over deeper water.

8.4 Effects Evaluation

The general effects evaluation is presented in Table 8.1.

CRITERIA FOR EVALUATING ALTERNATIVES	TABLE 7.1: ALTERNATIVE ROUTES/CORRIDORS EVALUATION		
	Alternative 1 **South east Georgina Island to Duclos point**	**Alternative 2** **South west Georgian Island to Doyle Beach/Virginia**	**Alternative 3** **South west Georgina Island to Virginia Beach (existing ferry route)**
A Natural Environment *Rating:*	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Preferred from a natural environment perspective**
1 Designated Sites & Species	Potential to effect following designated sites: **Georgina Island** • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science) • One Environmentally Sensitive Area (ESA) – Georgina Island • One Provincially Significant Wetland (PSW) – Georgina Island Wetlands **Mainland** • One Area of Natural and Scientific Interest (ANSIs) – Duclos Point Park Reserve (Life Science) • One Environmentally Sensitive Area (ESA) – Duclos Point • One Provincially Significant Wetland (PSW) –Morning Glory Swamp Potential to effect the following designates species: • VTE (SARA Schedule 1) species on Georgina island	Potential to effect following designated sites/species: **Georgina Island** • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science) • One Environmentally Sensitive Area (ESA) – Georgina Island • One Provincially Significant Wetland (PSW) – Georgina Island Wetlands **Mainland** • Old growth forest (>100 years) Potential to effect the following designates species: • Butternut (SARA, Schedule 1) on Mainland • Red-Shouldered Hawk (Special Concern) on Mainland • VTE (SARA Schedule 1) species on Georgina Island	Potential to effect following designated sites/species: **Georgina Island** • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science) • One Environmentally Sensitive Area (ESA) – Georgina Island • One Provincially Significant Wetlands (PSW) – Georgina Island Wetlands Potential to effect the following designates species: • VTE (SARA Schedule 1) species on Georgina Island
2 Water Quality and Quantity	Greatest water depth 3.0 m. Potential impacts on soils/sediments and surface water quality as a result of construction and operation.	Water depth 1.8 m. Potential impacts on soils/sediments and surface water quality as a result of construction and operation.	Water depth 2.0 m. Potential impacts on soils/sediments and surface water quality as a result of construction and operation.
4 Terrestrial Habitat	Potential habitat loss and fragmentation on Island and Mainland	Potential habitat loss and fragmentation on Island and Mainland	Some habitat loss and fragmentation associated with upgrading existing infrastructure, however terrestrial habitat is already relatively disturbed.
5 Aquatic Habitat	Potential aquatic habitat loss and fragmentation, although this would be the shortest crossing (1.4 km) point	Potential aquatic habitat loss and fragmentation, also affects islands and associated aquatic habitat off the south west tip of Georgina Island	Potential aquatic habitat loss and fragmentation, longest crossing point (3.0 km). Existing ferry route is already relatively disturbed due to dredging activities in ferry channel
B Socio-economic/Cultural Environment *Rating:*	**Not preferred from a social/cultural environment perspective**	**Preferred from a social/cultural environment perspective**	**Preferred from a social/cultural environment perspective**
1 Existing recreation (boating, fishing, beaches, ice fishing etc.)	Navigation will be maintained to facilitate recreational boat traffic, however relocation of marina on Georgina Island will need to occur.	Navigation will be maintained to facilitate recreational boat traffic.	Navigation will be maintained to facilitate recreational boat traffic. However relocation of marina on Mainland and Island will need to occur. This may impact the ability to launch recreational boats
2 Land use consistency	None	None	Partial
3 Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes)	Potential impacts on heritage resources	Potential impacts on heritage resources	Potential impacts on heritage resources
4 Aesthetics	Potential aesthetic impacts	Potential aesthetic impacts	Potential aesthetic impacts
5 Land Acquisition and Residential/Business Displacements	Land required (Mainland) and potential for residential displacements.	Land required (Mainland) but no displacement of existing development.	None

Understanding the Rating System:

● Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion

◕ ↑ ◑ Increase in preference

◔ Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

CRITERIA FOR EVALUATING ALTERNATIVES	TABLE 7.1: ALTERNATIVE ROUTES/CORRIDORS EVALUATION		
	Alternative 1 **South east Georgina Island to Duclos point**	**Alternative 2** **South west Georgian Island to Doyle Beach/Virginia**	**Alternative 3** **South west Georgina Island to Virginia Beach (existing ferry route)**
C Technical Factors *Rating:*	**Not preferred from a technical perspective**	**Preferred from a technical perspective**	**Not preferred from a technical perspective**
1 Technical Feasibility	Shortest crossing point (1.4 km) Greatest water depth (3.0 m). Would impact existing marina on Georgian Island and residential development on Duclos point	Medium length crossing point (2.4 km) Shallowest water depth (1.8 m) Moderate impact to existing development	Longest crossing point (3.0 km) Medium water depth (dredged for existing ferry operations) Moderate impact to existing development
2 Traffic and Pedestrian Circulation	Circuitous route between major points of origin and destination (existing or potential development areas and emergency services)	Relatively direct route between major points of origin and destination (existing or potential development areas and emergency services)	Relatively direct route between major points of origin and destination (existing or potential development areas and emergency services)
3 Road Connections	Major upgrading required on both Island and Mainland (7.3 km); Areas of organic soils and flooding potential along existing road connections; Existing development constrains the upgrading of the road geometrics (horizontal alignment, sight lines) to meet minimum standards	Requires establishment of new road corridor on Mainland (0.8 km); Increases potential for traffic impacts (noise, dust etc.) on existing Provincial Park	Existing ferry road connections (Hadden Road, Virginia Boulevard) are in place to connect to Highway 48.
4 Marine Navigation	To be maintained through bridge section	To be maintained through bridge section	To be maintained through bridge section.
5 Impact On Existing Infrastructure (water intakes, sewage outfalls, servicing corridors)	Locations of existing infrastructure and utilities to be confirmed in future feasibility study work and fixed link designs to mitigation impacts to such existing facilities	Locations of existing infrastructure and utilities to be confirmed in future feasibility study work and fixed link designs to mitigation impacts to such existing facilities	Locations of existing infrastructure and utilities to be confirmed in future feasibility study work and fixed link designs to mitigation impacts to such existing facilities
6 Geotechnical Considerations (rock, swamp, stability of marine bed, impact on coastal processes etc.)	Preliminary geotechnical investigation to be completed as part of future feasibility study work to confirm geotechnical constraints. New road connection crosses about 0.4 km of provincially significant wetland on Georgina Island (organic soils) and road upgrading crosses about 1.0 km of provincially significant wetland on the mainland (organic soils).	Preliminary geotechnical investigation to be completed as part of future feasibility study work to confirm geotechnical constraints. New road connection crosses about 0.2 km of provincially significant wetland on Georgina Island (organic soils).	Preliminary geotechnical investigation to be completed as part of future feasibility study work to confirm geotechnical constraints.
7 Operational Constraints (wave impacts, wind impacts, snow, ice, fog)	Design to address operational constraints.	Design to address operational constraints.	Design to address operational constraints.
D Cost Factors *Rating:*	**Preferred from a financial perspective**	**Preferred from a financial perspective**	**Not preferred from a financial perspective**
1 Construction/Operation/Maintenance	Moderate	Moderate – High	High
RECOMMENDED SOLUTION	Not Carried Forward	Carried Forward for Additional Study	Carried Forward for Additional Study

Understanding the Rating System:

- Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion
- Increase in preference
- Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

8.4.1 Pontoon Bridge

The Pontoon Bridge was not considered a preferred alternative. As navigation needs to be maintained the Pontoon Bridge is not a feasible option. A pontoon structure may also not endure a significant amount of wave action or ice flows.

8.4.2 Piered Bridge

The Piered Bridge was not considered a preferred alternative. Although this would fully address the technical needs of the First Nation and may have relatively limited effects on the natural environment it is not considered to be financially viable. For comparison purposes, a Class 'D' life cycle cost analysis has been prepared for each preferred alternative. Cost tables are located in Appendix E and are based on a bridge spanning the entire distance on 50 metre sections.

8.4.3 Bridge/Causeway

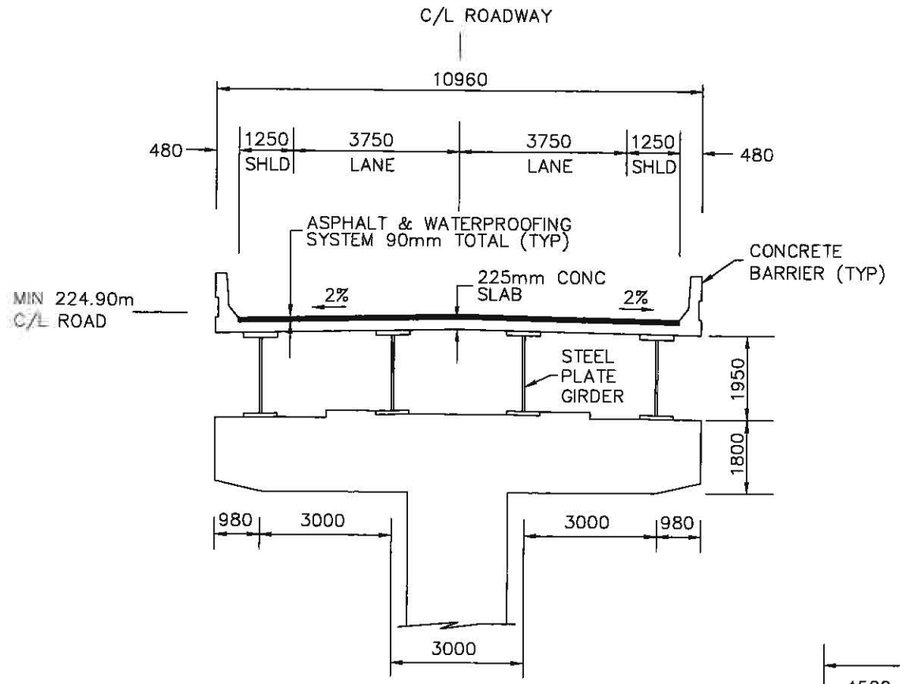
The Bridge/Causeway Alternative was considered a preferred alternative which has been carried forward for further assessment. This alternative fully addresses the technical needs of the First Nation and would be financially viable. With the implementation of appropriate mitigation measures this alternative should have limited impacts on the natural, socio-economic/cultural environment. For comparison purposes, a Class 'D' life cycle cost analysis has been prepared for each preferred alternative. Cost tables are located in Appendix E and are based on utilizing a causeway for the entire span, with a single 50 metre bridge span.

8.5 Fixed Link (Causeway/Bridge) Design Criteria

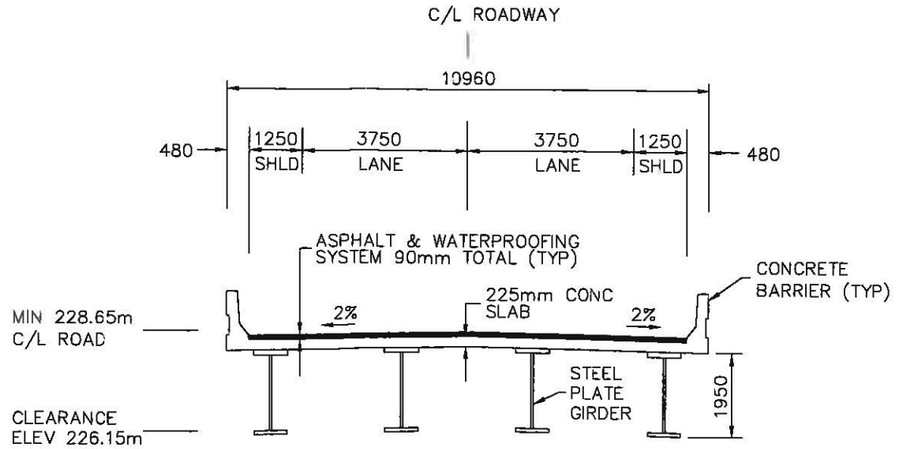
Operational and Transportation Design Criteria

Two preliminary cross sections for the causeway, marine navigation bridge and water flow bridge are shown in Figure 8.1 and 8.2. The cross sections will accommodate single lane closures (while permitting one way traffic) for emergency or maintenance road closures. Figure 8.2 shows the alternative of including a pedestrian walkway along the length of the structure. A design speed of 90 km/h has been assumed, corresponding to a 70 km/h posted speed. Accordingly, the fixed link options have been based on the following criteria:

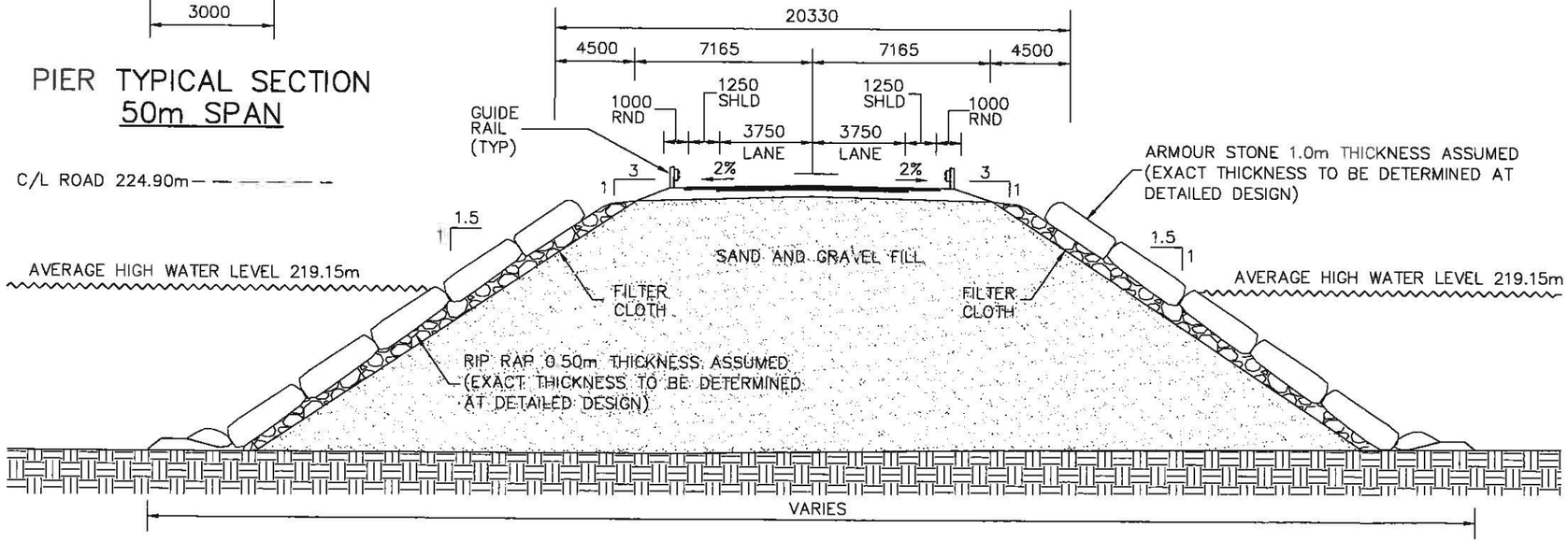
- road classification – RAU 90
- minimum stopping sight distance – 160 m
- equivalent minimum "K" factor (crest/sag) – 50/40
- maximum grade – 6%
- minimum radius – 340 m
- pavement width (for two lanes) – 7.5 m (3.75 m per lane)
- outside shoulder width – 1.25 m.



PIER TYPICAL SECTION
50m SPAN



SPAN TYPICAL SECTION
50m SPAN



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No.	Issue / Revision	Date
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Client
CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

Drawing/Project Title
TYPICAL ROAD AND BRIDGE
CROSS SECTIONS

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Drawn By	Checked By	Figure No.
B. Jensen	H. Centen	8.1
Scale: 1:10,000 H 1:1,000 V	Project No.: FCO-10428	

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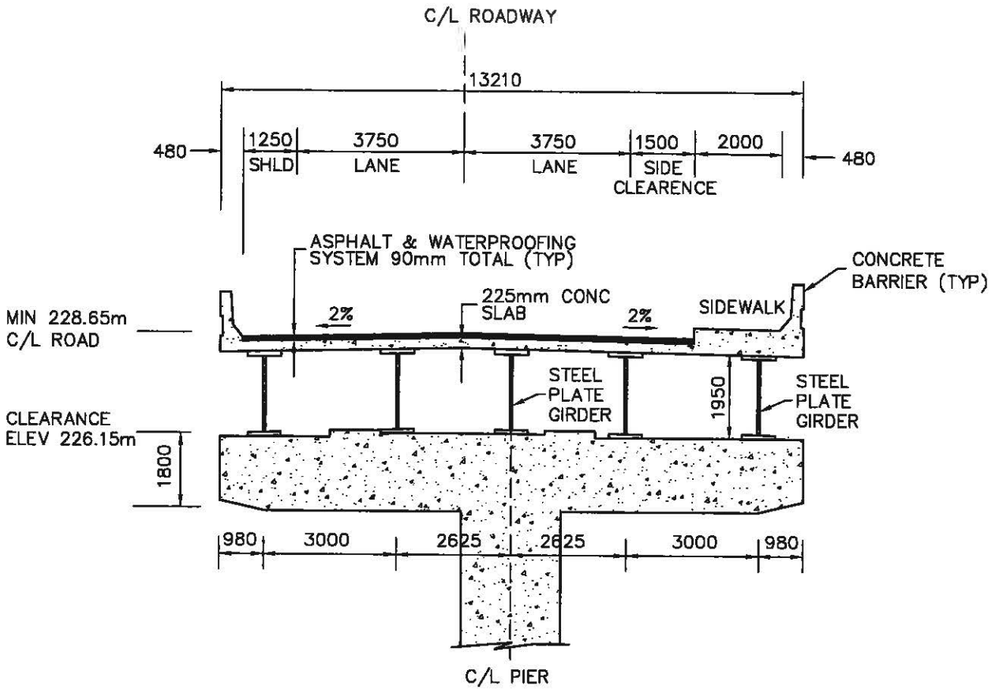
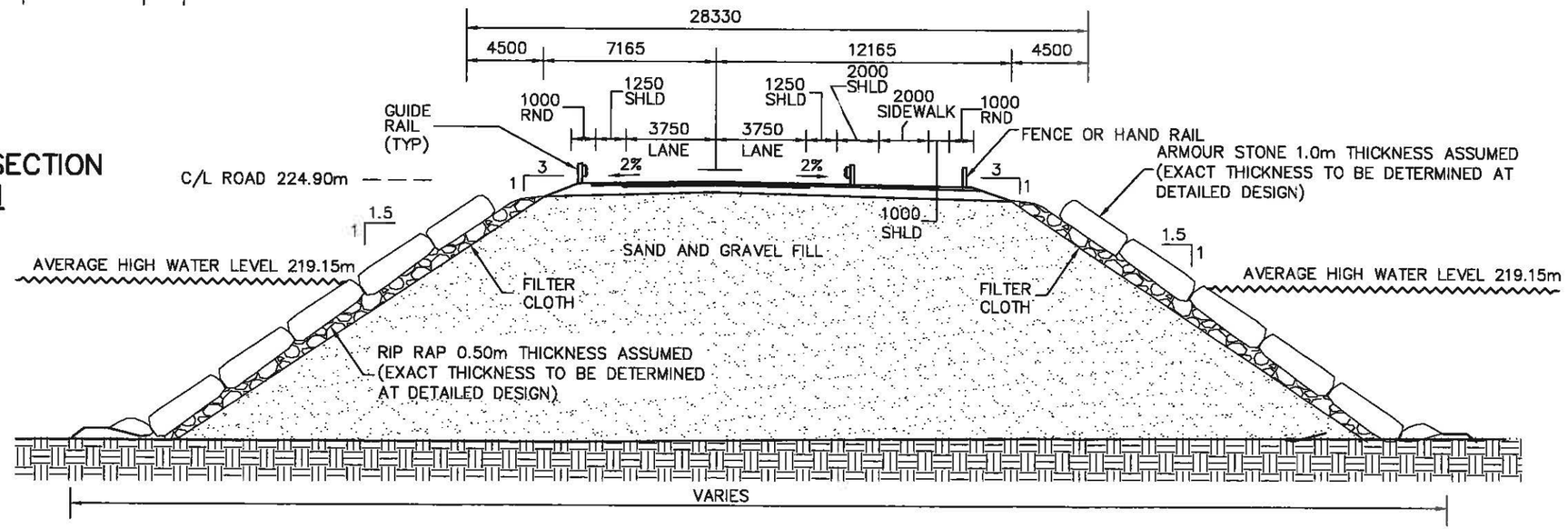


SPAN TYPICAL SECTION
50m SPAN



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0	ISSUED FOR PRELIMINARY REVIEW	JAN, 2008

Client
CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

Drawing/Project Title
TYPICAL ROAD AND BRIDGE CROSS SECTIONS WITH SIDEWALK

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telephone (519) 941-5331 fax (519) 941-8120

Drawn By	Checked By	Figure No.
A. ARYA	B. JENSEN	8.2
Scale: 1:10,000 H 1:1,000 V	Project No.: FCO-10428	

FC010428-TYPICAL-SECTIONS.DWG

Water Levels and Wave Climate

The fixed crossing will be exposed to waves approaching from the northeast and from the west, and designs must take into account the extreme wave conditions to which the structure will be subjected. No wind or wave analysis has been carried out as part of this assignment, but this work is required as part of the preliminary and final design phases for this crossing. However the following general observations can be made with respect to the wave climate in this area:

- The prevailing winds are from the west in this area and the greatest reach of adjacent open water in Lake Simcoe also lies to the west. These factors would indicate that wave impacts would be greater for Alternatives No. 2 and 3, than they would for Alternative No. 1, which is relatively shielded by the island.

- The wave heights will be limited by the relatively shallow nature of the crossing sites, with the shallow water inducing breaking of the waves. Waves that experience breaking conditions may be in the order of 3.0 m in height, while waves near to the breaking conditions may be in the order of 5.0 m high.

For the purposes of this study, a preliminary causeway elevation has been assumed to be 224.15 m, based on the following:

- annual high water mark – 219.15 m
- allowance for waves, seiching etc. – 5.0 m

Since it is possible that waves may still overtop the structure during extreme high water levels, the design of causeway should accommodate this potential. A cost/benefit assessment should be included with the detailed designs to assess the elevation requirements and the impacts on the structural designs.

As shown in Figure 8.1, a preliminary causeway design may include the following:

- a two lane, paved roadway built on interior fill of sand and gravel, which is contained between stone fill dykes
- maximum dyke sideslopes of 1.5:1.0, protected with armour stone (10 tonnes average). Type 1 armour stone erosion protection should be placed on the west side (i.e. side of prevailing winds) and type 2 armour stone erosion protection placed on the east side slopes.

As also shown in Figure 8.1, a preliminary bridge design may include the following:

- a concrete slab deck on steel plate girders with a total width of 10.96 m, with spans of approximately 50 m. The structural depth (vertical thickness of the concrete deck slab and steel plate girders) will be about 2.4 m.

The above noted designs are preliminary only, and for comparative purposes in this present study. Geotechnical and hydrotechnical assessments will be required to confirm the required designs as part of the detailed design work.

8.6 Summary of Costs

Costs for the bridge option and causeway option along each of the Alternative Routes are included as Table 8.2. Alternative Routes 2 and 3 have been developed and are summarized below. For this project planning document, we have limited the analysis as follows:

- costs are considered 'Class D' life cycle analysis is based on a 50 year period
- the bridge option uses a bridge structure over 100 percent of the water crossing span
- the causeway option anticipates only one bridge span, with the remainder as causeway
- estimates include the walkway portion for planning purposes, if it was deleted, cost would be reduced by approximately 10%.

For comparison purposes, a 50 year LCC has been developed for the ferry operation, based on replacement on a 20 year cycle at a cost of $25,000,000 and available O & M estimates.

This translates to a $47,957,012 cost. All capital and life cycle costs are available in Appendix E. Note however that the service provided by maintaining the existing system is much lower than providing a fixed link.

8.6.1 Effective Interest Rates

To ensure that cost comparisons are done on an equal basis, it is important to adjust costs to a base year figure. This is done by reviewing anticipated escalation rates and applying it to future expenditures to convert the cost to the base year.

INAC provides indices in their 2005 Cost Reference Manual. These values are summarized in Table 8.3.

By analyzing these numbers, an expected annual interest rate of 1.87% appears to be anticipated by INAC. To further investigate possible escalation, we have compared the interest rate to the calculated interest rates provided from the Bank of Canada Consumer Price Index and the Commodity Price Index.

The Consumer Price Index is the base measure of inflation and change of costs of goods in Canada, while the Commodity Price Index is similar but based on commodities such as fuel and minerals.

After review, it was noted the Consumer Price Index and INAC rates were similar. It was decided to analyze the 50 year LCC with both to review the range difference between both. Bank of Canada data on Consumer and Commodity Price Indices is included in Appendix H.

Table 8.2

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates - SUMMARY

						50 Year Life Cycle Cost	
						INAC Indices	Consumer Price Indices
Description	Meets Service Requirements?	Capital	Design and Management Costs	Total	Annual O&M	1.87%	2.02%
Option 1A - Georgina Island to Duclos Point via Causeway Structure	YES	$52,413,300	$8,753,200	$61,166,500	$277,904	$67,781,178	$67,651,388
Option 1B - Georgina Island to Duclos Point via Bridge Structure	YES	$86,781,125	$14,492,700	$101,273,825	$536,163	$114,035,578	$113,785,172
Option 2A - Georgina Island to Black River Road via Causeway Structure	YES	$62,706,324	$10,472,200	$73,178,524	$324,156	$80,894,097	$80,742,705
Option 2B - Georgina Island to Duclos Point via Bridge Structure	YES	$144,267,900	$24,092,900	$168,360,800	$781,334	$186,958,121	$186,593,212
Option 3A - Georgina Island to Virginia Beach Marina via Causeway Structure	YES	$72,575,200	$12,120,400	$84,695,600	$348,247	$92,984,577	$92,821,934
Option 3B - Georgina Island to Virginia Beach Marina via Bridge Structure	YES	$168,691,825	$28,171,900	$196,863,725	$777,439	$215,368,352	$215,005,262
Maintaining Ferry Option*	NO	Varies	$0		$590,000	$49,155,182	$47,957,012

*Note - this option has been included only for monetary comparisons. It must be noted however that it Provides a much lower level of service compared to the FIXED LINK options provided

Table 8.3

Effective Interest Rate Investigation
Chippewas of Georgina Island First Nation
Evaluation of Environmenatl and Engineering Alternatives for a Fixed Link

	INAC Indices*		Consumer Price Index**		Commodity Price Index***	
Year	**Base Value**	**Effective Interest**	**Base Value**	**Effective Interest**	**Base Value**	**Effective Interest**
1994 / 1995	82.9		88		106.17	
1995 / 1996	84.3	1.69%	89.7	1.93%	110.25	3.84%
1996 / 1997	85.9	1.90%	90.5	0.89%	106.22	-3.66%
1997 / 1998	87.1	1.40%	91.6	1.22%	89.97	-15.30%
1998 / 1999	88.2	1.26%	93.6	2.18%	96.02	6.72%
1999 / 2000	88.9	0.79%	96.6	3.21%	113.71	18.42%
2000 / 2001	91.7	3.15%	97.2	0.62%	107.85	-5.15%
2001 / 2002	93.9	2.40%	101.5	4.42%	101.45	-5.93%
2002 / 2003	95.7	1.92%	103.1	1.58%	121.82	20.08%
2003 / 2004	98.6	3.03%	105.6	2.42%	146.82	20.52%
2004 / 2005	100	1.42%	107.7	1.99%	180.7	23.08%
2005 / 2006	101.4	1.40%	109.4	1.58%	193.16	6.90%
2006 / 2007	103.2	1.78%	111.9	2.29%	208.75	8.07%
2007 / 2008	105.3	2.03%				
2008 / 2009	107.4	1.99%				
2009 / 2010	109.5	1.96%				
Annual Geometric Interest Rate:	1.87%		2.02%		5.80%	
Average Annual Interest Rate:		1.87%		2.03%		6.47%

* Information obtained from DIAND Cost Reference Manual, July 2005 Edition
** As quoted from November data, Bank of Canada website
*** As quoted from annual data, Bank of Canada website

9.0 Preliminary Economic Analysis

At this time, a full economic analysis is beyond the scope of this report. The impacts of the introduction of a fixed link to the economies of the island and the mainland will also need to be further investigated. At this stage however, it is prudent to look at current usage and revenue generated, and develop some preliminary future revenue generation numbers for discussion purposes.

9.1 Current Revenue Generation

Our first step is to look at the current usage of the ferry, and the revenue generated. The table below shows the usage data from April 7, 2006 to January 11, 2007, a span of 279 days, during which the ferry ran for 264 days.

Table 9.1: 2006 Ferry Usage

Date	Cash	Pass	Bus	Oversized	Passenger
April 7 – 30	787	1,636	29	19	40
May 1 – 31 (down May 5/6)	746	2,393	62	59	82
June 1 – 30 (down June 19)	854	2,716	47	117	108
July 1 – 31	1,234	2,983	36	55	138
August 1 – 31	1,222	3,155	0	21	70
September 1 – 30	637	1,966	52	50	17
October 1 – 31 (down Oct.16, 17, 26, 27)	430	1,627	39	72	46
November 1 – 30 (down Nov. 6 – 10)	347	1,644	48	45	12
December 1 – 31 (down Dec. 26, 29, 30)	308	1,395	28	15	12
January 1 – 11	137	376	2	8	2
Total: (264 running days)	**6,702**	**19,891**	**343**	**461**	**527**
Daily Average	25.4	75.3	1.30	1.75	2.0

Georgina Island provides fares based on a trip basis, or members and non-members can buy 20 trip passes at reduced rates. Member rates ($15 per single round trip, $200 per pass) are also lower than non-member rates ($30 single round trip, $540 per 20 trip pass). The data received does not differentiate between member and non-member usage. Given this, it is difficult to pinpoint the exact revenue from current usage. To do so, it was estimated that 60 percent of the pass users were First Nation members, and 75 percent of the single round trips were non-members.

Table 9.2: 2006 Revenue (Estimated)			
Fare Type	**2006 Data**	**Fare Price**	**Revenue Generated**
Pass	19,891	$18	$358,038
Single Round Trip	6702	$26.25	$175,927.50
Over Sized Vehicles	461	$70	$32,270
Passengers	527	$2	$1,054
		Total:	**$567,289.50**

To further investigate the revenue of a year round fixed link, the usage data was prorated from a 264 day total to a 365 total, and revenue potential reviewed.

Table 9.3: 2006 Revenue (365 Day Pro Rated)			
Fare Type	**2006 Data**	**Fare Price**	**Revenue Generated**
Pass	27,500	$18	$495,000
Single Round Trip	9266	$26.25	$243,233
Over Sized Vehicles	637	$70	$44,615
Passengers	729	$2	$1,458
		Total:	**$784,306**

This suggests that if a vehicle system was in place for the entire year, it could generate significant revenue and use.

9.2 Future Revenue Generation

At this time, it is expected that the fixed link option would be a toll variety, given that the existing system operates in that fashion. Alternatives to that situation and alternative funding would need to be further investigated as part of the Final Feasibility Study. For this report, we have developed preliminary revenue numbers, based on current and future potential use.

The implementation of a permanent link would lend itself to a change in the way tolls are generated. Currently, each trip is paid for through use of a multiuse pass or a single trip pass. If this policy is adhered to, the convenience of the fixed link becomes less valuable to the users. We would suggest going to a timed pass, such as daily, weekly and monthly, with fees similar to the current rates.

Table 9.4: Year 1 Fixed Link Usage (Estimated)				
Pass Type	**Number Sold/ Month**	**Cost/ Pass**	**Monthly Revenue**	**12 Month Revenue**
Monthly Member Pass	100	$225	$22,500	$270,000
Monthly Non-Member	15	$600	$9,000	$108,000
Weekly Member Pass	25	$60	$1,500	$18,000
Weekly Non Member Pass	75	$160	$12,000	$144,000
Daily Member Pass	10	$15	$150	$1,800
Daily Non-Member Pass	100	$35	$3,500	$42,000
Oversized Vehicles	50	$70	$3,500	$42,000
		Total:	**$52,150**	**$625,800**

It is expected that permanent residents of the island will more often purchase a long term pass, while visitors will prefer shorter term passes. It has also been assumed that each household will purchase one monthly pass per month, per year on average.

The population is forecasted at 331 residents for the year 2032, 25 years from now. This has been based on the recent historical population growth of 1.96%. The remaining numbers have been adjusted to anticipate an increase in non-member use as well, based on the same growth rate.

Table 9.5: Year 25 Fixed Link Usage (Estimated)				
Pass Type	**Number Sold/ Month**	**Cost/ Pass**	**Monthly Revenue**	**12 Month Revenue**
Monthly Member Pass	162	$225	$36,450	$437,400
Monthly Non-Member	24	$600	$14,400	$172,800
Weekly Member Pass	41	$60	$2,460	$29,520
Weekly Non Member Pass	122	$160	$19,520	$232,240
Daily Member Pass	16	$15	$240	$2,880
Daily Non-Member Pass	162	$35	$5,670	$68,040
Oversized Vehicles	81	$70	$5,670	$68,040
		Total:	**$84,410**	**$1,012,920**

These figures include only regular traffic and make no allowances for potential commercial development on the island. The complete table is located in Appendix F.

The potential revenue generated in conjunction with financing and rate of return on investment of the project will need to be investigated further during the feasibility stage.

9.3 Future Revenue Generation – Commercial

In section 5.4, average daily traffic counts for some generic commercial developments were provided. The same traffic counts are provided below, but with potential revenue shown based on the daily cost of $35/trip for a vehicle. Note that it is assumed either a 9 hole golf course OR an 18 hole course would be developed, not both. As well, it is assumed either a 40 room or an 80 room resort development would be put in place.

Table 9.6: Commercial Development Revenue Generation

	Daily Round Trips	Daily Revenue @ $35/ trip	Estimated Usage (days)	Revenue
9 Hole Golf Course	20	$700	180	$126,000
18 Hole Golf Course	60	$2,100	180	$378,000
Resort Development - 40 Rooms	10	$350	365	$127,750
Resort Development - 80 Rooms	20	$700	365	$255,500
Arena	5	$175	180	$31,500
Trailway System	5	$175	270	$47,250
Additional Tourism	10	$350	365	$127,750

It can be seen from the table that commercial usage of the fixed link could generate significant revenue. For example, an 18-hole golf course and an 80 room resort could theoretically generate $632,000 per year in link tolls alone. Commercial development will need to be further investigated as part of the Feasibility Study.

9.4 Other Economic Considerations

Throughout this study, we have been involved in discussions regarding other projects with the First Nation. One endeavour being investigated is a potential wind farm. This would be greatly aided if a fixed link were in place for both the transmission of material, but also for connection of power transmission. The possibility of combining the projects should be further investigated.

9.5 Economic Analysis Summary

There appears to be a good potential for revenue generation from the installation of a fixed link. Preliminary analysis suggests revenue in year 1 of $620,000 and future revenue possibilities of $1,012,920 for residential/ cottage use and as much as $700,000 in annual commercial revenue. This will need to be further investigated by an economic analysis to identify development trends in the area, and better solidify the future revenue and costs of instituting a fixed link.

10.0 Additional Investigations/Approval Requirements

In accordance with INAC requirements, a Preliminary CEAA Environmental Screening Report has been provided in Appendix C. The Screening has been conducted in accordance with the requirements of the Canadian Environmental Assessment Act. The environmental assessment will be finalized following the development of the project (additional studies/inventories and design information). An EA is required for this project as the project will require federal funding and may require federal approvals.

The final Environmental Assessment may include the future completion of a multi-jurisdictional EA, given that the preferred alternative may involve lands in both the province, as well as lands within the First Nation (Alternative 2). The province has a bilateral agreement with the federal government on the harmonization of EAs when such EAs affect both jurisdictions. The principle of each of these agreements is that one EA can be conducted and written in compliance with all the jurisdictions' requirements. Indian and Northern Affairs (INAC) would be the Responsible Authority (RA) for such a project under the Canadian Environmental Assessment Act. The Canadian Environmental Assessment Agency may be involved at the implementation stage, assisting INAC and the First Nation as the 'one window' through which all project-related EA matters with federal agencies is coordinated. Several other departments/agencies are also expected to be involved in the review and any future EA, particularly a multi-jurisdictional EA, including the Department of Fisheries and Oceans (DFO), Environment Canada, The Canadian Wildlife Service, Transport Canada, Ministry of Natural Resources etc. If the preferred alternative is solely located on First Nation land (Alternative 3) an EA will be undertaken in accordance with federal CEAA requirements.

The following is a list of additional site survey work which will be required at an appropriate time of year as part of a Final Feasibility Study, leading into Final design.

Survey	Date	Approximate Cost	Comments
Terrestrial Fieldwork:			
Ecological Land Classification (ELC)/ Vegetation Inventory Wetland survey (if required) Butternut Tree Inventory (if required) Bird surveys – Roadside call surveys, Breeding/migratory birds Amphibian/reptile surveys	Multi-seasonal (refer to comments column)	$25,000	*Spring* – vegetation community descriptions, botanical surveys, searches for snake wintering sites and documentation of habitat for snakes and turtles, spring amphibian surveys, early breeding birds such as waterfowl, shorebirds and raptors, woodland raptor nests, playback tapes *Summer* – search for turtle nesting sties, search for snakes above ground, document presence of any significant species, check for dragonflies and damselflies, breeding bird surveys, marsh monitoring tapes, summer botanical surveys

			Fall/Winter – winter site visits to document significant wildlife concentrations and habitat for wintering migratory birds Potential impacts of the undertaking on all identified features and functions will be identified. Particular attention will be paid to SARA species and migratory birds. Impacts will be identified and mitigation measures will be recommended. Liaise with agencies to ensure compliance with federal and provincial regulations.
Aquatic Fieldwork			
Fish and aquatic habitat assessment	Spring/ Summer	$15,000	Fish habitat assessment and fisheries inventory. Identify potential impacts on fisheries resources and contribute to design modifications and enhancements. Identify mitigation measures to protect fish and fish habitat. Liaise with regulatory bodes and obtain permits/authorizations
Other Studies			
Hydrogeological Study	Spring/ Summer/ Fall	$20,000	Soil, groundwater and bedrock conditions will be logged at regular intervals of depth for each borehole
Noise and Air Quality	Spring/ Summer	$10,000	Assessment of potential noise and air quality impacts and proposed mitigation and monitoring to address air pollution through dust and machinery and noise pollution.
Phase 1 Archaeology Survey		$5,000	A Phase 1 survey will be required to determine if a Phase 2 survey is necessary
Marine Study	One Year	$200,000	See Section 10.1
Legal Survey	Fall	$30,000	A legal survey would need to be completed at the final recommended location to determine property limits.

Stormwater Management Plan	Fall	$10,000	Utilizing information gained regarding design possibilities and considerations, a preliminary stormwater management plan will be developed.
Navigation Study		$10,000	At the request of Transport Canada, a study to determine constraints imposed by a fixed link to local marine traffic would be undertaken. The final result would be a recommendation on navigation lanes for the fixed link.
Geotechnical Survey	Summer	$250,000	See Section 10.2.
Traffic Impact Study	Summer	$6,000	Establish current and future traffic trends relating to the fixed link.
Socio-Economic Impact Study	One Year	$250,000	See Section 10.3.
Project Management			
On-going Agency and Stakeholder Consultation and Cordination	On-Going	$44,000	As part of the Environmental Review, coordination between stakeholders, consultants and Georgina Island First Nation will be necessary.
Consultant Management	On-Going	N/A	Included in individual study costs.
Cost Estimate	Spring 2009	$6,000	Based on information obtained throughout study, construction costs will be updated to Class 'C'.

A time table to complete the work of the Final Feasibility Study is shown in Table 10.1.

Following completion of the above inventory work and selection of the preferred alternative the following additional project components will be required:

- Preliminary/Detailed Designs (30%, 66%, 99%, 100%), cost estimates, drawings and specifications
- Environmental Assessment Report (CEAA Screening or Harmonized EA)
- Permits/Approvals (see below)
- Tender document preparation
- Contract administration and construction inspection
- Warranty period/post construction monitoring.

Key environmental authorizations, approvals and licenses that are anticipated to be required from the Federal government before the project can proceed include:

- Authorization for Works Affecting Fish Habitat, Fisheries Act, administered by the Department of Fisheries and Oceans
- Authorization for Works Affecting Navigable Waters, *Navigable Waters Protection Act*, administered by Transport Canada. A formal application will need to be submitted for Transport Canada's approval including the following information:
  –location plan
  –survey plan showing adjacent property ownerships
  –plan view of the proposed crossing including dimensions measured from the high water mark and showing the average water depths
  –profile view of the proposed crossing including the height, width, ordinary high water mark (O.H.W.M.), high water mark (H.W.M.), contours, height above the bed of the waterway, construction material etc.
- Authorization under the *Species at Risk Act*, administered by Environment Canada

Key provincial permits should be determined during the federal co-ordination process but may include:

- Authorization for works under, *Lakes and Rivers Improvement Act* and *Public Lands Act* administered by Ministry of Natural Resources
- MOE – Permits/C of A, depending on alternative recommended
- Authorization for works under the *Generic Regulation*, administered by Lake Simcoe Region Conservation Authority
- MTO - Any work done on a provincial highway will require and Encroachment Permit and any work done within MTO permit control will require a Building Land Use Permit.

Table 10.1

Georgina Island Proposed Fixed Link
Estimated Time/ Cost To Prepare Feasibility Study

Description	Estimated Study Cost	Spring			Summer			Fall			Winter			Spring			Summer		
		March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August
Terrestrial Field Studies																			
Ecological Land Survey	$25,000	Timing is intermittent over the span of 4 seasons.																	
Vegetation Inventory Wetland Survey																			
Bird Surveys																			
Amphibian/ Reptile Surveys																			
Aquatic Fieldwork																			
Fish and Aquatic Habitat Assessment	$15,000																		
Assessment Studies																			
Noise and Air Quality	$10,000																		
Phase 1 Archaeology Study	$5,000																		
Traffic Impact Study	$6,000																		
Navigation Study	$10,000																		
Hydrogeological Study	$20,000																		
Stormwater Management Study	$10,000																		
Planning Studies																			
Legal Survey	$30,000																		
Marine Study	$200,000																		
Geotechnical Survey	$250,000																		
Socio-Economic Impact Study	$250,000																		
Agency and Stakeholder Consultation																			
Ongoing throughout project development process	$44,000																		
Updated Cost Estimate	$6,000																		

10.1 Marine Study

As part of the feasibility study stage a Marine Study will be required. The scope of work would include:

- investigate and determine existing flow and current patterns in Lake Simcoe between Georgina Island and the mainland. Limits to be determined as required (i.e. as far as the structure may affect such patterns)
- model through computer 3D analysis existing patterns in the study area
- provide analysis on two alternative locations and three construction configurations, including bridge, causeway, and causeway/bridge (lengths to be determined)
- data to include, but not limited to, scour around abutments, effects on sediment transportation and deposit, impacts of ice, ice velocities, and shoreline effects
- other data to be determined would be to verify local bathymetry data
- study to include recommendations for the final design configuration and include list of potential environmental impacts and mitigation techniques for consideration in CEAA screening document.

10.2 Geotechnical Survey Study

As part of the feasibility study, a geotechnical investigation will be necessary. The scope of work would be expected to include:

- a preliminary investigation of two alternative routes, including a desktop review of soil types and borehole testing, to a maximum of three in water per route, four total on land at approach locations
- develop a preliminary recommendation report based on analysis of findings for a preferred route, considering the possibility of utilizing a causeway or bridge
- after review of preliminary report, a recommendation on route will be determined by Project Team. Once preferred route is determined, a sampling program will be developed and sampling undertaken along the preferred route. It is anticipated that investigation will be required at pier locations (50 m c/c) and be extended to an average depth of 10 m. Sampling will be done via barge or at times when ice thickness allows rig direct access.
- develop Final Report providing recommendations for necessary design, including preferred design techniques, associated bearing capacities and if necessary, pile recommendations and capacities
- provide comment on environmental impacts of sampling work and mitigate appropriately.

10.3 Socio-Economic Impact Study

The development of a fixed link between Georgina Island and the mainland will change not only the physical appearance of the area, but will drastically change the economic and social opportunities of residents in the area. These impacts must be investigated further as part of the Feasibility Study. The scope of work for a Socio-Economic Impact Study would include, but not be limited to, the following:

Determination of a social "baseline" on the First Nation and in the area, including:

- current education opportunities
- current employment opportunities
- current travel trends and timing considerations
- health and safety concerns
- recreation opportunities

It is expected this would be developed through interviews, questionnaires, public meetings and existing document review.

- Once a baseline is determined, the study would investigate expected improvements and possible detriments if a fixed link was installed. The investigation must be based on data available and should be referenced appropriately.

- Determination of the economic situation on the island and in the area. This would provide base numbers for the area.

- Investigation of local economic trends and application to Georgina Island and the surrounding area with and without a fixed link in place. Trends reviewed would include:
  - Commercial Development
  - Industrial Development
  - Tourism Development
  - Recreation Development
  - Population Density.

- Once trends are determined, development of projections for use of a fixed link and associated economic models for the fixed link. Options to investigate would be:
  - toll or no toll and possible rates
  - financing models through possible funding services, private or government

- investigation of secondary economic impacts to the area, including tourism dollars and development spin-offs

- provide a report outlining all investigations and findings for inclusion in the feasibility study.

11.0 Conclusion

There is a need for a fixed link to Georgina Island, based on our preliminary review. Residents support it and it shows great potential to better the health, safety and opportunity of the island residents.

At this time, two alternatives (Route 2 and Route 3) should be considered for further analysis during completion of the Feasibility Study. The type of crossing will be a combination of bridge and causeway, but final configuration will be determined as the project progresses.

Our initial review shows the cost to be potentially high, but some may say 'ambitious'. Connecting the island to the mainland is an ambitious endeavour. Moving from this preliminary evaluation stage to the final Feasibility Stage will show how ambitious and rewarding for the residents this project can be.

Report Written by:

<Original signed by>

Signature_____ Date Jan 17/08
Fiona Christiansen, M.Sc.
Senior Environmental Assessment Specialist
Neegan Burnside Ltd.

Report Written by:

<Original signed by>

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Signature_____ Date
Cory Jones, P. Eng.
Project Manager
Neegan Burnside Ltd.

12.0 References

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Appendix A
Photographs

Georgina Island Preliminary Evaluation of Engineering and Environmental Alternative for a Fixed Link
Study Photos – Nov 24, 2007



Photo 1 – Cattails and Wetland



Photo 2 – Georgina Island Marina



Photo 3 – Georgina Island Ferry Terminal, Looking South



Photo 4 – Island Wetland, Southwest Corner Looking East



Photo 5 – Georgina Island Ferry Terminal Parking – Looking West



Photo 6 – Mainland Ferry Terminal/ Marina Parking



Photo 7 – Island Roadway



Photo 8 – Mainland Ferry Terminal Looking East



Photo 9 – Mainland Ferry Terminal – Looking West



Photo 10 – Approaching Georgina Island via Ferry



Photo 11 – Duclos Point f/ Ferry



Photo 12 – Mainland Ferry Terminal



Photo 13 – Ferry Docking at Mainland Terminal



Photo 14 – East Point Marina, Georgina Island



Photo 15 – Southwest Wetland, Georgina Island



Photo 16 – Georgina Island Marina - Island



Photo 17 – Sand Islands and Wetlands – SW Georgina Island



Photo 18 – SW Georgina Island Wetlands and Sand Islands looking SW



Photo 19 – SW Georgina Island Wetlands and Sand Islands looking NW

NEEGAN BURNSIDE

Appendix B
Correspondence

Neegan Burnside Ltd 15 Townline Orangeville ON L9W 3R4 Canada
telephone (519) 941-1161 **fax** (519) 941-8120 **web** www.neeganburnside.com

NEEGAN BURNSIDE

Minutes of Meeting

Georgina Island Fixed Link Start Up Meeting
Georgina Island First Nation

November 9, 2006

Meeting Date	November 1, 2006
Time	10:00 a.m. to 11:45 a.m.
Location	Georgina Island First Nation Administration Centre
File Number	FCO 10428

Those in attendance were:

Buzzy Big Canoe	Georgina Island First Nation (GIFN)
Andrew Big Canoe	Georgina Island First Nation
Barb McDonald	Georgina Island First Nation
Rob Porte	Georgina Island First Nation
Ed McCue	Georgina Island First Nation
Keith Maracle	Ogemawahj Tribal Council (OTC)
Marlene Stiles	Ogemawahj Tribal Council
Cory Jones	Neegan Burnside Ltd. (NB)
Stephen Burnett	Neegan Burnside Ltd.
Two Additional Members (After meeting had begun)	Georgina Island First Nation

The following items were discussed:	**Action by**
1.0 Meeting was called to order with introductions around the table. Cory passed around a contact list to obtain project team names and contact information. A copy of that list is attached.	
2.0 Buzzy acknowledged that the Georgina Island member committee formed to provide community background knowledge and support for the study had met the week before. A copy of the minutes from that meeting were circulated.	
3.0 Buzzy asked Cory to provide a summary of the work Neegan Burnside would be doing to begin the process for investigating the fixed link. Cory presented a summary of the proposed document outlining the deliverables and milestone dates.	
3.1 Keith asked for further clarification of the tasks NB proposes to complete. Keith further noted that an extensive amount of senior level time was being spent on the project, without much substantiation in the proposal. Cory explained that the summary of the proposal provided attempted to further clarify the tasks and provide a clearer summary of deliverables. Keith would still like to see a clearer correlation between deliverables, and time spent on the project. Cory noted that he would provide that as soon as possible after discussions with the Neegan Burnside team.	**NB**
3.2 Cory noted that two final documents would be produced from this scope of work. One is "Corridor Evaluation Study' the second is the Final Alternatives Evaluation Report.	
3.3 Keith questioned the objectives of the study, and the change in terminology from a 'Feasibility Study' to 'Preliminary Evaluation of Engineering and Environmental Alternatives'. Cory explained that the purpose of this project was to better define the scope of work required for a Feasibility Study, which requires the completion of work up to a pre-design phase. By completing this Stage 1 of the Feasibility Study, Stage 2, which would entail completion of the studies required and a CEAA Screening, would be defined and confined to the review of a single configuration, saving costs and time.	**NB**

Action By

Keith acknowledged that while that may be an acceptable goal, it would be prudent to ensure INAC as the funding agency is aware of this, to ensure there is no confusion over the requirements for Stage 2. Buzzy acknowledged that he and Marlene mentioned this fact to Tony Tino of INAC when the second proposal was dropped off, but it would be prudent to ensure INAC is aware of this. Cory is to further discuss this with Tony Tino (INAC).

3.4 Keith asked about additional inclusions in the report. Keith asked if a preliminary CEAA Screening could be included in the report. This was agreed. In addition, a preliminary economic analysis of the options based on a Life Cycle Costing model, as well as preliminary estimates on usage should be reviewed. NB agreed that this could be included in the final report. Keith explained to the group the nuances of life cycle costing vs. initial capital cost comparisons.

3.5 Keith noted that the overall timeline for a project of this magnitude is potentially upward of 20 years to finish construction, starting at the stage we are at now. It was noted that sound economic planning could potentially reduce that timeframe.

3.6 Marlene noted that the time constraints of the funding suggested that the project needs to be completed by March. Cory noted that the schedule of the project could be reduced, particularly if review times could be reduced down from 3 weeks. However, dropping 13 weeks from the 37 week schedule may be difficult. Steve noted that in the past, INAC has been acceptable to releasing the funding according to their schedule with the understanding the final report will be coming in the near future. This will need to be further discussed with INAC for this particular situation.

NB
GI

4.0 Throughout the meeting, the committee members from Georgina Island asked various questions and provided general comments. These are summarized below.

Action By

4.1 ***What is the difference between a bridge and a causeway?*** A bridge is a structure built above the waterline, that allows for water movement and flow without much additional impediment from the original situation. A causeway is usually constructed of fill material piled up in a dike fashion in the water and provides a permanent barrier to water.

4.2 ***Why would you build a causeway instead of a bridge?*** In shallow waters, where not much fill is required, a causeway can be much cheaper and quicker to build than a bridge. As the water depth and potential currents increase, a bridge becomes more cost effective.

4.3 ***Will additional methods, such as a high speed overhead tram be considered?*** At this time, this study is focused on transportation alternatives. This includes reviewing alternatives to the ferry system or leaving the existing transportation system as is. If during the preliminary consultation process with the community it is found that a passenger only option is of interest, it can be recommended to be further studied during the Feasibility Study stage.

4.4 Neegan Burnside asked what previous studies or background information the committee may be aware of existing. It was noted that at one time, Georgina Island was linked to the mainland, prior to the introduction of the Trent Severn Waterway. There may also have been previously approved Federal Government plans for a fixed link, from the 60's or 70's. Cory noted that NB had completed work with Georgina on many recent projects and would bring any relevant information from those studies to the group. In addition, it was identified that Beausoleil First Nation had completed a Transportation Feasibility Study Update in 1999, and that it may provide information on key factors to look for as we work through the process. Cory also noted letters to agencies regarding available background information would go out. **NB**

Action By

4.5 It was noted that approximately 200 people live on the first Nation, and approximately 400 members live elsewhere.

4.6 Concerns about potentially lost jobs associated with the existing ferry were brought up. It was noted that there would be new jobs associated with a fixed link, but the situation would likely need to be reviewed further in depth in a future socio-economic study.

4.7 Concerns about safety of the existing transportation system, requiring ice road travel in the winter, and in between times in the fall and spring were expressed as main reasons for progressing toward a fixed link. Secondarily, economic self reliance would also be a benefit.

5.0 The meeting was ended at 11:45 am.

The preceding are the minutes of the meeting as observed by the undersigned. Should there be a need for revision, please advise within seven days. In the absence of notification to the contrary, these minutes will be deemed to be an accurate record of the meeting.

Minutes Prepared by:

Neegan Burnside Ltd.

Cory Jones, P. Eng.
Project Manager
CJ/tk

Distribution – via fax only:

Buzzy Big Canoe, Georgina Island First Nation (for GIFN distribution)
Keith Maracle, Ogemawahj Tribal Council
Marlene Stiles, Ogemawahj Tribal Council

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NEEGAN BURNSIDE

Minutes of Meeting

Georgina Island Fixed Link Start Up Meeting
Georgina Island First Nation

February 5, 2007

Meeting Date	January 25, 2007
Time	10:00 a.m. – 12:15 p.m.
Location	Georgina Island First Nation Administration Centre
File Number	FCO 10428

Those in attendance were:

Buzzy Big Canoe	Georgina Island First Nation (GIFN)
Elaine McCue	Georgina Island First Nation
Natalie Priesler	Georgina Island First Nation
Barb McDonald	Georgina Island First Nation
Rob Porte	Georgina Island First Nation
Keith Maracle	Ogemawahj Tribal Council (OTC)
Marlene Stiles	Ogemawahj Tribal Council
Cory Jones	Neegan Burnside (NB)
Fiona Christiansen	Neegan Burnside

The following itmes were discussed: **Action by**

1.0 Buzzy opened the meeting by welcoming the group and explaining that Neegan was present to give an update on the study, as well as ask for information from the committee.

1.1 Buzzy distributed minutes from the previous meeting and asked if anyone had questions or comments. Buzzy did ask if Cory could further explain the statement of the project potentially taking 20 years to complete. Cory explained that as a maximum, if things progressed through INAC only as a funding source, a project of this size could take that long to find funding. However, if other funding sources, or a strong business plan is shown, the timeline could be sped up significantly.

2.0 Cory introduced Fiona as the environmental lead for NB on the project. Fiona presented the draft tables of Alternative Solutions (Table 6.1) and Alternative Routes (Table 7.1). It was explained that the tables showed the alternatives evaluated, different impact factors they would have and the evaluation system from least preferred to most preferred.

2.1 Rob asked why the option of a cable car had not been evaluated as had been mentioned at the previous meeting. Cory explained that the thrust of the study was to improve the transportation aspect from the island to the mainland. Rob asked if it could be included as an option for evaluation. Neegan will include it, but in conjunction with improving the existing ferry service. **NB**

2.2 Fiona went over the constraints mapping. There were various discussions over what was shown, and the impacts to the project. The main items discussed were:

a) Keith asked about the "Provincially Significant" areas noted on First Nation land. Fiona explained that while the First Nation was not bound by provincial regulations in these areas, there may be areas for this project, or future projects, which the first Nation may require the province's approval on. In this case, it would be prudent to acknowledge their concerns or cooperation and work with them as a potential partner and not a potential adversary.

b) Fiona further explained that based on her research to date, and past experiences, there did not seem to be any issues on the environmental side which would cause the project to stop.

2.3	Cory went over the feedback from contacted stakeholders, such as federal and provincial government departments, etc. To date, all feedback had been similar. Most asked to be kept up to date, some referred us to general standards and notes which NB has taken into consideration.	
2.3.1	Cory noted that the Town of Georgina Planning Department had asked for a face to face meeting for additional information. Cory asked the committee for direction, but did suggest it would likely be advantageous. There was concern that too much information may be divulged that the First Nation does not currently have or does not feel comfortable sharing at this time. Cory felt that the meeting would serve the opposite, to better inform the Town that this is at a very preliminary stage, and the proper planning process would be followed. It was decided to set up a meeting with the Planner, NB representatives and Buzzy. Keith will also be extended an invitation as will the mayor of Georgina, Rob Grosse. Neegan will set up.	**NB**
3.0	Fiona presented a copy of the survey to the committee for review and comment. Cory explained that the survey was currently written to address people on the island. The following is a summary of the discussions.	
3.1	Make the survey for all Georgina members, including those off reserve.	**NB**
3.2	Add the improved passenger service (i.e. via cable car) to the survey.	**NB**
3.3	Allow the ranking of options	**NB**
3.4	On the island surveys to be done by individuals, based on the voter list, off the island to be done by household. Georgina is to provide a mailing list to NB. All correspondence to be returned to Georgina via SASE, then forwarded to NB.	**GIFN, NB**
3.5	Once results are determined, another committee meeting should be held, with a community information meeting soon after. Buzzy and Cory will coordinate at the appropriate time.	**GIFN, NB**
3.6	Fiona to revise the survey based on comments and send to Keith and Buzzy for review prior to sending out.	**GIFN, OTC, NB**
4.0	Cory brought a list of elements that NB wanted feedback from the committee on. (These are listed below).	

4.1 Traditional land uses in the study area:

4.1.1 Fishing grounds – it was noted that there was recreational fishing, but no current commercial fishing.

4.1.2 Culturally significant/medicinal plants: it was acknowledged there may be such on the southern shores of the island, but none that are actively harvested.

4.1.3 Cemeteries or burial sites: none.

4.1.4 Cultural resources: none.

4.1.5 Sacred places: none

4.2 Cory asked for additional information on emergency services on the island.

4.2.1 Medical – there is a health clinic in the community, but a doctor only attends once per month. In the case of emergency, GIFN transports the person to the mainland via whatever transportation is possible at the time of year. They are met on the opposite side by EMT's, and continue directly on to the hospital themselves. Helicopter is a long tedious task to request and is rarely used.

4.2.2 Fire – the community has their own new fire truck. There's no possibility at any time of the year, from off reserve back up.

4.3 Current travel trends to the mainland.

4.3.1 ***Where is the most common destination?***
Most people are going to Sutton for groceries, etc. the travel is localized due to a limited ferry schedule and running times.

4.3.2 ***How would that change if a fixed link were established?***
Travel trends would change in frequency and destination. Some parents currently board their children on the mainland for schooling. The opportunity for joining sports teams would expand. Time of return would not be an issue.

5.0 Buzzy informed Cory he is working on the current ferry information as requested, re: usage, breakdowns, O & M.

6.0 The meeting was concluded at approximately 12:15 p.m.

The preceding are the minutes of the meeting as observed by the undersigned. Should there be a need for revision, please advise within seven days. In the absence of notification to the contrary, these minutes will be deemed to be an accurate record of the meeting.

Minutes Prepared by:

Neegan Burnside Ltd.

<Original signed by>

Cory Jones, P. Eng.
Project Manager
CJ/kc

Distribution – via fax only:

Buzzy Big Canoe, Georgina Island First Nation (for GIFN distribution)
Keith Maracle, Ogemawahj Tribal Council
Marlene Stiles, Ogemawahj Tribal Council

Via Email:

Fiona Christiansen
Henry Centen

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2007-02-05 1:02 PM

Neegan Burnside Ltd 15 Townline Orangeville ON L9W 3R4 Canada
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NEEGAN BURNSIDE

Memo

DATE	March 1, 2007 FILE NO. FC010428
PROJECT	**Privileged Information – February 21, 2007 Meeting with the Town of Georgina Island** Chippewas of Georgina Island Causeway
PREPARED BY	Cory Jones, P. Eng.
DISTRIBUTION	Via Fax: Buzzy Big Canoe, Chippewas of Georgina Island Keith Maracle, OTC Via Email: Henry Centen Fiona Christiansen

Comments

Fiona Christiansen and I travelled to the Town of Georgina Municipal offices on Wednesday, February 21, 2007. We met up with Buzzy Big Canoe, and had a meeting with Town of Georgina representatives regarding the ongoing Georgina Island Fixed Link Study. The meeting was at the request of Harold Lenters, Town of Georgina Planner, in response to the original background information call Neegan Burnside sent out to potential stakeholders for the project. Also attending on behalf of the Town were Mayor Rob Grossi, Director of Engineering Bob Magloughlen, and Ward 4 Councillor Ken Hackenbrook. Harold had asked for the meeting to clarify what the project was about, and in the interest of good relationships between the First Nation and the Town and the fact this intended to be an open process, Buzzy and Neegan Burnside agreed to the meeting.

The meeting started with Cory introducing the Neegan members and Buzzy to the group, and providing a quick overview of the project. The explanation of the project is that we are completing a pre-feasibility study to identify what further studies need to be completed to finalize a full feasibility study for a fixed link. We are doing this based on the problem Georgina Island presented to us, namely "How do we provide a more reliable transportation alternative to and from the island?"

Fiona then presented what stage we were at. She explained we first took a step back and looked at different ways that the transportation to and from the island could be improved. Out of our preliminary analysis, a fixed link over the water would best meet environmental and transportation criteria. From there, three alternative routes had been identified, and a similar analysis completed. We noted that all of the mainland study areas fall within the limits of Town of Georgina and would have some impact on traffic analysis and potential development corridors along those transportation routes.

From there, the meeting became more of a general discussion. The main discussion points are outlined below:

What is the EA process involved?

At our current phase of the project, this is unknown. Fiona explained that depending on what route was advanced to further study, we would try to use a harmonized EA process for the Municipal, Provincial and Federal concerns. This would be dependent on what types of lands were affected by the preferred route.

What is the Town of Georgina planning for the study area?

Harold mentioned that the area identified appears to be in an area they have identified as a low growth area. No municipal servicing and no secondary planning exist for that area. This could change however depending on the selection of a route, and the outcome of any financial feasibility studies.

Has the local conservation authority been consulted?

Fiona mentioned that not only the Conservation Authority had been contacted, but so had Ministry of Natural Resources (MNR), Department of Fisheries and Oceans (DFO), Region of York, and others. Their response had been formulaic in that they referred us to current public domain plans and information. It was further explained that this was a somewhat expected response given the preliminary nature of the project, and at the appropriate time in the planning and design process, these agencies would be further consulted and become more involved.

What input would the Town of Georgina have on preferred alternatives?

At the appropriate time, the Town would have an opportunity to be involved in the EA process as required. At this time however, if they had any information that would change our preliminary review, based on our initial call for information, it would be very advantageous for us to review it now. We reiterated at this time that the First Nation was willing to work with the Town.

Is it possible to inform community members at this time of the process?

Cory explained that at this time, because everything is preliminary, they didn't feel comfortable going to the mass public since there are currently no answers for questions. The public would also have their opportunity at the appropriate time to be heard.

In general, the meeting went extremely well. All parties were interested in how the development could jointly benefit both the Town and the First Nation. Bob and Harold were to compose an email to Fiona with the background information the Town has, and will keep in contact with her as necessary. The mayor thanked us for taking the time to discuss the project and wished us well.

Cory Jones, P. Eng.
CJ:jh

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NEEGAN BURNSIDE

Minutes of Meeting

Chippewas of Georgina Island
Georgina Island Fixed Link

May 1, 2007

Meeting Date	April 30, 2007
Time	10:00 a.m. until 11:45 a.m.
Location	Chippewas of Georgina Island Administration Centre
File Number	FCO10428

Those in attendance were:

Buzzy Big Canoe	Chippewas of Georgina Island (CGI)
Charles Warren	Chippewas of Georgina Island
Elaine McCue	Chippewas of Georgina Island
Marlene Stiles	Ogemawahj Tribal Council (OTC)
Tony Tino	Indian and Northern Affairs Canada (INAC)
Urmas Madisso	Indian and Northern Affairs Canada
Fiona Christensen	Neegan Burnside Ltd. (NB)
Dan Tomlinson	Neegan Burnside
Cory Jones	Neegan Burnside

The following items were discussed: **Action By:**

1.0 The meeting was called to order by Buzzy. Cory passed around a contact list to obtain names and contact information of attendees. A copy of that list is attached.

1.1 Cory introduced Fiona as the environmental lead for Neegan Burnside on the project and Dan Tomlinson as the project hand in configuring the surveys.

Action By:

2.0 Minutes from the previous meeting were distributed and it was asked if anyone had any questions or concerns. Marlene mentioned that neither she nor Keith appeared to have received the fax of the previous meeting minutes. Cory explained that their names were on the list and was surprised they had not received it. Cory assured Marlene that it would not happen again.

3.0 Cory reviewed the meeting that he, Fiona and Buzzy had attended with the Town of Georgina. In general, the Town had expressed an interest in the process through their planner and the Project Team had agreed at the second meeting that in the interests of good relations, the meeting should take place. Specifics of the meeting are attached as per Buzzy's request (see attached Memo). Cory and Fiona felt the meeting was well received and found the process extremely worthwhile.

Buzzy also mentioned he had spoken to the Mayor at a later time informally and the Mayor was supportive of both a fixed link project and a potential wind generation project.

3.1 Cory stated that the survey was complete and that there would be time to go over the results later in the meeting.

3.2 Cory then handed over the meeting to Fiona to address any environmental concerns. Fiona stated the environmental review was complete, except for the information pertaining to the transportation review. Cory mentioned that Neegan Burnside was well on the way to completing the transportation aspects, but was still awaiting some information from the First Nation. Buzzy replied by saying that information would be produced as soon as possible. CGI

3.3 Tony mentioned the option of considering alternate routes to place a fixed link. Cory explained that three options had already been considered, but option one (Duclos Point) had already been removed due to the property issues involved.

3.4 Urmas inquired if a biological inventory would be part of the preliminary evaluation. Fiona replied by saying it would not be part of the preliminary study, but a Preliminary CEAA screening would be included. Fiona also mentioned there are certain studies which will need to be completed that are time sensitive, mainly involved with the spring and that time may have elapsed.

		Action By:
3.5	Tony mentioned the idea of possible funding through the Ministry of Transportation (MTO). Tony explained a gas tax refund that could be available, but still needed to contact Paul Zimmerman at the MTO for further details.	
3.6	Cory explained that the transportation review in regards to the height of the causeway was ongoing. Charlie mentioned that usage at Alternative No. 2 never includes sailboats due to the shallow water depths. Cory stated at this time Neegan Burnside would move forward utilizing the worse case scenario presented by the Coast Guard.	
4.0	Cory went over survey results mentioning that the general reply from the survey was positive. The summary results were presented next. A list of key statistics were highlighted and presented to the group with the option of asking questions or stating concerns. Cory also provided the group with the option of contacting him for further questions on the survey.	NB
4.1	Tony asked Cory if he could get the exact number of absentees from the school. Cory said he would follow-up.	NB
	The issue of questioning service providers (i.e. propane, gas, etc.) was also reviewed. Cory noted that this was a further study that would be identified.	
5.0	Marlene questioned where Neegan was at in terms of completion. Cory explained that the Final Report would be available by the end of June with the draft being prepared three weeks in advance provided the transportation data was forthcoming from the First Nation. Fiona stated that the draft would include the preliminary screening.	NB/CGI
6.0	Cory opened up the meeting to discussion.	
6.1	Tony mentioned that currently his office would find it difficult to provide capital dollars for a project of this magnitude. As well, funding to complete the Final Feasibility Study would need to be reviewed. It had been hoped that the initial outlay would have been sufficient. Cory explained that the two step approach of defining the project and reducing the scope of options to be carried through to full feasibility should reduce the overall costs from a feasibility study started from a standing start.	

Action By:

6.2 During a break, Elaine McCue mentioned the current island landfill. Apparently, it is reaching the end of its useful life and the option of transporting it to the mainland would be worth reviewing further, if a fixed link became a reality.

6.3 Fiona mentioned a stakeholder meeting to review the Draft Report may be advantageous to ensure all potential hurdles are reviewed prior to completion of this phase of the project. Neegan Burnside and the First Nation will review further. NB/CGI

The preceding are the minutes of the meeting as observed by the undersigned. Should there be a need for revision, please advise within seven days. In the absence of notification to the contrary, these minutes will be deemed to be an accurate record of the meeting.

Minutes Prepared by:

Neegan Burnside Ltd.

Cory Jones, P. Eng.
CJ:jh
Attach. - Contact Sheet
- Memo (dated March 1, 2007)

Distribution – via fax only:

Mr. Buzzy Big Canoe – Chippewas of Georgina Island (for distribution)
Mr. Keith Maracle, M.Eng., P.Eng. – Ogemawahj Tribal Council
Ms. Marlene Stiles – Ogemawahj Tribal Council
Mr. Tony Tino, Economic Development Advisor – Indian and Northern Affairs Canada
Mr. Urmas Madisso, Environment Officer – Indian and Northern Affairs Canada



Fiona Christiansen/RJB
29/Nov/2006 09:25 AM

To Cory Jones/RJB@RJB, Henry Centen/RJB@RJB
cc
Subject Fw: Proposed Fixed Link Study - Chippewas of Georgina Island First Nations

FYI

Fiona Christiansen M.Sc.,
EA Specialist

R.J. Burnside & Associates Limited
292 Speedvale Ave W, Unit 7
Guelph, ON
N1H 1C4
Canada
Tel: 519 823 4995
Cell: 519 820 1396
Fax: 519 836 5477
fchristiansen@rjburnside.com
----- Forwarded by Fiona Christiansen/RJB on 11/29/2006 09:25 AM -----



"DeMichele, Michael \(MTO\)" <Michael.DeMichele@ontario.ca>
29/Nov/2006 09:18 AM

To "fchristiansen@rjburnside.com" <'fchristiansen@rjburnside.com'>
cc "Panza, Mario \(MTO\)" <Mario.Panza@ontario.ca>, "Hewitt, Tom \(MTO\)" <Tom.Hewitt@ontario.ca>
Subject FW: Proposed Fixed Link Study - Chippewas of Georgina Island First Nations

Fiona, for any corridor management issues you may contact me, and either myself or Mario Panza, Encroachment Officer will assist you.

Very briefly I would like to make you aware that any work done on a provincial highway will require an Encroachment Permit and any work done within MTO permit control will require a Building and Land Use Permit. Ministry permit control is identified as 45m from MTO right-of-way and a 400m radius from the intersection point of a highway the a roadway.

Michael DeMichele
Corridor Management Engineer (Toronto/Durham & York)
Corridor Management Section
7th Floor, Building D
1201 Wilson Ave.
Downsview, Ontario, M3M 1J8
(416) 235-5661
Email:Michael.DeMichele@ontario.ca

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attachments that arise as a result of e-mail transmission. Thank you.

> -----Original Message-----
> From: Hewitt, Tom (MTO)
> Sent: November 29, 2006 8:23 AM
> To: DeMichele, Michael (MTO)
> Subject: FW: Proposed Fixed Link Study - Chippewas of Georgina Island First Nations
>
>
> PTAA
> -----Original Message-----
> From: Reynolds, Pat (MTO)
> Sent: November 28, 2006 10:44 AM
> To: 'fchristiansen@rjburnside.com'
> Cc: McAusland, Linda (MTO); Jones, Bill (MTO); Hewitt, Tom (MTO); Boot, Susan (MTO); Klowak, John (MTO); Reynolds, Pat (MTO); Carscallen, Charlton (MTO); Currie, Leslie (MTO)
> Subject: Proposed Fixed Link Study - Chippewas of Georgina Island First Nations
>
>
> Fiona:
>
> I have received your letter requesting input from the Ministry of Transportation regarding the above study that your firm, Neegan Burnside Ltd., has been retained to carry out.
>
> Please be advised I will not be the designated contact.
>
> For external planning studies, the appropriate initial contact in the MTO Central Region Office is Mr. Tom Hewitt, Head Corridor Management, (416-235-4267). Mr. Hewitt may also identify additional contacts or a designated contact within Highway Engineering following internal consultation regarding Central Region's interests in the project.
>
> The Head of Highway Engineering for the geographic area in which your project is located, "York/Simcoe" is Ms. Susan Boot, (416-235-4002).
>
> I have made and attached a "pdf" of the material you provided and will be forwarding it with this e-mail to ensure that Central Region offices potentially effected are aware of your request.
>
> With regard to the identification of MTO Head Office interests I have copied Ms. Linda McAusland, Manager, MTO Provincial and Environmental Planning Office (905-704-2473).
>
> As your study involves Georgina Island First Nation I have also advised our Regional Archaeologist, Mr. Charlton Carscallen, (416-235-5489) of your project.
>
> Patrick Reynolds
> Planning & Environmental Office
> MTO Central Region
>
> 416-235-5542 > > <<Georgina Fixed Link Letter.pdf>>
>



Georgina Fixed Link Letter.pdf



Fiona Christiansen/RJB
29/Nov/2006 12:02 PM

To Cory Jones/RJB@RJB, Henry Centen/RJB@RJB
cc
Subject Fw: Chippewa's of Georgina Island First Nation-Preliminary Evaluation of Engineering and Environmental Alternatives Study for a Proposed Fixed Link to the Mainland-Request for Baseline Information

FYI

Fiona Christiansen M.Sc.,
EA Specialist

R.J. Burnside & Associates Limited
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Guelph, ON
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Tel: 519 823 4995
Cell: 519 820 1396
Fax: 519 836 5477
fchristiansen@rjburnside.com
----- Forwarded by Fiona Christiansen/RJB on 11/29/2006 12:01 PM -----



Harold Lenters
<hlenters@georgina.ca>
29/Nov/2006 10:53 AM

To "'fchristiansen@rjburnside.com'" <fchristiansen@rjburnside.com>
cc Stan Armstrong <sarmstrong@georgina.ca>, Bob Magloughlen <rmagloughlen@georgina.ca>, John McLean <jmclean@georgina.ca>, Velvet Ross <vross@georgina.ca>
Subject Chippewa's of Georgina Island First Nation-Preliminary Evaluation of Engineering and Environmental Alternatives Study for a Proposed Fixed Link to the Mainland-Request for Baseline Information

Good morning Ms.Christiansen, this is to acknowledge receipt of your letter dated November 20, 2006 on the above noted matter and to formally request that you add the Town to your list of interested stakeholders. This is certainly a significant project that the Town wishes to participate in and be kept fully apprised of. In your letter, you have requested a variety of information. I think the best approach to handle this is to arrange a meeting with pertinent staff from the Town. In this way we can learn more about the Study process, timetable etc.., provide you with some initial feedback and coordinate the collection of info. you are looking for from us. Please call me to arrange such a meeting. In the mean time, I will circulate a copy of your letter to our CAO, Dept. Heads and manager of Planning for their info.

Harold W. Lenters, M.C.I.P.,R.P.P.
Director of Planning and Building
Town of Georgina
905-476-4301 Ext. 246
Fax: 905-476-4394
hlenters@town.georgina.on.ca

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ForwardSourceID:NT00006EDE



Fiona Christiansen/RJB
01/Dec/2006 09:27 AM

To Cory Jones/RJB@RJB
cc Henry Centen/RJB@RJB
Subject Fw: Proposed Fixed Link Study for Chippewas of Georgina Island First Nation - TC EA 1465

FYI

Fiona Christiansen M.Sc.,
EA Specialist

R.J. Burnside & Associates Limited
292 Speedvale Ave W, Unit 7
Guelph, ON
N1H 1C4
Canada
Tel: 519 823 4995
Cell: 519 820 1396
Fax: 519 836 5477
fchristiansen@rjburnside.com

----- Forwarded by Fiona Christiansen/RJB on 12/01/2006 09:27 AM -----



"Earl, Rebecca"
<EARLR@tc.gc.ca>
01/Dec/2006 09:20 AM

To <fchristiansen@rjburnside.com>
cc
Subject Proposed Fixed Link Study for Chippewas of Georgina Island First Nation - TC EA 1465

Fiona,

Thank you for your letter regarding the above referenced fixed link study (FIle No: FC0 10428). Please in future forward correspondence on this study to the undersigned.

We have reviewed the information, and note the following:

Transport Canada is responsible for the administration of the Navigable Waters Protection Act, which prohibits the construction or placement of any "works" in navigable waters without first obtaining approval. If any of the related project elements or activities may cross or affect a potentially navigable waterway, you are requested to prepare and submit an application in accordance with the requirements as outlined in the attached Application Guide. Any questions about the NWPA application process should be directed to Tim Markus, NWP Officer at (613) 925-1946.

Please note that certain approvals under the Navigable Waters Protection Act or Railway Safety Act trigger the requirement for a federal environmental assessment under the Canadian Environmental Assessment Act.

<<Annex A Navigable Waters Protection Act Application Addresses.doc>> <<TC Application Form.pdf>> <<TC Application Guide.pdf>>
Please contact me should you wish to discuss this further.

Regards,

Rebecca Earl, M.A.Sc.
Environmental Officer
Environment and Engineering
Transport Canada - Ontario Region (PHE)
p: (416) 952-0486
f: (416) 952-0514


Annex A Navigable Waters Protection Act Application Addresses.doc

TC Application Form.pdf

TC Application Guide.pdf

ForwardSourceID:NT0000785E

Annex A Navigable Waters Protection Act Application Addresses

To apply for approval of works or for additional inquiries about the Navigable Waters Protection Act or Program, please contact the appropriate office below.

NWP Regional Office - South Western Ontario

Navigable Waters Protection Program

100 Front Street South,

Sarnia, ON N7T 2M4

NWPA Prescott Office - Eastern Ontario

Navigable Waters Protection Program P.O. Box 1000
401 King St. W
Prescott, ON K0E 1T0

NWPA Parry Sound Office - North Eastern Ontario

Navigable Waters Protection Program
28 Waubeek St.
Parry Sound, ON P2A 1B9

NWPA Kenora Office - North Western Ontario

Navigable Waters Protection Program P.O. Box 649
1100 3rd Ave. S
Kenora, Ontario P9N 3X6

NWP Winnipeg Office - Manitoba

Navigable Waters Protection Program Freshwater Institute
501 University Crescent
Winnipeg, MB R3T 2N6

NWP Prince Albert Office - Saskatchewan

Navigable Waters Protection Program
125 - 32nd Street West
Prince Albert, SK S6V 7H7

NWP Edmonton Office - Alberta

Navigable Waters Protection Program

4253 - 97th Street

Edmonton, AB T6E 5Y7

APPLICATION GUIDE CHECKLIST

Before returning your application form, the following **must** be included otherwise your application will not be processed:

- ☐ Name of property owner & description of the project site
- ☐ Complete mailing address of the property owner
- ☐ Plot or survey plan with project shown & adjacent landowners
- ☐ Map or chart with arrow to show location of project
- ☐ Plan view of the project (with dimensions)
- ☐ Side view of project (with dimensions)
- ☐ Location for disposal of dredge spoils (if applicable)
- ☐ Name of the contractor/firm doing the work (if applicable).

APPLICATION GUIDE

INTRODUCTION

The Navigable Waters Protection Act (NWPA) revised Statutes of Canada, 1985, is one of the oldest pieces of federal legislation. It first became law on May 17, 1882. The principle objective is to protect the public right of navigation by prohibiting the building or placement of any "work" in, upon, over, under, through, or across a navigable water without the authorization of the Minister of Transport. The jurisdiction of the legislature begins at the high water mark. Therefore structures that are between low and high water marks will require approval under the NWPA. The administration of the NWPA was recently transferred to Transport Canada.

Important Notice

An approval granted by the Minister is neither a general approval of construction nor an authorization in respect of any law, excepting the Navigable Waters Protection Act. An authorization may also be required from the Minister under the Fisheries Act; you should contact the Department of Fisheries & Oceans for such a determination. In addition, contact should also be made with local municipal, provincial and other government offices to determine if other approvals will be required for the proposal.

What is a Navigable Waterway?

A navigable water is any body of water capable of being navigated by floating vessels of any description for the purpose of transportation, commerce or recreation. This includes both inland and coastal waters. The authority to determine the navigability of a waterway and consequently the requirement for an application under the NWPA, rests with the Minister of Transport or his/her designated representative.

Examples of Some Types of "Works" Requiring Authorization

- any bridge, boom, dam, causeway, wharf, dock, boathouse, intake, outfall, etc.;
- dredging; dumping of fill, retaining wall, groyne, breakwater;
- submarine or overhead cables, tunnel, pipeline;
- aquaculture facilities;
- any other device, structure, or thing whether similar in character to the above or not.

Permit Process

There are basically two types of processes followed in reviewing an application under the Act:

- **Formal Approval**
  The formal approval process is followed when NWPA officials determine that your work or project poses a substantial interference with navigation. Under the requirements of the Act all bridges, booms, dams, and causeways must be processed by formal approval.

- **Letter of Exemption**
  The exemption process is followed when NWPA officials determine that your work or project does not pose a substantial interference with navigation.

How to Make an Application

1. Application Form - Complete, sign and date the enclosed application form.

2. Site Location - Obtain 6 copies of a map or topographic chart of your area. Please include enough details to simplify the location of the proposed project. If not already shown, add the following:

- Name of the waterbody in which the project is located;
- Location of the proposed project (draw an arrow showing the exact location of the site on the map);
- Approximate latitude and longitude of the project

3. Plot Plan - One (1) copy of your plot or survey plan, showing adjacent property owners (include names), with the location of the proposed work clearly indicated.

4. Plan View (6 copies) - The plan view shows the proposed project as if you were looking straight down on it from above. Provide these drawings, to scale or dimensioned, containing sufficient detail to clearly show your proposed project, including:

- Any existing works presently on your property or adjacent properties such as docks, slipways, breakwaters etc.;
- Existing shorelines;
- Dimensions (length, width, etc.) of the project All dimensions should be from the ordinary high water mark.. See sample sketches for further details;
- Average water depth around the project;
- Scale of drawing.
- North arrow.

5. Profile View or Section View (6 copies) - The profile view is a scale drawing that shows the side, front, or rear of the proposed structure as it would look if you were standing to the side of it; the section view is a scale drawing that shows the proposed structure as it would look if sliced internally for display. Clearly show the following:

- Dimensions of the project, including width, height etc. See the sample sketches for further details;
- The ordinary high water mark (O.H.W.M.) and high water mark (H.W.M.);
- Existing and proposed ground contours;
- Height above the bed of the waterway;
- The type of construction material to be used;
- Scale;

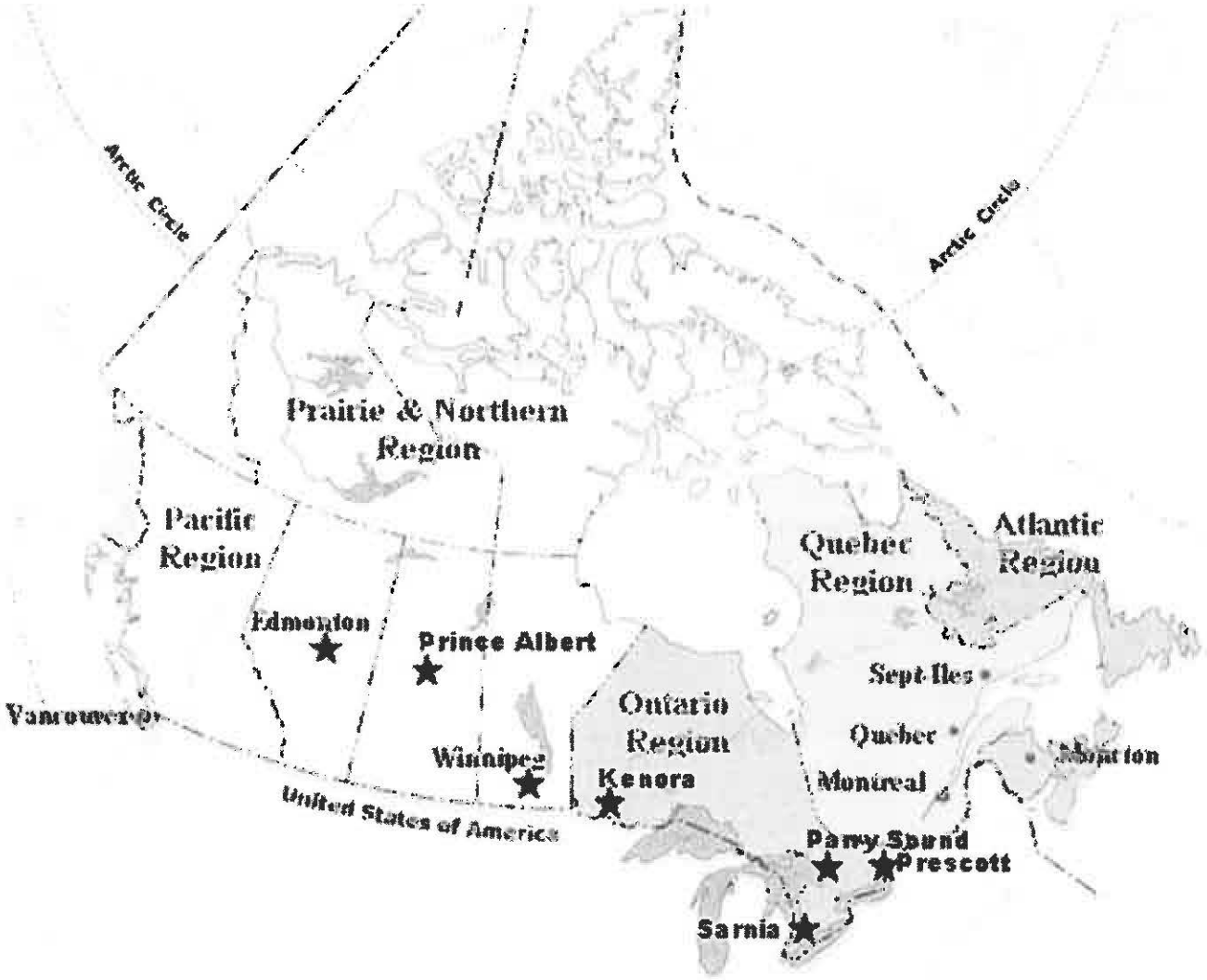
Other information

a) If any information is missing, your application may be delayed; therefore please ensure that your application, plans, etc. are complete.
b) Please be advised that it is recommended that applications for approval under the NWPA be made well in advance of the anticipated start-up date, to allow Coast Guard officials to do a complete investigation and possible environmental assessment of your project, which may take several months.
c) Advise whether you have received or applied for a waterlot lease or permit, and if so, with whom you have applied and when.
d) Provide a proposed construction schedule, advising when you plan on starting the project.
e) If you are not the upland owner, provide the owners consent in writing.
f) Provide an environmental assessment or study if one has been prepared.

Where to Make an Application

In accordance with the map below, please submit applications for approval to the addresses listed on Annex A "Navigable Waters Protection Act Application Addresses".

Ontario Region & Prairie & Northern Region
NWP PROGRAM – AREA OFFICES



Environment Canada | Environnement Canada

Environmental Protection Operations Division – Ontario
Environment Canada
867 Lakeshore Road, P.O. Box 5050
Burlington, Ontario L7R 4A6

March 6, 2007

Our File Notre reference
F-2006-124
Your File Votre reference
FC010428

Fiona Christiansen
EA Specialist
Neegan Burnside Ltd.
292 Speedvale Ave. West, Unit 7
Guelph, Ontario
N1H 1C4

Dear Ms. Christiansen,

Re: Georgina Island Fixed Link Study, Lake Simcoe, Ontario
Proponent: Georgina Island First Nation

This is in response to your letter dated November 20, 2006 requesting that Environment Canada (EC) provide any comments, concerns or background information relevant to the undertaking. This project may also be subject to an environmental assessment (EA) under the *Canadian Environmental Assessment Act* (CEAA). Please be advised that based on the initial information provided by your letter, Environment Canada does not expect to have any obligations as a Responsible Authority under section 5(1) of CEAA.

Based on the limited information provided in your letter we have prepared scoping comments to assist in the assessment of the three causeway location options currently being considered, related to our areas of interest and expertise arising from the legislation and policies within EC's mandate

In general, EC recommends that the Study Report should include an adequate level of information on the proposed project alternatives and environmental conditions at the three locations proposed, in order to properly assess their potential environmental effects, and identify appropriate mitigation for the preferred alternative.

The following comments specifically pertain to the potential effects of the project alternatives during their construction, maintenance and operation related to water quality, air quality and toxics management, migratory birds, and, species at risk; and also include associated recommendations for issues/measures to include in the Study Report, and to implement during these phases of the preferred project alternative. Please note that we have a regulatory interest in these factors as administrators of section 36 of the *Fisheries Act, the Canadian Environmental Protection Act 1999,* the *Migratory Birds Convention Act 1994,* and *Species at Risk Act,* respectively. Environment Canada's departmental interests in these environmental factors and the background context and requirements of relevant legislation are described in an Appendix attached to this letter, and should be carefully referred to when reviewing our comments and recommendations.

Typically, causeway projects such as the one currently proposed (and any ancillary works) would potentially result in a number of environmental effects for which we have specific concern or mandated interest, as outlined below. Our recommendations on how these issues should be addressed are provided for your consideration. We have also provided some pertinent background information, and references to guidelines, codes of practice, etc. that may be applicable to this project.

EcoLogo® Paper / Papier Eco-logo®

1. Surface Water (and Soils and Groundwater) Quality

EC recommends that the Study Report include an assessment of potential effects of the project on surface water, soils and groundwater, notably effects due to erosion and sedimentation, stormwater runoff[1], de-icing chemicals[2], accidental spills, including spills due to improper handling and storage of chemicals (particularly any toxic materials required for project implementation). As a minimum, EC recommends that the following potential adverse effects should be addressed in the Study Report; and, appropriate mitigation be proposed for the preferred project alternative, and also incorporated into construction specifications for project implementation:

- Releases of debris and effluents from construction, fabrication and landscaping activity potentially impacting downstream Canadian Fisheries Waters. These debris and effluents may include (but are not limited to): toxic chemicals and associated leachate, metal debris and corrosion by-products, uncured concrete and cement leachate, contaminated dewatering effluents and wash water, concrete cuttings/debris, sawdust, topsoil, compost and other waste materials;
- Spills resulting from improper equipment refuelling, maintenance, etc., and handling/storage of toxic materials (e.g., fuel, lubricants, paints, solvents, form oils, chemicals, etc.).
- Erosion and sedimentation into Canadian Fisheries Waters during construction due to:
  - Clearing, grubbing, excavation and grading works on land by heavy equipment and other means,
  - Construction/upgrading and use of site access roads, temporary work areas, etc.; and,
  - In-water works and works in the river valley downstream of the proposed weir and powerhouse, including foundation preparation, fill placement, and concreting work associated with the structures proposed for the project.
- Effects of chemically treated wood, if these materials are proposed for structures in or adjacent to water bodies or wetlands, notably for construction of bridges, retaining walls, etc.
  - Any project involving the aquatic use of treated wood may have adverse environmental effects, even where proponents follow the usage recommendations provided by manufacturers and follow published best management practices (e.g. <http://wwpinstitute.org/pdffiles/bmpsinaquatic2.pdf>). It is often advisable not to use treated wood in areas where preservatives could leach from wooden structures and contaminate nearby surface waters and sediments.
- Effects of causeway on water circulation and associated water quality effects due to impaired water circulation in area between the mainland and the Georgina Island.

Based on the foregoing concerns, EC further recommends that:

- Hydrotechnical analyses be carried out to identify potential water quality impacts associated with each of the project alternatives, and any required mitigation be proposed for the preferred option.
- A sediment and erosion control plan should be developed and implemented for the preferred project option.
- Guidelines such as the Ontario Ministry of Environment's Stormwater Management Planning and Design Manual (March 2003) (MOE SWM Manual) be utilized for the design and operation of stormwater drainage and treatment facilities[3] to help reduce the potential

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[1] The road and bridge deck drainage system could release stormwater contaminants, de-icing chemicals applied for winter maintenance and toxic spills) directly into the lake, providing little opportunity for emergency personnel to block off all drainage pathways in the event of accidents (notably tanker truck spills on bridge structures).

[2] The *Synthesis of Best Practices for Road Salt Management* (Transportation Association of Canada, available at <http://www.tac-atc.ca/english/pdf/roadandbridge.pdf>) provides guidance on techniques, configurations, and design parameters to reduce the amount of snow and ice accumulation on bridges and roads, which leads to optimization of salt application. EC suggests the proponent will consider this guidance when designing the roadway. Further guidance on drainage and stormwater management is also available at: <http://www.tac-atc.ca/english/pdf/drainage.pdf>

[3] EC recognizes that the design of effective stormwater management for a causeway would be challenging; nevertheless, the proponent should explore all technically feasible measures to minimize potential water quality impacts due to stormwater runoff and spills.

water quality impacts due to stormwater runoff during operation of the project. The SWM Manual is available electronically at the MOE web site at:
http://www.ene.gov.on.ca/envision/env_reg/er/documents/stormwatermanual/index.htm

- Contingency plans and measures[4] should be in place during implementation of the preferred project option to minimize risk of adverse impacts due to accidental spills to ensure timely and effective responses to spill incidents.

Where the use of treated wood is being considered, the Department of Fisheries and Oceans (DFO) has developed Guidelines to protect fish and fish habitat from treated wood used in aquatic environments in the Pacific Region (Samis and Hutton, 2000; <http://www.dfo-mpo.gc.ca/Library/245973.pdf>), which are designed to ensure the protection of aquatic life from installation through to decommissioning of the treated-wood structure. These Guidelines contain information[5] applicable to freshwater sites in Ontario. For the purposes of the EA (particularly the federal EA), EC recommends that the proponent consider the above noted document, and consistency of any pertinent components with the guidelines.

EC's mandate to advocate for the protection of water quality and environmental quality[6] stems from the pollution prevention provisions of the *Fisheries Act* (which are administered by EC), the *Canadian Environmental Protection Act 1999 (CEPA)*[7], Strategy for Action on Pollution Prevention, the Federal Water Policy and the *Department of Environment Act*. In assessing the significance of any adverse project effects and developing best practices, reference should be made to pertinent environmental quality objectives, guidelines and codes of practices developed under CEPA to prevent pollution. For more information on Pollution Prevention, Preparedness, Response & Spill Reporting Requirements please refer to EC's web site at:
http://www.on.ec.gc.ca/pollution/fpd/cpb/3019-e.html

2. Wildlife and Wildlife Habitat, including Terrestrial, Wetland and Aquatic Ecosystems, Migratory Birds and Species at Risk

EC recommends that an appropriate level of information on the natural environment in the study area be provided in the study report to allow for a proper assessment of the effects of each causeway alternative on wildlife and wildlife habitat, including terrestrial, wetland and aquatic ecosystems, migratory birds and species at risk. A detailed discussion should be included if implementation of the preferred alternative has the potential to cause the loss, and/or disturbance of vegetation and wildlife habitat[8] (including habitat fragmentation), and/or, impairment to any associated ecological functions (particularly if wildlife species frequent the project area, notably migratory birds and species of local, regional, provincial or federal concern, including wildlife species listed under the federal *Species at Risk Act*[9] *(SARA))*. Therefore, EC recommends that the proponent fully assess and document impacts on vegetation, wildlife habitat and wildlife, notably migratory birds and any species at risk that may be identified in the project area (and their habitats), and propose measures to mitigate adverse environmental effects (see further recommendations on this below).

Species at Risk: The nature of species at risk (SAR) may make them particularly sensitive to development projects including causeways and bridges. Typically, existing background information[10] should be collected to determine whether any species at risk are known or expected

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[4] For example, ensure that: (a) refuelling, maintenance and storage of potentially toxic materials are carried out a sufficient distance away from waterbodies and outside of floodplain areas, implementing procedures to avoid contamination of soils, groundwater and surface waters; and, (b) sufficient clean-up materials are available on site to address potential spills, workers are fully trained on spills avoidance, and spills management, and reporting requirements.

[5] Please see the last page of the Appendix to this letter.

[6] Regarding releases of toxic substances

[7] With respect to the potential for the project to release spills/emission of substances that are declared toxic under CEPA

[8] For example, clearing right of ways for access roads, temporary laydown/work areas, etc., during construction and maintenance.

[9] Please refer to page 9 of this letter (Appendix) for more info on SARA and federal EA requirements.

[10] It might be useful to consult the Natural Heritage Information Centre database <http://www.mnr.gov.on.ca/MNR/nhic/nhic.cfm> maintained by the Ontario Ministry of Natural Resources in Peterborough for known occurrences of species at risk.

to use the site or adjacent lands if they are within the zone of influence of the project. EC's species at risk search tool should also be consulted (http://www.speciesatrisk.gc.ca/map/default_e.cfm) to determine if the ranges of any COSEWIC listed species at risk overlap with the site. Our database is showing that Butternut is a highly probable occurrence on the island, and there is also the possibility of finding Least Bittern, Spotted Turtle, Blanding's Turtle, Milksnake, and Branched Bartonia. Also a possibility, but unconfirmed, is a sensitive SARA listed plant species. It should be noted that EC's data for SAR found on Georgina Island is limited and may not be reflective of the actual SAR species present on Georgina Island. Fisheries and Oceans Canada (DFO) may also have some possible aquatic SAR to add to this list and should be contacted at the address provided below.

In order to confirm the presence of SAR a more detailed survey/inventory would need to be completed at the appropriate time for the above species, and over all seasons. If bait traps are used for wildlife surveys in the project area, incidental trapping of SAR may occur. Therefore, the proponent should obtain a permit under SARA to carry out this activity.

For further information on SARA requirements and the sensitive plant species potentially found in the project area please contact:

Ms. Tania Morais
Environment Canada
Canadian Wildlife Services, Conservation Service Delivery
4905 Dufferin Street, Downsview, Ontario M5H 5T4
Telephone: (416) 739-4100

In regard to permit requirements under SARA:

Mr. Andrew Taylor
Conservation Service Delivery
Telephone: (905) 336-4464

In regard to aquatic species at risk potentially occurring in the project area, EC recommends that the following contact at DFO be consulted:

Ms. Lareina Rising
Aboriginal Specialist
Fisheries and Oceans Canada
Species at Risk Program
73 Meg Drive, London, Ontario N6E 2V2
Telephone: (519) 383-1276
Fax: (519) 383-0699

Migratory Birds: Adverse environmental effects on migratory birds could occur through direct mortality or disturbance during construction (including vegetation clearing and grubbing, site access and preparation, staging, infilling and excavation activity), particularly if work is conducted in migratory bird habitat during the breeding season. The removal of vegetation also has the potential to reduce habitat for birds. Additionally, construction or maintenance activities could disturb nearby breeding birds and disrupt breeding.

To avoid incidental take[11], the project works and activities that may affect migratory bird habitat should be timed to occur outside of the breeding season. EC can provide more specific advice on this at a later date.

Based on our interests in migratory birds we recommend the study assessment should also include:

- Information on the proposed works and activities to occur in migratory bird habitat, any habitats to be altered/removed (including any sensitive or otherwise significant areas) and on birds using the project site or vicinity during all seasons.

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[11] For more info on this, please see Appendix (p. 8).

- Mitigation to avoid disturbance or destruction of breeding or wintering migratory birds.

Habitat Restoration: Given our responsibilities under the *Canadian Biodiversity Strategy*, we recommend that re-vegetation of any disturbed or restoration areas be carried out using native plant species indigenous to the area, to the maximum extent possible, in order to preserve the biodiversity of surrounding vegetation and provide suitable migratory bird and wildlife habitat. Use of invasive species should be avoided to the maximum extent possible.

3. Air Quality Issues

This project may cause local air quality impacts due to fugitive dust generation and exhaust emissions resulting from the operation and movement of heavy equipment on site during construction of the preferred project alternative. These air emissions may also result in cumulative regional air quality impacts in the short term.

Please note that heavy equipment/vehicle exhaust emissions contain contaminants which include, but are not limited to: carbon monoxide (CO), nitrogen oxides (NOx), sulphur dioxide (SO_2), fine particulate matter ($PM_{2.5}$, PM_{10}), polycyclic aromatic hydrocarbons (PAHs), benzene, 1,3-butadiene, formaldehyde, acetaldehyde and volatile organic compounds (VOCs). Most of these substances are designated as toxic under the *Canadian Environmental Protection Act (1999)* (CEPA). Emissions of these and other deleterious substances may potentially occur during the construction and operational (maintenance) phases of the project due to operation and movement of heavy equipment and/or wind action on loose or dusty materials (e.g., soils, stockpiled materials, dried up mud tracked along access routes, etc.).

EC recommends that the Study Report include an assessment of potential air quality impacts and propose mitigation and monitoring to address air pollution through dust and machinery, including air emissions from heavy equipment, vehicles and machinery, including any rock or concrete crushing/batching operations.

For construction, the proponent may wish to reference "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005, prepared by Cheminfo Services Inc. for Environment Canada" as one source of mitigation measures and best work practices. An electronic copy of the document is attached for use by the proponent, however please be advised that a final revision may occur as a result of discussions with stakeholders.

EC recommends that all feasible measures[12] should be taken by the proponent to minimize air emissions due to the preferred project alternative during the construction phase so that air quality (and surface water quality) and any sensitive biological (including human) receptors downwind are not unduly impacted.

EC's mandate to advocate for the protection of air quality stems from our responsibilities under CEPA, and the *Department of Environment Act*. Also, in assessing the significance of any adverse project effects and developing best practices, reference should be made to pertinent environmental quality objectives, guidelines and codes of practices developed under CEPA to prevent pollution.

Therefore, EC recommends that the above potential impacts on air quality be considered in the Study Report and that appropriate mitigation and monitoring be proposed and implemented to prevent and/or minimize any adverse environmental effects.

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[12] EC expects that construction impacts can be substantially mitigated using commonly applied measures; for example: dust suppression by water spray, well maintained and up-to date- equipment - engines and exhaust systems, temporary fencing around high intensity work areas adjacent to sensitive receptors, etc.; and, by conforming to any pertinent environmental codes of practice/guidelines. Air emissions for construction equipment could be further reduced by including contract provisions such as: requiring motorised equipment to meet design specifications for emission controls, etc. consistent with provincial Drive Clean standards, and, by limiting idling of any equipment on site to an absolute minimum.

Based on the foregoing considerations, EC recommends that the assessment of project alternatives consider all valued ecosystem components (VEC's) potentially impacted by the project; and that appropriate mitigation measures and monitoring should be proposed and implemented for the preferred alternative to fully address any adverse environmental impacts identified in the project assessment, (notably those described in our comments above), including any cumulative impacts on the VEC's.

EC also recommends that environmental protection plans be prepared for the preferred project alternative consistent with our above recommendations (e.g., plans to protect water quality: erosion and sediment control and spills contingency plans[13]; plans to facilitate protection of wildlife/sensitive habitats and air quality; monitoring plans; and, that construction environmental specifications incorporating these measures be developed and implemented for the preferred project alternative.

If an assessment of the preferred project is initiated under CEAA, EC requests the opportunity to participate in the federal EA review as an expert Federal Authority per section 12(3) of CEAA. EC expects that its scoping advice would also be pertinent to a federal EA screening if CEAA is triggered.

This advice does not relieve the proponent from meeting the requirements of the federal *Fisheries Act*, including subsection 36(3), the *Migratory Birds Convention Act*, the *Species at Risk Act*, or any regulations made under the *Canadian Environmental Protection Act* that are applicable to the project. Information and comments should not be construed as a fettering of the government's ability to make decisions and/or enforce any applicable regulations.

Please note that I will be coordinating EC's review of the environmental assessment of this project, therefore any further correspondence should be forwarded to me.

Please contact me at the address referenced in this letter if you wish to discuss the above comments.

Yours sincerely,
<Original signed by>

[redacted] A. Shaw
Environmental Assessment Officer
EA Unit
Ph: (905) 336-4957 Fax (905) 336-8901
E-mail: michael.shaw@ec.gc.ca

cc.
S. Allan, EC, EPOD, EA Unit
T. Morais, EC, CWS
H. Strathearn, EC, EPOD, FP Unit

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[13] A spills contingency plan should also be developed and implemented by the proponent for the operational phase of the causeway to help minimize the risk of spill releases to Lake Simcoe and facilitate effective responses, clean-up and monitoring of any long term effects of any spill incidents.

APPENDIX

Regulatory and Policy Context for Environment Canada's Comments and Advice[14]

Environment Canada's mandate to protect the environment and to actively promote sustainable development extends beyond the Department's legislated responsibilities for undertakings that trigger the *Canadian Environmental Assessment Act*. Our review and comments are related, but not limited, to our areas of interest and expertise arising from the following legislation, policies and agreements. More information is available on-line, as indicated in the footnote references below.

1. Legislation

Department of Environment Act

http://laws.justice.gc.ca/en/E-10/text.html

The *Department of Environment Act* provides Environment Canada (EC) with general responsibility for environmental management and protection. Its obligations extend to and include all matters over which Parliament has jurisdiction, and have not by law been assigned to any other department, board, or agency of the Government of Canada as related to: preservation and enhancement of the quality of the natural environment (e.g. water, air, soil), renewable resources including migratory birds and other non-domestic flora and fauna, water, meteorology, and coordination of policy and programs respecting preservation and enhancement of the quality of the natural environment.

The *Department of Environment Act* states that EC has a mandated responsibility to advise heads of federal departments, boards and agencies on matters pertaining to the preservation and enhancement of the quality of the natural environment. This responsibility is reinforced as per subsection 12(3) of CEAA, which states that federal departments must provide specialist and expert information or knowledge to other federal departments or review panels.

Canadian Environmental Protection Act, 1999

http://www.ec.gc.ca/CEPARegistry/subs_list/
http://www.ec.gc.ca/CEPARegistry/policies/

The Canadian Environmental Protection Act, 1999 (CEPA) contributes to sustainable development through pollution prevention and protects the environment, human life and health from the risks associated with toxic substances. Key parts of CEPA include:

- public participation;
- information gathering, objectives, guidelines and codes of practice;
- pollution prevention;
- controlling toxic substances;
- animate products of biotechnology;
- controlling pollution and managing wastes including nutrients, protection of the marine environment, disposal at sea, fuels, vehicle engine and equipment emissions, international air pollution and international water pollution, and hazardous and non-hazardous waste;
- environmental matters related to emergencies including requirements for environmental emergency plans;
- government operations - federal and aboriginal lands including regulations to close any regulatory gap between federal and provincial requirements; and,
- enforcement.

The Canadian Environmental Protection Act, 1999 enables the government to manage a toxic substance throughout its life cycle. Provisions under CEPA require Environment Canada, under certain conditions, to develop a "regulation or preventive or control instrument" for a substance that

[14] Only those most pertinent to our review advice on this project are included in this appendix.

is found to be "toxic" under the Act. CEPA further requires the virtual elimination of anthropogenic releases to the environment of substances that are declared toxic and that are bioaccumulative and persistent. CEPA also establishes the requirements for the assessment of chemicals, polymers and products of biotechnology, prior to import or manufacture of substances not on the Domestic Substances List.

Fisheries Act

http://www.ec.gc.ca/ele-ale/policies/c_and_e_fisheries_act/main_e.asp.

Environment Canada's mandate to advocate for the protection of water quality stems from the pollution prevention provisions of the *Fisheries Act*, which are administered by EC. Please be advised that the Compliance and Enforcement Policy for the Habitat Protection and Pollution Prevention Provisions of the *Fisheries Act* states that compliance with the federal *Fisheries Act* is mandatory. Subsection 36(3) of the *Fisheries Act* specifies that, unless authorized by federal regulation, no person shall deposit or permit the deposit of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water. Proponents should note that only a federal regulation under the *Fisheries Act* or another Act of Parliament can authorize a discharge of a deleterious substance; no federal permit, provincial, territorial or municipal regulatory permit or approval allows for exemption from the *Fisheries Act*.

In the application of the *Fisheries Act*, court cases have accepted that a discharge or effluent that is acutely lethal to fish is deleterious. In other words, results of tests designed to determine whether fish will die in an effluent or discharge within a specified time period will determine one aspect of deleteriousness. However, any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat is also deleterious. For example, substances (such as sediment) that smother nesting areas or spawning grounds, or interfere with reproduction, feeding or respiration of fish at any point in their life cycle are also considered deleterious. In general, any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat may be considered deleterious.

The act of depositing a deleterious substance should be considered a violation of the *Fisheries Act*, regardless of whether the water itself is made deleterious by the deposit. Subsection 36(3) of the *Fisheries Act* makes no allowance for a mixing or dilution zone. Any measurements or tests to determine whether something is deleterious should be done where the substance is at its highest concentration, typically at the point of discharge to the receiving water.

Migratory Birds Convention Act, 1994

http://www.cws-scf.ec.gc.ca/legislations/laws1_e.cfm

The disturbance, destruction or taking of a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird are prohibited under section 6 of the *Migratory Bird Regulations* (MBRs), under the authority of the *Migratory Birds Convention Act, 1994* (MBCA)*. "Incidental take" is the killing or harming of migratory birds due to actions, such as economic development, which are not primarily focused on taking migratory birds. No permit can be issued for the incidental take of migratory birds or their nests as a result of economic activities.

Under section 5.1 of the MBCA, no person shall deposit or permit to be deposited oil, oil wastes or any other substance harmful to migratory birds in any waters or any area frequented by migratory birds.

---

* Please note that amendments to the MBCA in Bill C-15 came into force on June 28, 2005. This pollution prohibition was previously contained in s.35(1) of the *Migratory Bird Regulations*, which has now been repealed and is included as s.5.1 of the amended MBCA, 1994.

Species at Risk Act
http://www.speciesatrisk.gc.ca/default_e.cfm

SARA was proclaimed on June 5, 2003 and is intended to provide protection for individuals of wildlife species at risk listed under Schedule 1 of the Act, their residences (dwelling places, such as a den or nest or other similar area that is occupied or habitually occupied by one or more individual during part or all of its life cycle) and critical habitat (that part of areas used or formerly used by the species to carry out their life processes that is deemed essential for survival or recovery). Critical habitat will be identified for each listed species in Recovery Strategies or Action Plans. The prohibitions under SARA came into force on June 1, 2004 and apply to listed (Schedule I) endangered and threatened species for all federally protected aquatic species and migratory birds (including their residences) found anywhere, as well as to all endangered and threatened species, when found on federal lands.

One of the purposes of SARA is to to manage species of special concern to prevent them from becoming endangered or threatened. In this context, we recommend that all EAs consider potential impacts on any species listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). http://www.cosewic.gc.ca/eng/sct5/index_e.cfm

The *Species at Risk Act* (SARA) has resulted in a consequential amendment to the *Canadian Environmental Assessment Act* (CEAA) that amends the definition of "environmental effect" to clarify that all federal EAs[15] must always consider adverse effects on listed wildlife species, and the critical habitat or residences of individuals of that species.

2. Policies

Federal Policy on Wetland Conservation
http://www.ramsar.org/wurc/wurc_policy_canada.htm

The Federal Policy on Wetland Conservation, 1991 is a shared federal responsibility that directs all departments to sustain wetland functions in the delivery of their programs, services or expenditures. The goals of the Policy include: maintaining the functions and values of wetlands; ensuring no net loss of wetland functions on all federal lands and waters; enhancing and rehabilitating wetlands in areas prone to degradation and loss; recognizing wetland functions in resource planning and management with regard to federal programs, policies and activities; securing significant wetlands; and recognizing and utilizing sustainable management practices to conserve wetlands.

The Federal Water Policy
http://www.ec.gc.ca/water/en/info/pubs/fedpol/e_fedpol.htm

The Federal Water Policy addresses the management of water resources, balancing water uses with the requirements of the many interrelationships within the ecosystem. The policy takes into account the needs of all Canadians in its overall objective to encourage the use of freshwater in an efficient and equitable manner consistent with the social, economic and environmental needs of present and future generations.

---

[15] In addition, section 79(2) of SARA requires that when a federal EA is carried out on a project that may affect a listed species or its critical habitat, adverse environmental effects must be identified, mitigation measures must be taken to avoid or lessen adverse effects, and environmental effects monitoring must be conducted.
Pursuant to Section 79(1) of SARA, if any listed wildlife species, its critical habitat or the residences of individuals of that species may be adversely impacted by the project, the Responsible Authorities for the CEAA assessment must notify the competent Minister responsible for the listed species in writing. Fisheries and Ocean Canada is responsible for aquatic species at risk and can provide advice regarding potential impacts on these species covered under the *Fisheries Act*. Notifications in relation to listed terrestrial species are to be sent to EC, and for this project may be sent to my attention.

To manage Canada's water resources, the federal government has defined two main goals:

- to protect and enhance the quality of the water resource; and,
- to promote the wise and efficient management and use of water.

The policy stresses that government action is not enough. Canadians at large must become aware of the true value of water in their daily lives and use it wisely. We cannot afford to continue undervaluing and therefore wasting our water resources.

3. Agreements

Great Lakes Water Quality Agreement and Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem
http://www.on.ec.gc.ca/greatlakes/default.asp?lang=En&n=FD65DFE5-1

Other legislation, agreements and federal policies respecting environmental matters

The above list is not exhaustive; EC may have other interests in this project not identified at this time based on our review of additional information provided at a later date. For further information on EC's mandated interests, please refer to *http://www.ec.gc.ca/EnviroRegs*.



Fiona Christiansen/RJB
06/Mar/2007 12:21 PM

To Cory Jones/RJB@RJB, Henry Centen/RJB@RJB
cc
Subject Fw: Georgina Island Fixed Link Study, Lake Simcoe, Ontario {EC file# 2006-124} with Cheminfo Attachment

FYI

Fiona Christiansen M.Sc.,
Senior EA Specialist

R.J. Burnside & Associates Limited
292 Speedvale Ave W, Unit 7
Guelph, ON
N1H 1C4
Canada
Tel: 519 823 4995
Cell: 519 820 1396
Fax: 519 836 5477
fchristiansen@rjburnside.com
----- Forwarded by Fiona Christiansen/RJB on 03/06/2007 12:20 PM -----



"Shaw,Michael [Burlington]" <Michael.Shaw@ec.gc.ca>
06/Mar/2007 11:44 AM

To "Christiansen, Fiona" <fchristiansen@rjburnside.com>
cc
Subject Georgina Island Fixed Link Study, Lake Simcoe, Ontario {EC file# 2006-124} with Cheminfo Attachment

As indicated in our prior email, we have attached the reference cited in our letter: "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005, prepared by Cheminfo Services Inc. for Environment Canada".

<<Final Draft -Best Practices AQ Construction & Demolition.pdf>>
Yours Sincerely,

M Shaw

Michael Shaw
Environmental Assessment Officer

EA Unit
Environmental Protection Operations Division Ontario
Environment Canada
867 Lakeshore Road, P.O. Box 5050
Burlington, Ontario L7R 4A6
Ph. (905)336-4957 Fax. (905)336-8901
E-mail:michael.shaw@ec.gc.ca

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http://www.adobe.com/products/acrobat/readstep2.html

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Final Draft -Best Practices AQ Construction & Demolition.pdf
ForwardSourceID:NT0000B8C2

Fiona Christiansen/RJB
04/Apr/2007 01:55 PM

To "Cory Jones" <Cory_Jones@rjburnside.com>, "Henry Centen" <henry_centen@rjburnside.com>

cc

Subject Fw: Chippewa's of Georgina Island First Nation-Preliminary Evalua tion of Engineering and Environmental Alternatives Study for a Proposed Fixed Link to the Mainland-Request for Baseline Information

Fyi
Fiona Christiansen, M.Sc
Senior Environmental Assessment Specialist

R.J Burnside and Associates Limited

----- Original Message -----
From: Harold Lenters [hlenters@georgina.ca]
Sent: 04/04/2007 11:18 AM AST
To: Fiona Christiansen
Cc: Stan Armstrong <sarmstrong@georgina.ca>; Bob Magloughlen <rmagloughlen@georgina.ca>
Subject: RE: Chippewa's of Georgina Island First Nation-Preliminary Evalua tion of Engineering and Environmental Alternatives Study for a Proposed Fixed Link to the Mainland-Request for Baseline Information

Hi Fiona, further to our meeting earlier this year (Feb. 21) on the above noted subject, it was agreed that staff would provide you with some preliminary comments. In this regard, the most significant aspect of a causeway/bridge to Georgina Island would be the impact on municipal roads. Both Black River Road and Hadden Road are local roads under the jurisdiction of the Town. We request that a traffic study be provided based on the ultimate use of the Island to enable us to determine the impact on our roads. We would not expect much change from existing conditions if traffic volumes were similar to what presently occurs with the ferry service. A significant increase in traffic volume will require road improvements and may trigger a Municipal Class EA. The new road on the mainland with route option 2 would probably not be a municipal road but if that were to be the case a Schedule B or C Class EA would be required. It was stated at the meeting that the Island would continue to have its own stand alone water and sewage system.

Another potential concern we have is if and how the bridge/causeway and the ultimate use or uses on the Island and on any Federally owned mainland may serve to influence or affect land use planning in the local area. For example, if the Island served by a bridge/causeway was to support a major tourist attraction, there may be pressure to locate ancillary or other types of uses on the main land. While this is highly speculative at this point, I trust this planning land use issue will be kept in mind as the process unfolds.

We look forward to receiving further information, particularly with respect to the road and traffic issues, as the evaluation study continues. Thanks,

Harold.

-----Original Message-----
From: Fiona Christiansen [mailto:Fiona_Christiansen@rjburnside.com]
Sent: Thursday, February 08, 2007 12:27 PM

To: Harold Lenters
Subject: Re: Chippewa's of Georgina Island First Nation-Preliminary Evaluation of Engineering and Environmental Alternatives Study for a Proposed Fixed Link to the Mainland-Request for Baseline Information

Harold

With regard to your e-mail (below), we believe that we are now in a position to meet with the Town of Georgina to provide you with some additional details regarding our study. We would like to hold our meeting with interested individuals at the Georgina Island First Nation Administration Center. Representatives from the First Nation, the Ogemawahj Tribal Council and Neegan Burnside will be present.

We would be grateful if you could confirm your availability to meet with us during the week of February 19th 2007. We would also be grateful if you could circulate this e-mail to others at the Town, such as the Mayor, who may be interested in our project.

We look forward to hearing from you.

Kind regards

Fiona Christiansen M.Sc.,
Senior EA Specialist

R.J. Burnside & Associates Limited
292 Speedvale Ave W, Unit 7
Guelph, ON
N1H 1C4
Canada
Tel: 519 823 4995
Cell: 519 820 1396
Fax: 519 836 5477
fchristiansen@rjburnside.com
Inactive hide details for Harold Lenters <hlenters@georgina.ca>Harold Lenters <hlenters@georgina.ca>

Harold Lenters
<hlenters@georgina.ca>

29/Nov/2006 10:53 AM

[IMAGE] [IMAGE] "'fchristiansen@rjburnside.com'"
To <fchristiansen@rjburnside.com>
[IMAGE] [IMAGE] Stan Armstrong <sarmstrong@georgina.ca>, Bob
cc Magloughlen <rmagloughlen@georgina.ca>, John McLean <jmclean@georgina.ca>, Velvet Ross <vross@georgina.ca>
[IMAGE] [IMAGE]

E] Subject: Chippewa's of Georgina Island First Nation-Preliminary Evaluation of Engineering and Environmental Alternatives Study for a Proposed Fixed Link to the Mainland-Request for Baseline Information

[IMAGE] [IMAGE]

Good morning Ms.Christiansen, this is to acknowledge receipt of your letter dated November 20, 2006 on the above noted matter and to formally request that you add the Town to your list of interested stakeholders. This is certainly a significant project that the Town wishes to participate in and be kept fully apprised of. In your letter, you have requested a variety of information. I think the best approach to handle this is to arrange a meeting with pertinent staff from the Town. In this way we can learn more about the Study process, timetable etc.., provide you with some initial feedback and coordinate the collection of info. you are looking for from us.
Please call me to arrange such a meeting. In the mean time, I will circulate a copy of your letter to our CAO, Dept. Heads and manager of Planning for their info.

Harold W. Lenters, M.C.I.P.,R.P.P.
Director of Planning and Building
Town of Georgina
905-476-4301 Ext. 246
Fax: 905-476-4394
hlenters@town.georgina.on.ca

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NAVIGABLE WATERS PROTECTION ACT

APPLICATION GUIDE



Navigable Waters Protection
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Suite 703
Sarnia, Ontario, N7T 8B1

Phone (519) 383-1865 Fax (519) 383-1989

Canada

NEEGAN BURNSIDE

Appendix C
Preliminary CEAA Screening

Indian and Northern Affairs Canada - Ontario Region - 2005/2006

Environmental Screening Report

CANADIAN ENVIRONMENTAL ASSESSMENT ACT

This form, when completed in full, constitutes an environmental screening report intended to meet the requirements of s. 16 of the *Canadian Environmental Assessment Act* (CEAA). It contains the following sections:

1) PROJECT IDENTIFICATION
2) LOCATION OF RESERVE & PROJECT
3) PROJECT JUSTIFICATION
4) PROJECT DESCRIPTION
5) CONSULTATION
6) EXISTING ENVIRONMENT
7) ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES
8) CUMULATIVE EFFECTS ASSESSMENT
9) SUMMARY OF ENVIRONMENTAL EFFECTS
10) CEAA SCREENING DECISION
11) KEY REFERENCES & SOURCES
12) LIST OF ATTACHMENTS

The table below will be completed by INAC Ontario Region staff. The proponent should complete the sections that follow, starting with "1. PROJECT IDENTIFICATION" on page 2.

For INAC Use Only

Project Reference #	
Section 5 Triggers	Funding
FEAC (Lead RA)	INAC
Other RAs	Unknown
Other Expert FAs	Unknown
Project also Subject to Provincial EA: Yes/NO	No
CEAR Reference #	
Env Officer	Urmas Madisso
RCM & Directorate	Joan Parrell

1) PROJECT IDENTIFICATION

First Nation:	Chippewas of Georgina Island First Nation
Project Title:	Fixed Link Study (Preliminary Evaluation)
Project proponent(s):	Chippewas of Georgina Island First Nation

2) LOCATION

RESERVE Location:

Relative to the nearest town, highway, lake, etc.

Georgina Island First Nation is located in the southern portion of Lake Simcoe, in the Township of Georgina, Region of York, Ontario. The community is comprised of three islands: Georgina, Snake, and Fox (Snake and Fox island are located to the south west of the project study area). The First Nation community also owns a portion of land on the mainland at Virginia Beach (Figure 1.1, Preliminary Evaluation Report, NBL 2007).

Yes — **All or part of the project is ON Reserve land (YES/NO)**

Definition of Project Area:

The geographical extent of the project, and those areas affected during construction and operation. For example:
- key transportation routes for equipment and materials
- staging & refueling areas
- main activity/construction site, traffic routes, etc.

The proposed study limits are defined by Highway 48 to the south, Sibbald Point Provincial Park to the west, the north shore of Georgina Island and Duclos Point to the east (Figure 1.1, Preliminary Evaluation Report, NBL 2007).

Adjacent Land:

Land use and description to the North, East, South, and West of project.

N:	Georgina Island and Lake Simcoe
E:	Lake Simcoe and Duclos Point
S:	Lake Simcoe and Mainland
W:	Lake Simcoe and Snake/Fox Islands

3) PROJECT JUSTIFICATION

Need for the Project: *Rationale: e.g. what problem is the project going to solve or what opportunity is the project going to provide?*	The long-term goal of the Fixed Link is to address safety concerns for residents, create potential economic and development benefits and provide positive social impacts to the community.
Purpose of the Project: *What is going to be achieved by carrying out the project?*	The fixed link will proved a reliable all-weather transportation (vehicle and passenger) link from Georgina Island to the mainland. This project will affect not only the lifestyle of the community and its members but also cottagers and other visitors to the island.
Alternatives Considered: *Different ways to meet the project need and achieve the project purpose.*	A detailed evaluation of the alternatives considered for this project is provided in the Preliminary Evaluation of Engineering and Environmental Alternatives Report (NBL, June 2007). The following alternative solutions have been considered: • Do Nothing; • Improve existing ferry and ice road operations (larger ferry, ferry schedule, ice breakers, bubble system etc); • Existing Ferry and/or Hovercraft; • Existing Ferry and/or Helicopter; • Existing Ferry and Cable Car; • Fixed Link - Road link (tunnel); • Fixed Link - Road link (bridge and/or causeway combination). The 'Road Link (bridge and/or causeway combination)' was considered the ***preferred alternative*** which has been carried forward. The provision of a Fixed Link through a bridge/causeway combination fully addresses the technical needs of the First Nation and would be financially viable. With the implementation of appropriate mitigation measures this alternative will have limited impacts on the natural and socio-economic/cultural environment. The following alternative fixed link routes/corridors have been considered: • Alternative 1 – South east Georgina Island to Duclos point; • Alternative 2 – South west Georgian Island to Doyle Beach/Virginia; and • Alternative 3 – South west Georgina Island to Virginia Beach (existing ferry route).

Alternative 2 was considered a ***preferred alternative*** which has been carried forward for further assessment. This alternative fixed link route/corridor fully addresses the technical needs of the First Nation and would be financially viable.

Alternative 3 was also considered a ***preferred alternative*** which has been carried forward for further assessment. This alternative fixed link route/corridor fully addresses the technical needs of the First Nation and would be financially viable. No land acquisition would be required for this alternative. This route is also already relatively disturbed due to existing ferry activities/infrastructure, therefore this alternative would result in relatively limited effects to the natural environment. Based on DFO's "no net loss" policy for fish habitat Alternative 3 would have the lowest potential loss to fish habitat based on existing access on both mainland and island access point to the existing ferry.

With the implementation of appropriate mitigation measures Alternative 2 or 3 should have limited impacts on the natural and socio-economic/cultural environment; however additional studies/inventories are required to accurately determine potential effects and mitigation measures.

The following alternative designs for the fixed link have been considered:

- Bridge structure (pontoon);
- Bridge structure (piered); and
- Bridge/causeway combination.

The Bridge/Causeway Alternative was considered a ***preferred alternative*** which has been carried forward for further assessment. This alternative fully addresses the technical needs of the First Nation and would be financially viable. With the implementation of appropriate mitigation measures this alternative should have limited impacts on the natural and socio-economic/cultural environment.

4) PROJECT DESCRIPTION

Proposed Start Date: *(year-month-day, if known)*	Un-Known	**Estimated Completion Date:**	Un-Known
Estimated Total Cost:	Un-Known		
Description/Scope of Project: *(attach/reference supporting material as required)*	Georgina Island is located approximately 3km from the mainland. During the months of April to December, when there is open water on Lake Simcoe, the Georgina Island First Nation relies on a passenger and vehicle ferry to transport community members between the island and the mainland. There are also approximately 330 cottagers located on Georgina Island and island visitors who rely on the ferry service. The ferry is operated by the First Nation and has a capacity of 99 passengers and 15 vehicles. The weight capacity is 70 tons. The ferry has a regular daily schedule consisting of 10 trips per weekday and seven trips per weekend day. Community members travel on a daily basis to the mainland for access to schools, shopping and employment. Access to the Island is required for construction vehicles, residents, cottagers and tourists. Docks for the Virginia and Georgian Island dock terminals have been reconstructed to accommodate the ferry. Construction involved additional sheet piling and channel dredging of Lake Simcoe to accommodate the draft of the ferry. The existing ferry became operational in 2001. During 2001 there were some unexpected operational problems that caused the ferry to be out of operation for one week in April and two weeks in July. Passenger traffic numbers did not recover following the July operational problems. During the freeze and thaw months of January to March, the ferry is winterized. Transportation is limited during this time to using a scoot, a 12 passenger air-cushioned vehicle, snowmobile, or car across the ice. Vehicles cross on an ice road once the ice thickness is sufficient to accommodate their loading (i.e. about 30 cm minimum ice thickness is recommended for car travel). The scoot is considered a somewhat dangerous vehicle given its size. The Ferry Operation Business Plan (NBL, 2002) recommended that, as this time of year island/mainland transit is considered quite dangerous for the community given the uncertain weather conditions and ice structure of the lake, a secure winter transportation method should be investigated. The proposed fixed link will provide a reliable all-weather transportation (vehicle and passenger) link from Georgina Island to the mainland. This project will affect not only the lifestyle of the community and its members but also cottagers and other visitors to the island.		

Design Criteria

For the purposes of this study, we have assumed that a minimum bridge clearance of about 7 m and span of 50 m would be required to accommodate the marine traffic in this area. Considering the annual average high water mark in Lake Simcoe as being 219.15 m asl, a fixed link structure would require a clearance elevation of approximately 226.15 m. These assumptions are subject to verification during the next stages of study.

Operational and Transportation Criteria

Preliminary cross sections for the causeway, marine navigation bridge and water flow bridge are shown in Figure 8.1 (Preliminary Evaluation Report, NBL, 2007). The cross sections will accommodate single lane closures (while permitting one way traffic) for emergency or maintenance road closures. A design speed of 90 km/h has been assumed, corresponding to a 70 km/h posted speed. Accordingly the fixed link options have been based on the following criteria:

- Road classification – RAU 90;
- Minimum Stopping Sight Distance – 160 metres;
- Equivalent Minimum "K" Factor (crest/sag) – 50/40;
- Maximum Grade – 6%;
- Minimum Radius – 340 metres;
- Pavement Width (For Two Lanes) – 7.5 metres (3.75 m per lane); and
- Outside shoulder width – 1.25 m.

Water Levels and Wave Climate

The fixed crossing will be exposed to waves approaching from the northeast and from the west, and designs must take into account the extreme wave conditions to which the structure will be subjected. No wind or wave analysis has been carried out as part of this assignment, but this work is required as part of the preliminary and final design phases for this crossing. However the following general observations can be made with respect to the wave climate in this area:

- The prevailing winds are from the west in this area and the greatest reach of adjacent open water in Lake Simcoe also lies to the west. These factors dictate that wave impacts would be greater for Alternatives No. 2 and 3, than they would for Alternative No. 1, which is relatively shielded by the island.
- The wave heights will be limited by the relatively shallow nature of the crossing sites, with the shallow water inducing breaking of the waves. Waves that experience breaking conditions may be in the order of 3.0 m in height, while waves near to the breaking conditions may be in the order of 5.0 metres high.

For the purposes of this study, a preliminary causeway elevation has been assumed to be 224.15 m, based on the following:

- Annual High Water Mark – 219.15 m; and
- Allowance for waves, seiching etc. – 5.0 m.

Since it is possible that waves may still overtop the structure during extreme high water levels, the causeway design should accommodate this potential. A cost/benefit assessment should be included with the detailed designs to assess the elevation requirements and the impacts on the structural designs.

As shown in Figure 8.2 (Preliminary Evaluation Report, NBL, 2007), a preliminary causeway design may include the following:

- A two lane, paved roadway built on interior fill of sand and gravel, which is contained between stone fill dykes.
- Maximum dyke sideslopes of 1.5:1.0, protected with armour stone (10 tonnes average). Type 1 armour stone erosion protection should be placed on the west side (i.e. side of prevailing winds) and type 2 armour stone erosion protection placed on the east side slopes.

As shown in Figure 8.2 (Preliminary Evaluation Report, NBL, 2007), a preliminary bridge design may include the following:

- A concrete slab deck on steel plate girders with a total width of 10.96 m, with spans of approximately 50 metres. The structural depth (vertical thickness of the concrete deck slab and steel plate girders) will be about 2.4 metres.

The above noted designs are preliminary only, and for comparative purposes in this present study. Geotechnical and hydrotechnical assessments will be required to confirm the required final design as part of the detailed design work.

Scope of Assessment

Environmental Components

The scope of assessment includes the environmental effects of the project as defined in Section 2 Paragraph 16 (1)(a) of the CEAA, including the environmental effects likely to result from the project in combination with other projects that have, or will be carried out. Table 1 provides a matrix, which facilitates the identification of the environmental components to be included in the scope of assessment.

	Temporal and Spatial Boundaries The temporal boundary of this EA is defined by the construction and maintenance of the fixed link. The spatial boundaries are defined by the construction envelope directly associated with the fixed link, including associated approaches, storage areas and related works, access or other undertakings directly associated with the repair.
Project Management Team Members & Affiliation:	Marlene Stiles, Georgina Island First Nation. Keith Maracle, Engineer, Ogemawahj Tribal Council. Urmas Madisso, Environmental Officer, INAC. Tony Tino, Economic Development Program Advisor, INAC. Neegan Burnside Ltd – Engineering Design and Environmental Consultant.

Table 1: Project-Environment Interaction Matrix

Component	Surface Water/Hydrology	Ground Water	Soils and Sediments	Air Quality and Climate Change	Noise/Vibration	Terrain/Topography	Vegetation	Wetlands	Fish and Fish Habitat	Wildlife/Habitat	Migratory Birds	Species at Risk/Habitat of Special Concern	Heritage/Archaeology	Aboriginal Use of Traditional Lands/Resources	Land Use	Human Health and Safety	Socio-Economic Conditons	Transportation and Navigation	Other
Construction Activities																			
Fixed link - causeway	X	P	X	P	X	X	X	X	X	X	P	P	P	P	X	X	X	X	
Fixed link - bridge	X	P	X	P	X	X	X	X	X	X	P	P	P	P	X	X	X	X	
Road upgrades	P	P	X	P	X	X	X	X	X	X	P	P	P	P	X	X	X	x	
Operation Activities																			
Increase in traffic volume				P	P										P	P	P		
Route maintenance and repairs	P		P	P	P		P	P	P	P	P	P	P			P	P	P	
Decommissioning/Abandonment																			
N/A																			

X = Presence of project-environment interaction
P = Potential project-environment interaction
Blank = Absence of project-environment interaction

5) CONSULTATION

(a) Government departments, agencies, non-governmental organizations, Tribal Councils, etc.

A request for baseline information was sent to the following agencies on November 20th 2006. A summary of any responses received are provided below.

Department/Agency	Response
Ministry of Environment, Central Region Office	No response received to date.
Ministry of Environment, York - Durham District Office	Requested that they receive a copy of future correspondence.
Ministry of Natural Resources - Aurora District Office	Invited NBL to their office/library to make copies of relevant information. Provided wetland and greenbelt mapping. Stated that project may trigger reviews and/or approval requirements pursuant to provincial legislation such as the Public Lands Act, Environmental Assessment Act and the Planning Act. Stated that they would welcome the opportunity to participate in a meeting.
Lake Simcoe Region Conservation Authority	Forwarded information request to DFO. Stated MNR could provide information. Other issues will be dealt with as part of the LSRCA Permit process.
Ministry of Transportation, Transportation Planning and EA Unit	No response received to date.
Ministry of Transportation, Provincial and Environmental Planning Office	No response received to date.
Ministry of Transportation Corridor Management Section	Any work done on a provincial highway will require an Encroachment Permit and any work done within MTO permit control will require a Building Land Use Permit. Ministry permit control is identified as 45 m from the MTO ROW and a 400 m radius from the intersection point of a highway.
Ontario Realty Corporation	No response received to date.
Environment Canada	Does not expect to have any obligations as an RA under CEAA. Provided recommendations with respect to surface water quality, wildlife and wildlife habitat and air quality issues. Would like to be kept informed about the project.
Department of Fisheries and Oceans	Confirmed that they would like to be kept informed about the project and would be available to participate in project meetings. Stated that they may be an RA within the federal EA process. DFO require additional information with regard to the type of crossing structure before they can provide additional comments. DFO stated that LSRCA and MNR have fisheries data for the study area.

Transport Canada - Marine	Provided Navigable Waters Protect Act (NWPA) guidelines.
Transport Canada - Ontario Region, Canadian Coast Guard Central & Arctic Region HQ	Confirmed that Transport Canada is responsible for the administration of the Navigable Waters Protection Act. If any of the related project elements or activities cross or affect a potentially navigable waterway we are requested to prepare and submit an application.
Health Canada	No response received to date.
Town of Georgina	Confirmed that the Town would like to participate in the project. Requested a meeting to provide information and learn about the study process. Provided follow-up preliminary comments from meeting. Concerned with regard to impact on municipal roads. Both Black River Road and Hadden Road are under the jurisdiction of the Town. Requested that a traffic study be provided based on the ultimate use of the Island to enable the Town to determine the impact on roads. A significant increase in traffic volume may require road improvements and may trigger a Municipal Class EA. If the Island was to support a major tourist attraction as a result of the bridge/causeway, concerned with regard to potential pressure to locate ancillary or other types of uses on the main land. Would like to ensure that planning land use issues will be kept in mind.
York Region	Referred to maps 2-4 of the Official Plan. Stated that potential 'landing locations' are located within the Rural Policy Area. Also listed Shoreline Area Policy/Greenbelt Plan.
Ministry of Culture	Identified that the project may have the potential to impact archaeological sites. Recommended that a cultural resource assessment (land and marine) is undertaken once the preferred alternative has been determined. The assessment should included the ROW, construction impacts, detours, access roads, storage and staging areas etc.
Ministry of Tourism and Recreation – Central Area	No response received to date.
Canada Coast Guard, Central Region	No response received to date.

(b) Public Consultation, including First Nation Community Members

Meetings were held with The Chippewas of Georgina Island First Nation Committee Members on the following dates:

- November 1st 2006;
- January 25th 2007; and
- April 30th 2007.

A meeting was held with the Town of Georgina on February 21st 2007. A copy of the meeting minutes is provided in Appendix B.

A questionnaire was sent to First Nation community members, questionnaires were returned on March 9th 2007. A summary of the main comments received are presented below. Copies of the completed comment forms can be provided on request.

A total of 80 questionnaires were returned (54 from on-reserve residents and 26 from off-reserve residents).

Respondents identified that the main reason they travel to the mainland is for shopping and going to the doctor or dentists (50% or respondents).When asked how many times they use the ferry and ice road when it is operational, 44% of on-reserve respondents confirmed they use the ferry daily, while 78% use the ice road daily. This difference is potentially related to the convenience of using the ice road at any time and the cost of using the ferry. Alternative forms of transportation include private boat, ATV and snowmobile. Respondents noted average lost school days of 10 per year and 11 lost work days due to transport downtime or inaccessible periods for the current transportation.

Respondents were asked to rank their three most preferred alternative solutions (listed in Section 6.3). The most preferred alternative was road link through bridge followed by road link through tunnel, followed by improvements to the existing ferry and ice road.

Respondents were asked to indicate if they had a preference for alternative crossing route locations 1 (Duclos point), 2 (Doyle Beach), or 3 (Existing ferry route). The majority of on-reserve respondents preferred location 2, followed by location 3. Off-reserve respondents preferred location 3, followed by location 1.

Respondents were asked on a scale of 1 (none) and 10 (strong) how much they supported the idea of a fixed link, 67% on-reserve and 66% off-reserve strongly supported a fixed link (with a rank of 10).

The main advantages to a fixed link were identified as convenience, safety, medical/emergencies and economic development. Disadvantages identified included none, unwelcome guests, traffic and crime rate. When asked about potential use of the fixed link 78% on-reserve and 100% off-reserve responded that they would go to the mainland more if a fixed link was available. 87% of on-reserve respondents see the fixed link as increasing employment opportunities for local residents due to convenience and reduced costs. 84% of on-reserve respondents see the fixed link as increasing education opportunities. 77% of on-reserve respondents and 80% of off-reserve respondents thought that people would move back to the island if a fixed link was provided.

6) EXISTING ENVIRONMENT

Photographs of the existing environment are provided in Appendix C.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
6.1 PHYSICAL FEATURES - VALUED ECOSYSTEM COMPONENTS	
Topography/Terrain: *(hilly, flat)*	Terrain within the study area is predominantly flat.
Soil and Geology: *(soil type, quality and use; bedrock geology)*	Georgina Island First Nations Reserve is underlain by limestone bedrock which rises 8-10 metres above the lake on its northwestern and northeastern points. On these points the bedrock is covered by only 10 to 15 cm of sandy or clay loams. The bedrock is exposed as a cliff along the steep slopes of the north shore. Two former embayments along this shore have a series of post-glacial cobble beach ridges. To the south, the island slopes down into the lake with much of the land only 0.5 to 3 meters above the lake. A former embayment along the southeast side has accumulated thick organic deposits in excess of 40 cm deep. Off the south shore, there are shallow silts over clay and, off the island's southwest corner; currents have deposited a series of small islands and spits known as the Sand Islands (Varga et al., 1998). Georgina Island is part of the Drumlinized Till Plain Physiographic Unit. The surface soil cover consists of Otonabee sandy loam occupying gentle sloping areas and the King clay series found in more steeply sloping areas, which cover approximately 90% of the island. The soils are predominantly loam-textured with clays in the northern portion. The main soil type developed from loamy glacial till, is well drained, and occurs on moderately sloping topography. Because of these slopes, the soil is susceptible to sheet erosion. The clay soils were derived from till deposits intermixed with glaciolacustrine sediments and are well drained occurring on smooth, moderately sloping topography. This soil type is also susceptible to erosion. The remainder of Georgina Island is composed primarily of loam-textured soils similar to those described above. Additional soils surveys will be undertaken during the next phase of the study.
Surface Water & Bathymetry: *(presence & quality)*	Lake Simcoe is in the Severn River watershed and is part of the Trent-Severn waterway. Water levels and flows are managed by Parks Canada. Dam settings are based on the establishment of trends, extremes and averages from level recording stations and from streamflow and precipitation gauges. Lake Simcoe has been managed using a rule curve, in effect since 1918, which serves as a target or guide for water levels throughout the year. Due to its large size, Lake Simcoe reacts relatively slowly to climatic conditions and stop-log changes. Flows are also coordinated on the Black River to reduce the threat of flooding downstream on the Severn River and Sparrow Lake.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
	The minimum depth is 1.8 metres in the Trent-Severn waterway, between the locks in Peterborough and the outfall to Georgian Bay at Port Severn. The minimum overhead fixed bridge clearance is 6.7 m (22 ft.) in the main Trent-Severn waterway channel. The locks along the waterway open in mid May. The entrance of the waterway into Lake Simcoe is located about 13 km to the north and east of Georgina Island. The exit of the waterway from Lake Simcoe is at the north end of the lake, crossing under the Atherley Narrows Bridge (clearance 7.0 m) and into Lake Couchiching. Due to the significant area of shoals to the south of Georgina Island in the study area, most cruising boats would travel to the north of Blackbird Point on the northern tip of Georgina Island, rather than following a route to the south of the island. However there are a number of marinas located in Beaverton, Pefferlaw and Virginia Beach that service recreational boats, as well as cottages, homes and a Provincial Park along the shoreline that have docking facilities. The chart datum for Lake Simcoe is 218.7 m, and is defined as a level below which the water level will seldom fall. The average annual high water mark (AAHW) for Lake Simcoe has been determined by the Lake Simcoe Region Conservation Authority (LSRCA) to be 219.15 m asl (Watershed Development Policies, LSRCA, April 2006). Over the past 100 year period, records show that the highest level in the lake was 219.47 m, while the lowest level in the lake was 218.37 m. Annual variation in the water level in Lake Simcoe is about 0.5 m, with higher lake levels occurring in the summer and lower levels in the winter months. In addition seiching (i.e. sloshing of water within the lake following an initial storm surge or setup on one part of the lake) may provide a short term increase in lake levels by as much as 0.15 m. Also waves will increase the depths in localized areas, depending upon the prevailing winds (i.e. prevailing winds from the northwest in the summer and from the southwest in the Fall). The depths from the chart level, as well as marine navigation constraints, are summarized as follows: • Eastern Area (i.e. between Duclos Point and Georgina Island) – Shoals are shown to extend out from both the mainland point and the island in this area, with depths of less than 1.0 m. A marked shoal (Bald Shoal) also exists in the central area of the channel (although not shown on the bathymetry map). Boats can navigate through this area by staying to the north of the central shoal, where the depths are assumed to be in the order of 2.5 m within a relatively narrow channel.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
	• Existing Ferry Crossing Route – The bathymetric information shown pre-dates the dredging work completed in 2001 to accommodate the new ferry, and therefore it is recommended that updated soundings be obtained to confirm depths in this area. However based on the bathymetric information available, the depths along this route were in the order of 1.5 m. • Western Area (i.e. between the southwest corner of the island and Doyle Beach) – A major shoal formation extends over a significant part of this area, in places extending above the surface as the Sand Islands. The Sand Island Shoals have depths of less than 1.0 metre. Nearer to the mainland the depths are also very shallow, in the order of 0.6 m, extending to the area adjacent to Sibbald's Point Provincial Park. An area of deeper channel exists in the central area between the Sand Island shoals and the mainland, and is thought to have depths of about 1.8 m.
Distance to Water:	0 m
Aquatic Sediment/Substrate: *(type & quality)*	Based on the information collected in a 1996 littoral zone study, the south shore of Georgina Island is predominately characterized by gently sloping shorelines of sand and gravel with occasional rubble and muck. Shorelines on the mainland in the study area between Duclos and Sibbald points are characterized as low to moderately sloped foreshore consisting of sandy substrate and occasional muck with mixed gravel to boulder depending on location.
Groundwater: *(local use & quality)*	Groundwater studies will be undertaken during the next phase of the project.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
Climate/Air Quality/Noise: *(local air quality)*	Within Lake Simcoe, precipitation is heaviest from June to January ranging from 79 to 95 mm, with lower amounts of precipitation from February to May ranging from 59 to 70 mm. Total average precipitation is approximately 932 mm annually. The mean average temperature for Lake Simcoe is 5.6°C, with cooler temperatures occurring between October and April ranging from -12°C to 7.4°C, and warmer temperatures occurring between May and September ranging from 13°C to 20.4°C. Air quality within the study area can be characterized by the Ministry of Environment (MOE) Air Quality Index (AQI) reports based on monitoring results from MOE Air Quality Monitoring Stations. The closest air quality monitoring station to Georgina Island is the Barrie Station. The general trend for the AQI in this area, based on 2005 and 2006 data, tends to range from good to very good in January and February, good from March to October with a few poor days in early June and moderate days throughout the summer months. October and November range from good to very good with a few moderate days near the beginning of October. There is a gradual warming in the climate affecting Lake Simcoe that has impacted the ice cover and freeze-up/break-up trends for the Lake. Historical data shows that the lake currently freezes 1.3 days later and breaks up four days earlier than it did 140 years ago (Canadian Council of Ministers of the Environment, 2003). Environment Canada has stated that climate change could reduce water levels in the Great Lakes to lower than they have been in recorded history. These changes will impact shipping, power generation, and wildlife. Even though most climate scenarios predict increased precipitation for the region around the Great Lakes, higher temperatures will mean greater evaporation of water into the atmosphere. This will also mean less snow in winter, so less spring run-off and snow melt entering the lakes. According to researchers, the average temperature in the Great Lakes basin could go up by about 4.5°C by 2055, with slightly larger increases in winter than in summer. Higher rates of evaporation and drier soils would reduce runoff, and water levels in the Great Lakes could fall by an average of between 0.5 m and 1.0 m, according to typical scenarios. Site specific noise and air quality surveys will be undertaken during the next phase of the study.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
6.2 BIOLOGICAL FEATURES - VALUED ECOSYSTEM COMPONENTS	
Vegetation: *(e.g. forest, ground cover, aquatic plants)*	Ecological Land Classification (ELC) and floristic inventories will be undertaken during the next phase of the study.
Wetlands: *(e.g. fens, swamp)*	A site reconnaissance was undertaken within the study area on November 24th 2006. During the site reconnaissance numerous ducks, predominately Mallards, were observed in the wetland located in the south west corner of the study area. Additional surveys will be undertaken within the wetland during the next phase of the study. The proposed project will aim to have no net loss of wetland functions on federal lands and waters.
Fish & Fish Habitat: *(types of habitat and common species found)*	***Fish*** According to MNR data, a total of 58 fish species have been captured and recorded in the Lake Simcoe watershed, of which approximately 20 species have been captured in near shore environments south of Georgina Island by the MNR Lake Simcoe Fisheries Assessment Unit (LSFAU). The LSFAU has conducted numerous sampling programs from 1965 to present in the study area. A summer index netting program was initiated that concentrated mainly on the species composition of the near shore community. Coldwater fish species of Lake Simcoe (Lake trout, Lake whitefish, Lake herring, Rainbow smelt) are frequently captured north of Georgina Island and are not typically observed in areas along the southern shoreline of Georgina Island. Based on previous catch efforts by LSFAU, coldwater species have been captured on the north east corner of the island, and on spawning shoals that encompass the north side of the island. Based on the average depths and fish species captured north of the mainland shoreline between Duclos point, south-west to Sibbald point and south of Georgina Island (southern portion of the Study area), a warmwater to coolwater fishery exists. A review of the NHIC database for the study area did not reveal any fish species listed as endangered, threatened, or vulnerable. The Lake Simcoe whitefish (*Coregonus clupeaformis)* has been listed as threatened under Committee on the Status of Endangered Wildlife in Canada (COSEWIC) status for Lake Simcoe. Based on verbal communication with the MNR (pers comm., Jason Borwick, 2007), Lake whitefish and Lake trout use an area near the northeast corner of Georgina Island for spawning. The species listed in Table 3.3 have either been captured or observed in the southern part (southern shore of Georgina Island to the mainland) of the Study area based on reviewed records from the MNR Aurora District Library. Capture methods in near shore environments consisted of 15m seine netting and deeper areas sampled with trapnets and gill nets. A full fish species list for the Lake Simcoe watershed is presented in Appendix B.

COMPONENT

DESCRIPTION *(describe features; indicate sensitivity to disturbance)*

Table 3.3 – Fish Species Observed in the Study Area

Common Name	***Scientific Name***
Banded Killifish	*Fundulus diaphanus*
Iowa Darter	*Etheostoma exile*
Johnny Darter	*Etheostoma nigrum*
Spottail Shiner	*Notropis hudsonius*
Spotfin Shiner	*Notropis spilopterus*
Emerald Shiner	*Notropis atherinoides*
Longnose Dace	*Rhinichthys cataractea*
Bluntnose Minnow	*Pimephales notatus*
Brook Stickleback	*Culaea inconstans*
Yellow Perch	*Perca flavescens*
Log Perch	*Percina caprodes*
Rock Bass	*Ambloplites rupestris*
Largemouth Bass	*Micropterus salmoides*
Smallmouth Bass	*Micropterus dolomieui*
Pumpkinseed	*Lepomis gibbosus*
Mottled Sculpin	*Cottus bairdi*
White sucker	*Catostomus commersoni*
Rainbow Smelt	*Osmerus mordax*
Northern Pike*	*Esox Lucius*
Muskellunge*	*Esox masquinongy*

**Species known to exist in the study area but were not captured during sampling efforts by LSFAU.*

The main game species of fish encountered in both nearshore and shallow to mid-depth habitats consisted of White sucker, Brown bullhead, Rock bass, Pumpkinseed, Smallmouth bass, Yellow perch. Numerous non-game species (cyprinids) were captured in shoreline seine netting efforts along the southern shore of Georgina Island and the north shore of the mainland between Duclos and Sibbald point. A total of 17 non game species were observed with minnow species being most predominant and possibly a key forage species for local game fish.

Fish Habitat

Georgina Island - Southern Shoreline

In 1996 a littoral zone study was initiated for the shoreline of Georgina Island. Site specific information was collected from Bald point southwest to the southern tip of the island. Information collected during the sampling included: location, water depth, substrate type, vegetation, fish species, number of fish captured or observed and collection methods used. Based on the information collected, the south shore of Georgina Island is predominately characterized by gently sloping shorelines of sand and gravel with occasional rubble and muck. Near shore macrophytes

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
	were not observed but reed beds were noted in some sampling locations. Shallow water environments were more predominant near the south west corner of the island. Young of the year (YOY) perch, rock bass, smallmouth and largemouth bass were captured in near shore seine nets. YOY capture could indicate nearby spawning areas and based on the information from LSFAU, the southern shoreline of Georgina Island is used by pike and bass for spawning during spring months (See Spawning Map for Georgina Island - Appendix B). Communication with the LSFAU indicated that the southeast shoreline of Georgina Island is one of the best muskellunge nursery habitats in the lake and is used as a stocking site for the Lake Simcoe Muskellunge Restoration Program (pers. Comm. Jason Borwick, MNR Aurora). The restoration program was initiated in 2000 to bring back the native Muskellunge population after years of over-harvest in the early 1900's. *Mainland Shoreline - Duclos Point to Sibbald Point* A littoral zone study (Lake Simcoe Littoral Zone Study) was conducted from 1986 to 1996 to characterize littoral zone and shoreline habitat conditions on Lake Simcoe to determine spawning and nursery habitats critical to the sustainable future of fish populations in Lake Simcoe. Habitat information was collected during fish sampling efforts by LSFAU during spring and summer site visits. Shorelines in the study area between Duclos and Sibbald points are characterized as low to moderately sloped foreshore consisting of sandy substrate and occasional muck with mixed gravel to boulder depending on location. Aquatic macrophytes were observed freely floating and could have originated from wind and wave action dislodging plants from the root base. Areas of detritus at creek mouths and beaches were observed and provided micro habitat for invertebrates and small fish. Species of macrophytes observed included: coontail, wild celery, common elodea, water milfoil, clasping leaf pondweed, sago pondweed, ranunculus species and bushy pondweed. A Summer Index Netting Program was conducted by the LSFAU from 1965 to 1981 to provide trend trough time data on relative abundance, distribution, size and age composition, growth, diet, sexual composition and age of maturity for species comprising the near shore community (MNR Aurora, LSFAU 1982). Trapnets and gill nets were set to sample depths ranging from 2.5 to 18m from May 13 to September 3 from 1965 to 1981. Based on the catch records for areas south of Georgina Island it appeared that Brown bullhead, Rock bass, Pumpkinseed, and Yellow perch were to most common species captured and consist of mainly warm-water species.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
	Additional aquatic surveys (fish and fish habitat) will be undertaken during the next phase of the study to determine any potential Harmful Alteration Disruption or Destruction (HADD) as a result of the proposed project.
Migratory Birds: *(e.g. waterfowl, songbirds)*	A review of the Ontario Breeding Bird Atlas (OBBA) identified 110 bird species recorded in a 10 km square (17PK31) covering the project study area. The OBBA does not identify any species which are listed on Schedule 1 of the Species At Risk Act (SARA) in the study area. 106 species have a provincial (S-Rank) of S4-S5 (Apparently Secure-Secure). The Caspian Turn (*Sterna caspia*) is ranked as S3 (Vulnerable) and the Great Egret (*Casmerodius albus*), Trumpeter Swan (*Cygnus buccinators*) and Great Black-backed Gull (*Larus marinus*) are ranked as S2 (Imperiled). Additional bird surveys will be undertaken during the next phase of the study to determine any potential effects on breeding/migratory birds as a result of the proposed project.
Other Fauna: *(mammals/amphibians reptiles/insects; game & protected species)*	The preliminary CEAA Screening prepared for the Capital Planning Study (NBL, 2005) lists the following fauna present on the Island; moles, rabbits, hare, chipmunk, squirrel, beaver, coyote, fox, racoon, deer and mice. Hepetofauna include newts, salamanders, toads, frogs, turtles and snakes. Surveys for amphibians will be undertaken during the next phase of the study to determine any potential effects as a result of the proposed project.
Designated Species/ Habitat Areas: *(specially designated or protected)*	**Designated Sites** ***Georgina Island*** • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science); • Two Environmentally Sensitive Areas (ESAs) – Georgina Island and Big Shoal; • One Provincially Significant Wetland (PSWs) – Georgina Island Wetlands; and • Vulnerable, Threatened or Endangered (VTE) species (COSSARO, listed as 'unidentified' on the NHIC website). ***Mainland*** • One Area of Natural and Scientific Interest (ANSI) – Duclos Point Park Reserve (Life Science); • Two Environmentally Sensitive Area (ESAs) – Duclos Point and Morning Glory Swamp; • One Provincially Significant Wetland (PSW) –Morning Glory Swamp; • One Nature Reserve - Duclos Point Provincial Nature Reserve;

COMPONENT

DESCRIPTION *(describe features; indicate sensitivity to disturbance)*

- One old growth forest (>100 years) – near Doyle Beach;
- Mid-to-Late successional forest (> 4 ha) – near Doyle Beach;
- Butternut (SARA, Schedule 1 species); and
- Red-Shouldered Hawk (COSEWIC, Special Concern).

The following designated sites are located on the mainland in close proximity to the study area:

- Two Environmentally Sensitive Areas (ESAs) - Virginia Beach and Mossington Park;
- Two Non-Provincially Significant Wetlands (NPSWs) - Mossington Park and Riverview Beach Wetlands; and
- One Provincial Park - Sibbald Point Provincial Park.

In accordance with Environment Canada's letter of March 6th 2007, there are also records of the following federally designated species located within the study area (mainland and island). There are no federally designated aquatic species within the study area.

Designated Species

Species	Designation	Habitat Preference	Potential to be located within study area
Birds			
Least Bittern	SARA Schedule 1 Threatened	Nest in freshwater marshes, where dense tall aquatic vegetation is interspersed with clumps of woody vegetation and open water. They are most regular in marshes that exceed 5 ha in area.	Yes
Reptiles and Amphibians			
Spotted Turtle	SARA Schedule 1 Endangered	Found in ponds, ditches, streams, swamps, bogs and marshes. They generally prefer soft (muddy) substrate and some aquatic vegetation.	Yes
Blanding's Turtle	SARA Schedule 1 Threatened	Found in a variety of habitats, including lakes, ponds, marshes, low fields, ditches, creeks, river sloughs, and bogs. Within these habitats, the species is associated with shallow water where submergent or emergent plants occur.	Yes

COMPONENT

DESCRIPTION *(describe features; indicate sensitivity to disturbance)*

Plants			
American Ginseng	SARA Schedule 1 Endangered	Grows in rich, moist, undisturbed and relatively mature deciduous woods in areas of neutral soil (such as over limestone or marble bedrock). The forest canopy is usually dominated by Sugar Maple, White Ash, Bitternut Hickory, and Basswood.	Yes
Butternut	SARA Schedule 1 Endangered	Grows best in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone.	Yes
Branched Bartonia	SARA Schedule 1 Threatened	Occurs in open graminoid (grass-like vegetation) or low shrub sphagnum bog or fen habitat. It is usually found growing on a peat substrate, and is associated with Larch and Black Spruce	Yes
Surveys for designated species, particularly SARA Schedule 1 species, will be undertaken during the next phase of the study to determine any potential effects as a result of the proposed project.			

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
6.3 SOCIO-CULTURAL FEATURES - VALUED ECOSYSTEM COMPONENTS	
Sensitive Areas: *(e.g. residential zones, parkland, hospitals, schools)*	***Georgina Island*** The Chippewas of Georgina Island First Nation includes Georgina Island (1295 ha), Snake Island (133 ha), Fox Island (19 ha), Sand Island (4 ha) and Gravel Island (0.4 ha). The First Nation residents reside on Georgina Island, while Snake, Fox and Sand Islands are "surrendered lands" and are currently leased to cottagers (according to the First Nation web site there area about 227 cottage lots on Snake Island, about 64 lots on Fox Island). In addition, the First Nation territory includes the parcel of land (Part of Lot 24 and 25 and road allowance between Concessions 7 and 8) in Georgina Township that is occupied by the Virginia Beach Marina and the Ferry Dock. The Virginia Beach Marina includes a restaurant, boat storage and maintenance area and a boat refueling area. The majority of the community's homes and community buildings are located on the west side of the island, along Chief Joseph Snake Road. Approximately 92 homes were identified on the island based on information from 2002. Cottages occupy lots along the northwest, south and eastern portions of the island. There are approximately 330 cottagers on Georgina Island. FN community buildings are concentrated in the area of Root Road. The community centre, administration office, school, medical clinic, and water treatment plant are located along Bear Road. The ferry dock, located in the southwest corner of the island, is the main access point for residents, cottagers and visitors. The Virginia Beach (Marina Parcel) is located approximately 7 km east of the community of Sutton. Virginia Beach is the main access point via the ferry to Georgina Island and includes a restaurant operated by the First Nation. This area is approximately 0.4 ha not including the boat marina. A Phase 1 and 2 environmental audit was undertaken in the study area by NBL in 1998 and 2000. Three inactive landfills were identified on Georgina Island. An active landfill is located adjacent to the sewage lagoon. The sewage treatment system on Georgina Island consists of a two cell lagoon and raised tile bed. The system has been in operation since 1993. The sewage system is used to treat effluent pumped from septic tanks and holding tanks. A water treatment plant is also located on the island.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
6.3 SOCIO-CULTURAL FEATURES - VALUED ECOSYSTEM COMPONENTS	
	Mainland The study area on the mainland is located within the Greenbelt Plan (November, 2005). The Greenbelt Plan identifies where urbanization should not occur in order to provide permanent protection to the agricultural land base and the ecological features and functions occurring on this landscape. The Greenbelt Plan includes lands within, and builds upon the ecological protections provided by, the Niagara Escarpment Plan (NEP) and the Oak Ridges Corridor Park Management Plan (ORMCP). Lands within the study area are designated as Protected Countryside/Shoreline Areas Policy (4.1.3). The Protected Countryside lands identified in the Greenbelt Plan are intended to enhance the spatial extent of agriculturally and environmentally protected lands currently covered by the NEP and the ORMCP while at the same time improving linkages between these areas and the surrounding major lake systems and watersheds. The Greenbelt Plan builds upon the existing policy framework established in the Provincial Policy Statement (PPS), issued under section 3 of the *Planning Act*, and its implementation through municipal official plan policies and maps (Ministry of Municipal Affairs and Housing, 2006). Land use within the study area is characterised in The York Region Official Plan (November 2005) and the Town of Georgina Official Plan. The Region of York Official Plan (OP) identifies Significant Natural Features, Significant Forest Resources and the Regional Greenland System (particularly around Georgina Island and Duclos Point) and Rural Policy Areas within the study area. The objectives of the Significant Natural Features and Forest Resources policies are to ensure that the features and functions are preserved, to ensure no loss of wetland function and to protect forested areas. The objective of the Rural Policy Areas is to retain the rural character of the lands and the viability of existing agricultural operations. The Town of Georgina Official Plan identifies Environmental Protection Areas (1, 2 & 3), Core Conservation Lands and Waters, Lake Simcoe Shoreline and forest resources within the study area. The purpose of these policies is to identify and protect components of the Greenlands System.
Human Health and Safety: *(any persons whose health and safety may be affected by the construction and operation of the project)*	The long-term goal of the Fixed Link is to address safety concerns for residents, create potential economic and development benefits and provide positive social impacts to the community.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
6.3 SOCIO-CULTURAL FEATURES - VALUED ECOSYSTEM COMPONENTS	
Traditional Land Use Activities: *(e.g. trapping, fishing, medicinal plant collection, ceremonial grounds)*	Discussion with the First Nation (meeting of January 25th 2007) revealed that recreational fishing occurs within the study area. There are also some culturally significant/medicinal plants which are located along the southern shore of the island. These include Sweet Flag (heart remedy) and Pepper Weed (colds/congestion), however these are not actively harvested. The First Nation has a community forest strategy for developing the trails on the island, with a program to teach traditions and historic activities of the Chippewa community.
Aesthetics: *(general character of the surrounding area; and if the project is compatible)*	Route 2 - more disturbed, therefore potentially less aesthetic impacts or Route 3 - more natural, therefore potentially more aesthetic impacts
Archaeological Resources: *(recorded, or potential)*	The First Nation confirmed that there are no cultural resources/sacred places/burial sites within the study area. A Stage 1 archaeological study will be undertaken during the next phase of the project.
Special Designations: *(parks, protected areas)*	Refer to Designated sites.

7) ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES – SUMMARY

The next table summarizes the following:

(A) Valued Ecosystem Components (VECs) within the study area

The environmental attributes or elements that are identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic significance, (refer to Table 1)

(B) Potential Environmental Effect(s) on the VECs associated with project activities.

An *Environmental Effect* is defined as:

i) any change that the project may cause in the environment, including any effect of any such change on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by aboriginal persons, or on any structure, site, or thing that is of historical, archaeological, paleontological or architectural significance; and

ii) any change to the project that may be caused *by* the environment. (Example: ice break-up damaging a bridge or dock; freezing and bursting of unprotected water lines.)

(C) Mitigation Measures

A *Mitigation Measure* is:

i) an action or provision made that will eliminate, reduce or control the adverse environmental effects of the project, and may include restoration, compensation or replacement of any damages or impacts.

(D) Determination of Significance

A determination of the significance of the environmental effects, taking into account appropriate mitigation measures if applicable. Mitigation measures are intended to prevent or reduce any potentially negative effects. The abbreviations used are:

N/S - effect not significant, or rendered insignificant with mitigation
SP - significant positive effect
SN - significant negative effect
U - outcome unknown or cannot be predicted, even with mitigation.

(E) Residual Effect and Significance (if applicable)

The following table has been completed with the assumption that Route 2 or 3 has been chosen for the proposed fixed link.

CONSTRUCTION - ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
1	Surface Water/Hydrology & Soils and Sedimentation	a) Potential for sediments to enter watercourse as a result of the following project activities: • site clearing; • stockpiling; • excavation; and, • construction. b) Potential to encounter contaminated materials during excavation. c) Potential for localized water quality impacts as a result of spills. d) Disruption of water course/creek beds and water flow during crossing.	a) The footprint of disturbed area will be minimized as much as possible, for example, vegetated buffers will be left in place adjacent to watercourses to the maximum extent possible. An erosion and sediment control plan will be developed. Implementation of the erosion and sediment control measures will conform to recognized standard specifications such as Ontario Provincial Standards Specification (OPSS) 182, 518 and 577. Stockpiled material will be stored a safe distance from the waterway to ensure that no deleterious substances enter the water. Sediment and erosion control measures (silt curtains, silt fence) will be installed and will be maintained during the work phase and until the site has been stabilized. Control measures should be inspected daily to ensure they are functioning and are maintained as required. If control measures are not functioning properly, no further work will occur until the problem is resolved. Any temporary mitigation measures will be installed prior to the commencement of any site clearing, grubbing, excavation, filling or grading works and will be maintained on a regular basis, prior to and after runoff events. b) Should contaminated materials be identified during construction, all activity in the vicinity of the contamination will be suspended and Chief, Council and INAC's Environmental	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
			Officer will be notified. c) All equipment fuelling and maintenance will be done at a safe distance from the water to ensure that no deleterious substances enter the waterway. d) Watercourse will be crossed using environmentally appropriate crossing methodology. Siltation fencing will be used where required. The original drainage pattern within the study area will be restored upon completion of work to the extent possible.		
2	Groundwater	a) Potential for localized groundwater quality impacts as a result of spills. Dewatering of the work area may be required.	a) Refuelling of equipment and fuel storage should be conducted in designated areas with spill protection. If applicable, work area to be dewatered as per OPSS 577.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
3	Air Quality/Climate	a) Increased dust in air from construction activities.	a) Vehicles/machinery and equipment should be in good repair, equipped with emission controls, as applicable, and operated within regulatory requirements. A water truck will be available to control dust on roads.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
4	Noise/Vibration	a) Temporary nuisance noise during construction activities.	a) Noise control measures, such as restricted hours of operation, the use of appropriate machinery/mufflers, will be implemented where required.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
5	Terrain/Topography & Land Use	a) Change in topography as a result of construction activities.	a) Project area will be restored to pre-construction conditions to the extent possible.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
6	Vegetation, Wetlands, Wildlife/Habitat	a) Loss of vegetation/Habitat loss. b) Alteration of wetland function as a result of installation of the bridge/causeway.	a) Minimize disturbance to existing vegetation. Disturbed areas should be stabilized and revegetated upon project completion and restored to a pre-disturbed state. Topsoil should be stockpiled separately and used for restoration to facilitate natural regeneration of native species. b) The project will result in no net loss of wetland functions on federal lands and waters. The location of the bridge/causeway has been selected to effect as little wetland habitat as possible. Sediments will be prevented from entering the wetland by sediment fencing, etc. The original substrate in the wetland will be returned to its original grade, along with the water levels and the wetland will be returned to its original state.	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
7	Migratory Birds	a) Loss of vegetation/Habitat may impact migratory birds.	a) If any work is undertaken within natural undisturbed areas compliance with the Migratory Birds Act guidelines is required. This relates to activities to be undertaken within migratory bird habitat with the potential to disturb or destroy nests or result in incidental take. Vegetation clearing (undertaken during project construction, operation or maintenance) will be undertaken outside the breeding season (ideally late autumn/ winter) where possible. If this is not possible then a qualified biologist should determine if nesting is occurring prior to construction. If a nesting survey needs to be conducted and identifies nesting migratory birds, Environment Canada should be consulted to discuss next steps.	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
8	Species at Risk/Habitat of Special Concern	a) Potential effect on SARA Schedule 1 Species during construction activities.	a) Should the proponent encounter a species at risk at any time during the project they should contact Environment Canada – Ontario Region, for advice on how to proceed. Construction workers and others working in the study area will be provided with information that will allow them to identify a protected species that they may encounter.	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
9	Fish and Fish Habitat	a) Potential water quality impairments (sediment loading; fuels and lubricants from machinery. Potential effects on fish/fish habitat to be determined during next phase of the study. LOI to be provided to DFO.	a) Sediment and erosion control measures (such as silt fence barriers, turbidity curtains etc) will be installed and maintained during the work phase and until the site has been stabilized. Control measures will be inspected daily to ensure they are functioning and are maintained as required. If control measures are not functioning properly, no further work will occur until the problem is resolved. All temporary erosion and sediment control measures will be installed in accordance with OPSS 577. Where required, silt fence to be installed along watercourse banks within work area as per OPSS 219.110. Extra silt fence/turbidity curtain will be on site, should additional sediment control be required. If applicable, work area to be dewatered as per OPSS 577, and pumped into an acceptable dewatering trap as per OPSS 219.240. Prevent if possible, and minimize otherwise, any in-water operation of heavy equipment and minimize operation of the same on the banks of the watercourse. All equipment fueling and maintenance will be done a safe distance from the edge of the water to ensure that no deleterious substances enter the water.	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
			Any stockpiled material will be stored and stabilized away from the watercourse. In-water works timing restriction windows will need to be confirmed with MNR (July 15th to September 15th). Any part of equipment entering the water should be free of fluid leaks and externally cleaned/degreased to prevent any deleterious substance from entering the water. All disturbed areas of the work site should be stabilized immediately and re-vegetated as soon as conditions allow. Sediment and erosion control measures should be left in place until all areas of the work site have been stabilized.		
10	Socio-economic Conditions/human health and safety	a) Potential safety hazard from construction activities, heavy equipment and increased traffic. b) The project is expected to have a positive impact on the socio-economic condition of Georgina Island	a) The contactor will be required to prepare and implement a Health and Safety Plan (OHSA 1990) and a Traffic Management Plan.	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
11	Heritage/Archaeology	a) Potential to expose items of archaeological interest.	a) Should human remains be identified during operation, all works in the vicinity of the discovery will be suspended immediately. Notification will be made to the Ontario Provincial Police or local police, who will conduct a site investigation. Should other cultural heritage values be identified during operations, all activity in the vicinity of the recovery will be suspended and the Ministry of Culture Archaeologist and Georgina Island First Nations will be contacted.	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
12	Transportation/Navigation	a) Navigation impacts as a result of installation of the causeway/bridge.	a) The bridge project will be designed to maintain navigation within the study area. Navigation will be maintained throughout the project. The following mitigation measures will be implemented in accordance with Transport Canada's requirements. • No person shall permit any tools, equipment, vehicles, temporary structures or parts thereof used or maintained for the purpose of building or placing a work in navigable water to remain in such water after the completion of the project. • Where a work or a portion of a work that is being constructed or maintained in a navigable water causes debris or other material to accumulate on the bed or on the surface of such water, the owner of that work or portion of that work shall cause the debris or other material to be removed to the satisfaction of the Minister. • The proponent must notify Coast Guard Traffic Centre at least 24 hours in advance of commencement and upon completion of the causeway/bridge. • Silt curtains installed during the navigation season, are to be marked with yellow bouys and/or yellow lights during hours of darkness.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

OPERATION AND MAINTENANCE - ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
1	Surface Water/Hydrology & Soils and Sedimentation Fish and Fish Habitat	a) Effect of operation/maintenance (sand/salt etc) activities on water quality.	a) All chemicals used during operation/maintenance will be analyzed and neutralized prior to discharge. If high winds and waves occur, all project activities should cease until conditions become favorable. Disturbance to the lake bottom should be minimized. No debris or other deleterious substances should be allowed to enter the waterway during maintenance. Equipment will not be cleaned in the watercourse or where the wash-water can enter the watercourse.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
2	Noise/Vibration	a) Potential noise generated from operation and maintenance activities.	a) Best management practices will be used. Local residents will be informed of potential disruption from maintenance and repair work.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
3	Vegetation, Wetlands, Wildlife/Habitat Migratory Birds Species at Risk/Habitat of Special Concern	a) Effect of operation/maintenance activities on existing vegetation . b) Potential habitat disturbance and change (such as shadow effects).	a) Maintenance and repair work will be undertaken at an appropriate time of year to avoid disturbance. Shadow effects will be considered during the detailed design process. b) Ecosystem friendly land maintenance should be encouraged.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
4	Socio-economic Conditions/human health and safety	a) Increased traffic volumes.	b) Road will be designed in accordance with applicable safety requirements.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

ACCIDENTS AND MALFUNCTIONS - ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
1	Surface Water/Hydrology & Soils and Sedimentation Vegetation, Wetlands, Wildlife/Habitat Species at Risk/Habitat of Special Concern Fish and Fish Habitat Transportation/Navigation	a) Leak or spill of petroleum and/or other deleterious substance from vehicles and equipment.	a) The contractor will be required to develop spill prevention and contingency plans for construction and operational phases of the project. Personnel will be trained in how to apply the plans and the plans will be reviewed to strengthen their effectiveness and ensure continuous improvement. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and a contingency plan. A hydrocarbon spill response kit will be on site at all times during the work. Spills will be reported to the Ontario Spills Action Center at 1-800-268-6060.	N/S - small magnitude, limited geographical extent, duration and frequency.	No residual permanent adverse environmental effect.
2	Socio-economic Conditions/human health and safety	a) Accident that could harm workers.	a) Adequate safety barriers and signs will be installed for safety of works and public. The contractor will be required to implement a Health and Safety Plan (OHSA 1990).	N/S - small magnitude, limited geographical extent, duration and frequency.	No residual permanent adverse environmental effect.

EFECTS OF THE ENVIORNMENT ON THE PROJECT - ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
1	Surface water/hydrology, soils and sediments, Air quality and climate change, terrain/ topography, vegetation, wetlands, fish and fish habitat, wildlife/habitat, species at risk/habitats of special concern, land use, human heath and safety, socio-economic conditions, transportation and navigation	a) Environmental hazard/change such as flooding, ice damage (freezing), erosion, which will effect VECs and project construction activities.	a) Project will be designed in accordance with appropriate specifications.	N/S - small magnitude, limited geographical extent, duration and frequency.	No residual permanent adverse environmental effect.

8) CUMULATIVE EFFECTS ASSESSMENT

The natural environment is interconnected, and does not recognize project boundaries or lines on maps. The impacts caused by one project, which may be considered minor and insignificant on their own, can combine with other environmental impacts from other projects or developments planned or already underway in the area. Together, these impacts may combine to become significant, and adverse. The consideration and assessment of these "cumulative" effects is therefore an important part of the environmental assessment process.

None of the effects from this project were determined to be significant and all are localized in nature. No adverse residual on or off site effects are anticipated. There are no known plans for other projects to occur in the immediate vicinity that when combined with this project would result in significant adverse environmental effects.

9) SUMMARY OF ENVIRONMENTAL EFFECTS

Assuming that all mitigation measures are implemented as proposed in Sections 7 and 8, the following effects are predicted for the Valued Ecosystem Components identified in Section 6:

(N/S not significant; SP significant positive effect; SN significant negative effect; U unknown; N/A not applicable)

VALUED ECOSYSTEM COMPONENT	Summary of Effects *(check box)*					Comments
	N/S	SP	SN	U	N/A	
Topography/terrain	√					
Soil/geology	√					
Aquatic sediment/substrate	√					
Surface water	√					
Groundwater				√		
Air quality	√					
Vegetation	√					
Wetlands	√					
Fish & fish habitat				√		
Migratory birds	√					
Other fauna	√					
Special habitat	√					
Sensitive areas	√					
Human health and safety		√				
Traditional land use activities	√					
Aesthetics	√					
Archaeological resources	√					
Specially-designated areas	√					

10) FOLLOW-UP PROGRAM & MONITORING

No environmental follow-up & monitoring programs have been identified.

Screening Report Completed by:

<Original signed by>

Fiona Christiansen, M.Sc., Senior Environmental Assessment Specialist — June 2007
Neegan Burnside Ltd.

10) CEAA SCREENING DECISION

RECOMMENDED SCREENING DECISION (*mark appropriate box*):

☐ **[00]** DECISION PENDING. Assessment not final.

☑ **[01]** PROJECT MAY PROCEED. All potentially adverse effects are mitigable with known technology, and therefore will be rendered insignificant (*CEAA s. 20(1)(a)*).

☐ **[02]** PROJECT MAY NOT PROCEED. The project is likely to cause significant adverse environmental effects that cannot be justified in the circumstances *(CEAA s.20(1)(b))*.

☐ **[03]** ENVIRONMENTAL ASSESSMENT IS TO BE REFERRED TO THE MINISTER FOR MEDIATION OR A REVIEW PANEL, since it is uncertain whether the project is likely to cause significant adverse environmental effects *(CEAA s. 20(1)(c)(i))*; significant public concern has been raised, warranting a referral to a mediator or a review panel *(CEAA s. 20(1)(c)(ii))*; and/or public concerns warrant a reference to a mediator or a review panel *(CEAA s. 20(1)(c)(iii))*.

Reviewed and Recommended by:

Buzzy Big Canoe, Georgina Island First Nation — Date

Urmas Madisso, INAC Environmental Officer — Date

Other Federal RA(s) *(specify details)* — Date

INAC USE ONLY

SCREENING DECISION by LEAD RESPONSIBLE AUTHORITY (enter code):

Approved by:

INAC Responsibility Centre Manager *(name + signature)*

Date

11) KEY REFERENCES & SOURCES

Neegan Burnside Ltd, 2007, Proposed Fixed Link Study - Preliminary Evaluation of Engineering and Environmental Alternatives

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APPENDIX A
FIGURES

(Refer to Preliminary Evaluation of Engineering and Environmental Alternatives Report, NBL 2007)

APPENDIX B
CORRESPONDENCE

(Refer to Preliminary Evaluation of Engineering and Environmental Alternatives Report, NBL 2007)

APPENDIX C
PHOTOGRAPHS

(Refer to Preliminary Evaluation of Engineering and Environmental Alternatives Report, NBL 2007)

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Appendix D
Summary Survey Results

Georgina Island Fixed Link Study Survey Results
Surveys Administered From February 25 to March 9

Data Complied March 23, 2007 by Neegan Burnside & Associates
The information below is provided as received; no interpretation of results has taken place

82 Surveys distributed on the island to adults in the community
114 mailed to off reserve households, 24 returned as undeliverable

Question 1

Do you live on or off reserve?

On Reserve	54
Off Reserve	26

Question 2

How many people live in your household?

Number of people	on reserve	off reserve
1	10	2
2	11	12
3	13	4
4	10	5
5	5	3
6	2	1

Question 3

Why do members of your household travel to the mainland/island?

on reserve reasons	occurrence
Shopping	27
Doctor/Dentist	27
Groceries	20
Sports/Recreational activities	17
Work	17
Entertainment	9
School	7
Visit relatives	5
Bank	4
Building Materials	4
Gas	2
Mail	2

off reserve reasons	occurrence
Visit relatives	14
Work	11
Funeral	2
Community Functions	2
Weddings/Anniversaries	1
Vacation	1
Shopping	1
Doctor/Dentist	1

Question 4

How often does your family use the existing ferry service when it is operational?

Occurrence	on reserve	off reserve
once a day	24	8
once a week	25	7
once a month	1	3
once a year	1	8
never	0	0

Question 5

How often does your family use the ice road when it is operational?

Occurrence	on reserve	off reserve
once a day	42	10
once a week	7	6
once a month	0	2
once a year	0	3
never	0	6

Question 6

Do you use any other mode of transportation to access the mainland/island?

on reserve transportation	occurrence
Private boat	25
4 Wheeler	22
Scoot	15
Snowmobile	13
No	10
Foot	3
Barge	3
Truck	1
Bike	1
Sled	1

off reserve transportation	occurrence
Private boat	10
Scoot	7
4 Wheeler	6
No	6
Snowmobile	3
Foot	1

Question 7

Does your household currently own a vehicle?

	on reserve	off reserve
yes	40	23
no	4	3

If no, would you consider buying a vehicle if there was a reliable all weather connection to the mainland.

	on reserve	off reserve
yes	1	2
no	0	1

Question 8

Please rank your 3 most preferred alternatives.

	on reserve	Rank		
		1	2	3
Improve existing ferry and ice road		5	9	13
Adding hovercraft		1	5	2
Adding helicopter		0	2	4
Passenger cable car		1	2	5
Road link through a tunnel		0	13	1
Road link through bridge		36	2	1
Do nothing		2	0	5
	off reserve			
Improve existing ferry and ice road		0	6	9
Adding hovercraft		0	4	3
Adding helicopter		0	0	1
Passenger cable car		0	1	3
Road link through a tunnel		0	13	1
Road link through bridge		25	0	0
Do nothing		1	0	3

Question 9

Please identify any other alternatives that you feel should be considered.

Buying land on the mainland so people don't need to live on the Island
Another ferry
Road link with toll gates for non-island residents
Extend ferry service hours
Water taxi service

Question 10

What would you consider to be the main advantages of having a fixed link?

on reserve	occurrence	off reserve	occurrence
Access/Convenience	23	Accessibility/Convenience	10
Safety	19	Medical/Emergencies	9
Medical/Emergencies	15	Safety	9
Work	13	Economic development	8
School	9	Jobs	6
Economic Development	8	Schedule conflicts	2
Eliminate isolation	6	Traffic	2
Cost savings	5	School	2
None	2	Visit	1
Policing	1	Avoid long weekend lineups	1
Visiting	1	Not governed by weather	1
Control who enters island	1	Would save money in long run	1
Traffic	1	Control who's on island through toll booth	1
Remove waste/recycle	1	Remove isolation	1

Question 11

What would you consider to be the main disadvantages of having a fixed link?

on reserve	occurrence	off reserve	occurrence
None	11	None	8
Unwelcome guests	11	Loss of privacy	4
Traffic	6	More traffic	4
Crime rate	6	Unwelcome guests	4
Security	4	Increased police presence	2
Overpopulation	2	Loss of jobs	1
Loss of isolation/seclusion	2	Financial	1
Over development	2	Overpopulation	1
Environmental concerns	1	Possible harm to fish/water fowl habitat	1
Loss of way of life	1	No excuse for being late	1
Police Presence	1		
Loss of jobs	1		
Cost	1		
Noise	1		

Question 12

Would you access the Mainland/ island more often if a fixed link was provided?

	on reserve	off reserve
yes	42	26
no	6	0

Question 13

Do you think people would move back to Georgina Island if a fixed link was provided?

	on reserve	off reserve
yes	38	21
no	4	1
not sure	7	4

Question 14

On a scale of 1 (none) to 10 (strong) do you support the idea of a Fixed Link?

Rating	on reserve	off reserve
1	6	1
2	1	0
3	0	0
4	0	0
5	2	3
6	0	0
7	1	0
8	3	2
9	3	2
10	33	16

Question 15

Please indicate if you have a preference for location 1, 2 or 3 and let us know your reasons.

	on reserve	off reserve	
Location 1	10	6	Duclos Point
Location 2	17	4	
Location 3	13	11	Virginia Beach/ Ferry route

Location 1 comments

because of marina
shortest route
less construction
less cost

Location 2 comments

closer to island
most economical
shortest distance
incorporates sand islands
Shallow
less traffic interference

Location 3 comments

closer to island
mostly populated by non members
more accessible
close to business
environmentally accessed
infrastructure is already in place

Question 16

Please identify any other alternative locations that you feel should be considered.

Route 2
Route 3

Question 17

Do you feel a permanent link would improve the employment opportunities for Georgina Island residents?

	on reserve	off reserve
yes	47	25
no	5	1

Why?

no set schedule
don't have to stay over
encourage growth
more tourism
Safe
allows residents to accept outside positions
no weather delays
financial
cost of ferry consumes to much of basic wage

Question 18

Do you feel a permanent link would improve the education received by Georgina Island residents?

	on reserve	off reserve
yes	45	22
no	6	0

Why?

fixed link wont stop dropout rate
Extra-curricular activities
children/adults can take extra classes
no boarding out
more access
safe
allow for a higher education
cut down on day duration
increase the number of teachers

Question 19

If you or children travel to or from the mainland for school or work, please indicate below how many times in the past year you or your children were unable to travel to work or school.

on reserve			off reserve	
school	work		School	Work
3	1		5	3
4	4		9	3
5	7			5
5	7			
5	7			
8	10			
10	14			
10	15			
10	20			
10	25			
15				
20				
20				
125	110	Totals	14	11
10	11	Average	7	4

Question 20

How has the current travel situation affected your household in regards to education/employment.

On reserve

Reason	Occurrence
Miss meetings/work	10
School/activities hard to attend	9
Hasn't	9
Required to live/board on mainland	6
Made it difficult and limiting	6
People don't bother looking for work/school	1
Denied time with family	1

Off reserve

Reason	Occurrence
Moved for more employment opportunities	2
Risked life going to work in poor weather conditions	2
Boarding	2
Not at all	2
Children did not have access to activities	1
Missing work	1

NEEGAN BURNSIDE

Appendix E
Capital Costs and 50 Year LCC

Table E1

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates
Option 1A - Georgina Island to Duclos Point via Causeway Structure

Crossing Length: 1450m (1400 Causeway, 50m Bridge)
Total Route Length: 1840m

		Quantity	Unit	Unit Price	Total
A	**SITEWORKS**			TOTAL:	**$6,954,000**
A1	**Mobilization & Demobilization**	1	LS	$75,000	$75,000
A2	**Property Acquisition**	1	LS	$2,000,000	$2,000,000
A3	**Rehab to Existing Marina**	1	LS	$250,000	$250,000
A4	**Parking Lot**				
	- Asphalt; 100 spaces	3000	sq.m.	$35	$105,000
	- Light Standards	20	EA	$3,200	$64,000
	- Site Development	3500	sq.m.	$40	$140,000
A5	**Existing Road Reconstruction**	1	LS	$3,200,000	$3,200,000
A6	**Toll System**				
	- Electronic Gates and Barriers (manual operation)	1	LS	$100,000	$100,000
	- Gatebooths	2	EA	$10,000	$20,000
A6	**Environmental Control Measures**	1	LS	$1,000,000	$1,000,000
B	**CAUSEWAY CONSTRUCTION**			TOTAL:	**$40,122,800**
B1	**S&P Bridge Structure**				
	- 50m span bridge for navigation	1	LS	$1,500,000	$1,500,000
B2	**S&P Rock Fill for Core**	944800	t	$27	$25,509,600
					$0
B3	**S&P Rip Rap for Slopes**	57800	sq.m.	$40	$2,312,000
					$0
B4	**S&P Armour Stone for Slopes**	132800	t	$71	$9,428,800
					$0
B5	**S&P Filter Fabric (600R Tensor)**	57800	sq.m.	$3	$173,400
					$0
B6	**S&P CSP Culverts**				$0
	- 3000mm dia. Culverts	200	m	$3,000	$600,000
	- Installation	1	LS	$200,000	$200,000
					$0
B7	**S&P Steel Beam Guiderail**				
	- Guiderail	3000	m	$125	$375,000
	- Structure Connection	4	EA	$500	$2,000
	- Extruder	4	EA	$5,500	$22,000
C	**ROADWAY**			TOTAL:	**$571,500**
C1	**Base**				
	- S&P Granular 'B' (300mm depth)	14700	t	$12	$176,400
	- S&P Granular 'A' (150mm depth)	8900	t	$15	$133,500
C2	**Road Finish**				
	- S&P HL3 ACP (50mm)	2300	t	$75	$172,500
	- S&P HL8 ACP (40mm) HD	1300	t	$60	$78,000
	- Pavement Markings	7400	m	$1.50	$11,100
D	**BASE CONSTRUCTION TOTAL (no index factors):**				**$47,648,300**
E	**CONTINGENCY (10% of Construction):**				**$4,765,000**
F	**TOTAL CONSTRUCTION COST (D + E):**				**$52,413,300**
	ARCHITECTURAL & ENGINEERING COSTS				
	(Percentage of Estimated Construction Cost, as per INAC Cost Reference Manual)				
			% of Construction		Total
G	**Project Definition**		1.2%		$629,000
H	**Investigation & Design**		4.7%		$2,463,500
I	**Inspections**		5.1%		$2,673,100
J	**Consultant Project Management**		2.2%		$1,153,100
K	**First Nations Project Management**		3.5%		$1,834,500
	- From start of project to finish (estimated)				
L	**PROJECT DEVELOPMENT COST (G+H+I+J+K):**				**$8,753,200**
M	**TOTAL ADJUSTED COST (F+L):**				**$61,166,500**

ANNUAL O&M for OPTION 1A

	Description	Quantity	Unit	Unit Price	Zone Index (Zone 2)	Total
	Causeway*	1.45	km	$40,000.00	1.02	$59,160
	Bridge (50m x 8m)	400	sq.m.	$29.14	0.99	$11,539
	Roadway (Paved)	1.85	km	$3,806.83	1.02	$7,205
	Toll Operator (Crew of 8 @ $25,000 EA per year)	8	EA	$25,000.00	1.00	$200,000

Index = City Centre Index X Zone Index
City Index (Toronto) = 1.00
Zone Index (Zone 2) = As Noted

Annual O&M: $277,904

*** Note: No value exists in the INAC Cost Reference Manual for a 'Causeway'. This value is estimated.**

Table E2

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Option 1A - Georgina Island to Duclos Point via Causeway Structure

Capital Cost Year 1 =	$61,166,500.00
Annual O&M Costs =	$277,904.06

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$61,166,500	$61,166,500	$277,904	$61,444,404
1	0.980		$0	$272,402	$272,402
2	0.961		$0	$267,008	$267,008
3	0.942		$0	$261,721	$261,721
4	0.923		$0	$256,539	$256,539
5	0.905		$0	$251,460	$251,460
6	0.887		$0	$246,481	$246,481
7	0.869		$0	$241,600	$241,600
8	0.852		$0	$236,817	$236,817
9	0.835		$0	$232,128	$232,128
10	0.819		$0	$227,532	$227,532
11	0.803		$0	$223,026	$223,026
12	0.787		$0	$218,611	$218,611
13	0.771		$0	$214,282	$214,282
14	0.756		$0	$210,039	$210,039
15	0.741		$0	$205,880	$205,880
16	0.726		$0	$201,804	$201,804
17	0.712		$0	$197,808	$197,808
18	0.698		$0	$193,892	$193,892
19	0.684		$0	$190,053	$190,053
20	0.670		$0	$186,290	$186,290
21	0.657		$0	$182,601	$182,601
22	0.644		$0	$178,986	$178,986
23	0.631		$0	$175,442	$175,442
24	0.619		$0	$171,968	$171,968
25	0.607		$0	$168,563	$168,563
26	0.595		$0	$165,225	$165,225
27	0.583		$0	$161,954	$161,954
28	0.571		$0	$158,747	$158,747
29	0.560		$0	$155,604	$155,604
30	0.549		$0	$152,523	$152,523
31	0.538		$0	$149,503	$149,503
32	0.527		$0	$146,543	$146,543
33	0.517		$0	$143,641	$143,641
34	0.507		$0	$140,797	$140,797
35	0.497		$0	$138,009	$138,009
36	0.487		$0	$135,277	$135,277
37	0.477		$0	$132,598	$132,598
38	0.468		$0	$129,973	$129,973
39	0.458		$0	$127,399	$127,399
40	0.449		$0	$124,877	$124,877
41	0.440		$0	$122,404	$122,404
42	0.432		$0	$119,981	$119,981
43	0.423		$0	$117,605	$117,605
44	0.415		$0	$115,277	$115,277
45	0.407		$0	$112,994	$112,994
46	0.399		$0	$110,757	$110,757
47	0.391		$0	$108,564	$108,564
48	0.383		$0	$106,414	$106,414
49	0.375		$0	$104,307	$104,307
50	0.368		$0	$102,242	$102,242

Total 50 Year Life Cycle Cost in 2007 Dollars		**$67,651,388**
Calculated Effective Interest	2.020 %	

Table E3

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates
Option 1B - Georgina Island to Duclos Point via Bridge Structure

Crossing Length: 1450m (1450m Bridge)
Total Route Length: 1840m

		Quantity	Unit	Unit Price	Total
A	**SITEWORKS**			**TOTAL:**	**$6,954,000**
A1	**Mobilization & Demobilization**	1	LS	$75,000	$75,000
A2	**Property Acquisition**	1	LS	$2,000,000	$2,000,000
A3	**Rehab to Existing Marina**	1	LS	$250,000	$250,000
A4	**Parking Lot**				
	- Asphalt; 100 spaces	3000	sq.m.	$35	$105,000
	- Light Standards	20	EA	$3,200	$64,000
	- Site Development	3500	sq.m.	$40	$140,000
A5	**Existing Road Reconstruction**	1	LS	$3,200,000	$3,200,000
A6	**Toll System**				
	- Electronic Gates and Barriers (manual operation)	1	LS	$100,000	$100,000
	- Gatebooths	2	EA	$10,000	$20,000
A6	**Environmental Control Measures**	1	LS	$1,000,000	$1,000,000
B	**BRIDGE CONSTRUCTION**			**TOTAL:**	**$71,477,025**
B1	**S&P Concrete Substructure**				
	- 50m span lengths	1450	m	$12,580	$18,241,000
B2	**S&P Concrete Parapet Walls**	1450	m	$392	$568,400
B3	**S&P Concrete Deck**				
	- Concrete Deck	1450	m	$30,350	$44,007,500
	- Reinforcing Steel	1450	m	$550	$797,500
B4	**S&P Steel Girders**	1450	m	$5,000	$7,250,000
B5	**Bridge Finishes**				
	- Bridge Deck Waterproofing	1450	m	$400	$580,000
	- Joint Fillers Seal and Compunds	1450	m	$2.50	$3,625
	- Bearings	1450	m	$20.00	$29,000
C	**ROADWAY**			**TOTAL:**	**$460,100**
C1	**Approach Roadway**	1	LS	$230,000	$230,000
C2	**Road Finish**				
	- S&P HL3 ACP (50mm)	1800	t	$75	$135,000
	- S&P HL8 ACP (40mm) HD	1400	t	$60	$84,000
	- Pavement Markings	7400	m	$1.50	$11,100
D	**BASE CONSTRUCTION TOTAL (no index factors):**				**$78,891,125**
E	**CONTINGENCY (10% of Construction):**				**$7,890,000**
F	**TOTAL CONSTRUCTION COST (D + E):**				**$86,781,125**
	ARCHITECTURAL & ENGINEERING COSTS				
	(Percentage of Estimated Construction Cost, as per INAC Cost Reference Manual)				
			% of Construction		**Total**
G	**Project Definition**		1.2%		$1,041,400
H	**Investigation & Design**		4.7%		$4,078,800
I	**Inspections**		5.1%		$4,425,900
J	**Consultant Project Management**		2.2%		$1,909,200
K	**First Nations Project Management**		3.5%		$3,037,400
	- From start of project to finish (estimated)				
L	**PROJECT DEVELOPMENT COST (G+H+I+J+K):**				**$14,492,700**
M	**TOTAL ADJUSTED COST (F+L):**				**$101,273,825**

ANNUAL O&M for OPTION 1B

	Description	Quantity	Unit	Unit Price	Zone Index (Zone 2)	Total
	Bridge (1450m x 8m)	11600	sq.m.	$29.14	0.99	$334,644
	Roadway (Paved)	0.39	km	$3,806.83	1.02	$1,519
	Toll Operator (Crew of 8 @ $25,000 EA per year)	8	EA	$25,000.00	1.00	$200,000

Index = City Centre Index X Zone Index
City Index (Toronto) = 1.00
Zone Index (Zone 2) = As Noted

Annual O&M: **$536,163**

Table E4

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Option 1b - Georgina Island to Duclos Point via Bridge Structure

Capital Cost Year 1 =	$101,273,825.00
Annual O&M Costs =	$536,162.57

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$101,273,825	$101,273,825	$536,163	$101,809,988
1	0.980		$0	$525,547	$525,547
2	0.961		$0	$515,141	$515,141
3	0.942		$0	$504,941	$504,941
4	0.923		$0	$494,943	$494,943
5	0.905		$0	$485,143	$485,143
6	0.887		$0	$475,537	$475,537
7	0.869		$0	$466,122	$466,122
8	0.852		$0	$456,892	$456,892
9	0.835		$0	$447,846	$447,846
10	0.819		$0	$438,979	$438,979
11	0.803		$0	$430,287	$430,287
12	0.787		$0	$421,767	$421,767
13	0.771		$0	$413,416	$413,416
14	0.756		$0	$405,230	$405,230
15	0.741		$0	$397,207	$397,207
16	0.726		$0	$389,342	$389,342
17	0.712		$0	$381,633	$381,633
18	0.698		$0	$374,077	$374,077
19	0.684		$0	$366,670	$366,670
20	0.670		$0	$359,410	$359,410
21	0.657		$0	$352,294	$352,294
22	0.644		$0	$345,318	$345,318
23	0.631		$0	$338,481	$338,481
24	0.619		$0	$331,779	$331,779
25	0.607		$0	$325,210	$325,210
26	0.595		$0	$318,771	$318,771
27	0.583		$0	$312,459	$312,459
28	0.571		$0	$306,272	$306,272
29	0.560		$0	$300,208	$300,208
30	0.549		$0	$294,264	$294,264
31	0.538		$0	$288,437	$288,437
32	0.527		$0	$282,726	$282,726
33	0.517		$0	$277,128	$277,128
34	0.507		$0	$271,641	$271,641
35	0.497		$0	$266,263	$266,263
36	0.487		$0	$260,991	$260,991
37	0.477		$0	$255,823	$255,823
38	0.468		$0	$250,758	$250,758
39	0.458		$0	$245,793	$245,793
40	0.449		$0	$240,926	$240,926
41	0.440		$0	$236,156	$236,156
42	0.432		$0	$231,480	$231,480
43	0.423		$0	$226,896	$226,896
44	0.415		$0	$222,404	$222,404
45	0.407		$0	$218,000	$218,000
46	0.399		$0	$213,684	$213,684
47	0.391		$0	$209,453	$209,453
48	0.383		$0	$205,306	$205,306
49	0.375		$0	$201,241	$201,241
50	0.368		$0	$197,256	$197,256

Total 30 Year Life Cycle Cost in 2007 Dollars **$113,785,172**

Calculated Effective Interest 2.020 %

Table E5

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates
Option 2A - Georgina Island to Black River Road via Causeway Structure

Crossing Length: 2500m (2450 Causeway, 50m Bridge)
Total Route Length: 3260m

		Quantity	Unit	Unit Price	Total
A	**SITEWORKS**			TOTAL:	**$4,404,000**
A1	**Mobilization & Demobilization**	1	LS	$75,000	$75,000
A2	**Property Acquisition**	1	LS	$1,500,000	$1,500,000
A3	**Rehab to Existing Marina**	1	LS	$500,000	$500,000
A4	**Parking Lot**				
	- Asphalt; 100 spaces	3000	sq.m.	$35	$105,000
	- Light Standards	20	EA	$3,200	$64,000
	- Site Development	3500	sq.m.	$40	$140,000
A5	**Existing Road Realignment**	1	LS	$400,000	$400,000
A6	**Toll System**				
	- Electronic Gates and Barriers (manual operation)	1	LS	$100,000	$100,000
	- Gatebooths	2	EA	$10,000	$20,000
A6	**Environmental Control Measures**	1	LS	$1,500,000	$1,500,000
B	**CAUSEWAY CONSTRUCTION**			TOTAL:	**$51,391,174**
B1	**S&P Bridge Structure**				
	- 50m span bridge for navigation	1	LS	$1,500,000	$1,500,000
B2	**S&P Rock Fill for Core**	1177562	t	$27	$31,794,174
					$0
B3	**S&P Rip Rap for Slopes**	79400	sq.m.	$40	$3,176,000
					$0
B4	**S&P Armour Stone for Slopes**	187800	t	$71	$13,333,800
					$0
B5	**S&P Filter Fabric (600R Tensor)**	79400	sq.m.	$3	$238,200
					$0
B6	**S&P CSP Culverts**				$0
	- 3000mm dia. Culverts	200	m	$3,000	$600,000
	- Installation	1	LS	$200,000	$200,000
					$0
B7	**S&P Steel Beam Guiderail**				
	- Guiderail	4200	m	$125	$525,000
	- Structure Connection	4	EA	$500	$2,000
	- Extruder	4	EA	$5,500	$22,000
C	**ROADWAY**			TOTAL:	**$1,210,150**
C1	**Earth Excavation (New Mainland Road)**	8100	m3	$12	$97,200
C2	**S&P New CSP, Ditching on Mainland Road**	1	LS	$100,000	$100,000
C2	**Base**				
	- S&P Granular 'B' (300mm depth)	26400	t	$12	$316,800
	- S&P Granular 'A' (150mm depth)	15900	t	$15	$238,500
C3	**Road Finish**				
	- S&P HL3 ACP (50mm)	4000	t	$75	$300,000
	- S&P HL8 ACP (40mm) HD	2300	t	$60	$138,000
	- Pavement Markings	13100	m	$1.50	$19,650
D	**BASE CONSTRUCTION TOTAL (no index factors):**				**$57,005,324**
E	**CONTINGENCY (10% of Construction):**				**$5,701,000**
F	**TOTAL CONSTRUCTION COST (D + E):**				**$62,706,324**
	ARCHITECTURAL & ENGINEERING COSTS				
	(Percentage of Estimated Construction Cost, as per INAC Cost Reference Manual)				
			% of Construction		Total
G	**Project Definition**		1.2%		$752,500
H	**Investigation & Design**		4.7%		$2,947,200
I	**Inspections**		5.1%		$3,198,100
J	**Consultant Project Management**		2.2%		$1,379,600
K	**First Nations Project Management**		3.5%		$2,194,800
	- From start of project to finish (estimated)				
L	**PROJECT DEVELOPMENT COST (G+H+I+J+K):**				**$10,472,200**
M	**TOTAL ADJUSTED COST (F+L):**				**$73,178,524**

ANNUAL O&M for OPTION 2A

	Description	Quantity	Unit	Unit Price	Zone Index (Zone 2)	Total
	Causeway*	2.45	km	$40,000.00	1.02	$99,960
	Bridge (50m x 8m)	400	sq.m.	$29.14	0.99	$11,539
	Roadway (Paved)	3.25	km	$3,806.83	1.02	$12,657
	Toll Operator (Crew of 8 @ $25,000 EA per year)	8	EA	$25,000.00	1.00	$200,000

Index = City Centre Index X Zone Index — **Annual O&M: $324,156**

City Index (Toronto) = 1.00

Zone Index (Zone 2) = As Noted

*** Note: No value exists in the INAC Cost Reference Manual for a 'Causeway'. This value is estimated.**

Table E6

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Option 2A - Georgina Island to Black River Road via Causeway Structure

Capital Cost Year 1 =	$73,178,524.00
Annual O&M Costs =	$324,156.20

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$73,178,524	$73,178,524	$324,156	$73,502,680
1	0.980		$0	$317,738	$317,738
2	0.961		$0	$311,447	$311,447
3	0.942		$0	$305,280	$305,280
4	0.923		$0	$299,235	$299,235
5	0.905		$0	$293,311	$293,311
6	0.887		$0	$287,503	$287,503
7	0.869		$0	$281,810	$281,810
8	0.852		$0	$276,231	$276,231
9	0.835		$0	$270,761	$270,761
10	0.819		$0	$265,400	$265,400
11	0.803		$0	$260,145	$260,145
12	0.787		$0	$254,994	$254,994
13	0.771		$0	$249,945	$249,945
14	0.756		$0	$244,996	$244,996
15	0.741		$0	$240,146	$240,146
16	0.726		$0	$235,391	$235,391
17	0.712		$0	$230,730	$230,730
18	0.698		$0	$226,161	$226,161
19	0.684		$0	$221,683	$221,683
20	0.670		$0	$217,294	$217,294
21	0.657		$0	$212,992	$212,992
22	0.644		$0	$208,774	$208,774
23	0.631		$0	$204,641	$204,641
24	0.619		$0	$200,589	$200,589
25	0.607		$0	$196,617	$196,617
26	0.595		$0	$192,724	$192,724
27	0.583		$0	$188,908	$188,908
28	0.571		$0	$185,168	$185,168
29	0.560		$0	$181,501	$181,501
30	0.549		$0	$177,908	$177,908
31	0.538		$0	$174,385	$174,385
32	0.527		$0	$170,932	$170,932
33	0.517		$0	$167,548	$167,548
34	0.507		$0	$164,230	$164,230
35	0.497		$0	$160,979	$160,979
36	0.487		$0	$157,791	$157,791
37	0.477		$0	$154,667	$154,667
38	0.468		$0	$151,605	$151,605
39	0.458		$0	$148,603	$148,603
40	0.449		$0	$145,660	$145,660
41	0.440		$0	$142,776	$142,776
42	0.432		$0	$139,949	$139,949
43	0.423		$0	$137,178	$137,178
44	0.415		$0	$134,462	$134,462
45	0.407		$0	$131,800	$131,800
46	0.399		$0	$129,190	$129,190
47	0.391		$0	$126,632	$126,632
48	0.383		$0	$124,125	$124,125
49	0.375		$0	$121,667	$121,667
50	0.368		$0	$119,258	$119,258

Total 50 Year Life Cycle Cost in 2007 Dollars		**$80,742,705**
Calculated Effective Interest	2.020 %	

Table E7

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates
Option 2B - Georgina Island to Duclos Point via Bridge Structure

Crossing Length: 2500m (2500m Bridge)
Total Route Length: 3620m

		Quantity	Unit	Unit Price	Total
A	**SITEWORKS**			**TOTAL:**	**$7,204,000**
A1	**Mobilization & Demobilization**	1	LS	$75,000	$75,000
A2	**Property Acquisition**	1	LS	$1,500,000	$1,500,000
A3	**Rehab to Existing Marina**	1	LS	$500,000	$500,000
A4	**Parking Lot**				
	- Asphalt; 100 spaces	3000	sq.m.	$35	$105,000
	- Light Standards	20	EA	$3,200	$64,000
	- Site Development	3500	sq.m.	$40	$140,000
A5	**Existing Road Reconstruction**	1	LS	$3,200,000	$3,200,000
A6	**Toll System**				
	- Electronic Gates and Barriers (manual operation)	1	LS	$100,000	$100,000
	- Gatebooths	2	EA	$10,000	$20,000
A6	**Environmental Control Measures**	1	LS	$1,500,000	$1,500,000
B	**BRIDGE CONSTRUCTION**			**TOTAL:**	**$123,236,250**
B1	**S&P Concrete Substructure**				
	- 50m span lengths	2500	m	$12,580	$31,450,000
B2	**S&P Concrete Parapet Walls**	2500	m	$392	$980,000
B3	**S&P Concrete Deck**				
	- Concrete Deck	2500	m	$30,350	$75,875,000
	- Reinforcing Steel	2500	m	$550	$1,375,000
B4	**S&P Steel Girders**	2500	m	$5,000	$12,500,000
B5	**Bridge Finishes**				
	- Bridge Deck Waterproofing	2500	m	$400	$1,000,000
	- Joint Fillers Seal and Compunds	2500	m	$2.50	$6,250
	- Bearings	2500	m	$20.00	$50,000
C	**ROADWAY**			**TOTAL:**	**$711,650**
C1	**Approach Roadway**	1	LS	$305,000	$305,000
C2	**Road Finish**				
	- S&P HL3 ACP (50mm)	3200	t	$75	$240,000
	- S&P HL8 ACP (40mm) HD	2450	t	$60	$147,000
	- Pavement Markings	13100	m	$1.50	$19,650
D	**BASE CONSTRUCTION TOTAL (no index factors):**				**$131,151,900**
E	**CONTINGENCY (10% of Construction):**				**$13,116,000**
F	**TOTAL CONSTRUCTION COST (D + E):**				**$144,267,900**
	ARCHITECTURAL & ENGINEERING COSTS				
	(Percentage of Estimated Construction Cost, as per INAC Cost Reference Manual)				
		% of Construction			**Total**
G	**Project Definition**	1.2%			$1,731,300
H	**Investigation & Design**	4.7%			$6,780,600
I	**Inspections**	5.1%			$7,357,700
J	**Consultant Project Management**	2.2%			$3,173,900
K	**First Nations Project Management**	3.5%			$5,049,400
	- From start of project to finish (estimated)				
L	**PROJECT DEVELOPMENT COST (G+H+I+J+K):**				**$24,092,900**
M	**TOTAL ADJUSTED COST (F+L):**				**$168,360,800**

ANNUAL O&M for OPTION 2B

	Description	Quantity	Unit	Unit Price	Zone Index (Zone 2)	Total
	Bridge (2500m x 8m)	20000	sq.m.	$29.14	0.99	$576,972
	Roadway (Paved)	1.12	km	$3,806.83	1.02	$4,362
	Toll Operator (Crew of 8 @ $25,000 EA per year)	8	EA	$25,000.00	1.00	$200,000

Index = City Centre Index X Zone Index
City Index (Toronto) = 1.00
Zone Index (Zone 2) = As Noted

Annual O&M: **$781,334**

Table E8

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Option 2B - Georgina Island to Black River Road via Bridge Structure

Capital Cost Year 1 =	$168,360,800.00
Annual O&M Costs =	$781,333.71

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$168,360,800	$168,360,800	$781,334	$169,142,134
1	0.980		$0	$765,863	$765,863
2	0.961		$0	$750,699	$750,699
3	0.942		$0	$735,835	$735,835
4	0.923		$0	$721,266	$721,266
5	0.905		$0	$706,985	$706,985
6	0.887		$0	$692,986	$692,986
7	0.869		$0	$679,265	$679,265
8	0.852		$0	$665,816	$665,816
9	0.835		$0	$652,632	$652,632
10	0.819		$0	$639,710	$639,710
11	0.803		$0	$627,044	$627,044
12	0.787		$0	$614,629	$614,629
13	0.771		$0	$602,459	$602,459
14	0.756		$0	$590,530	$590,530
15	0.741		$0	$578,838	$578,838
16	0.726		$0	$567,377	$567,377
17	0.712		$0	$556,143	$556,143
18	0.698		$0	$545,131	$545,131
19	0.684		$0	$534,337	$534,337
20	0.670		$0	$523,757	$523,757
21	0.657		$0	$513,387	$513,387
22	0.644		$0	$503,222	$503,222
23	0.631		$0	$493,258	$493,258
24	0.619		$0	$483,492	$483,492
25	0.607		$0	$473,918	$473,918
26	0.595		$0	$464,535	$464,535
27	0.583		$0	$455,337	$455,337
28	0.571		$0	$446,321	$446,321
29	0.560		$0	$437,484	$437,484
30	0.549		$0	$428,822	$428,822
31	0.538		$0	$420,331	$420,331
32	0.527		$0	$412,009	$412,009
33	0.517		$0	$403,851	$403,851
34	0.507		$0	$395,855	$395,855
35	0.497		$0	$388,017	$388,017
36	0.487		$0	$380,334	$380,334
37	0.477		$0	$372,803	$372,803
38	0.468		$0	$365,422	$365,422
39	0.458		$0	$358,186	$358,186
40	0.449		$0	$351,094	$351,094
41	0.440		$0	$344,143	$344,143
42	0.432		$0	$337,329	$337,329
43	0.423		$0	$330,649	$330,649
44	0.415		$0	$324,103	$324,103
45	0.407		$0	$317,685	$317,685
46	0.399		$0	$311,395	$311,395
47	0.391		$0	$305,230	$305,230
48	0.383		$0	$299,186	$299,186
49	0.375		$0	$293,262	$293,262
50	0.368		$0	$287,455	$287,455

Total 50 Year Life Cycle Cost in 2007 Dollars	**$186,593,212**
Calculated Effective Interest	2.020 %

Table E9

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates
Option 3A - Georgina Island to Virginia Beach Marina via Causeway Structure

Crossing Length: 3050m (3000 Causeway, 50m Bridge)
Total Route Length: 3170m

		Quantity	Unit	Unit Price	Total
A	**SITEWORKS**			**TOTAL:**	**$2,554,000**
A1	**Mobilization & Demobilization**	1	LS	$75,000	$75,000
A2	**Rehab to Existing Marina**	1	LS	$750,000	$750,000
A3	**Redevelop Parking Lot**				
	- Asphalt; 100 spaces	3000	sq.m.	$25	$75,000
	- Light Standards	20	EA	$3,200	$64,000
	- Site Development	3500	sq.m.	$20	$70,000
A4	**Existing Road Realignment**	1	LS	$400,000	$400,000
A5	**Toll System**				
	- Electronic Gates and Barriers (manual operation)	1	LS	$100,000	$100,000
	- Gatebooths	2	EA	$10,000	$20,000
A6	**Environmental Control Measures**	1	LS	$1,000,000	$1,000,000
B	**CAUSEWAY CONSTRUCTION**			**TOTAL:**	**$62,434,100**
B1	**S&P Bridge Structure**				
	- 50m span bridge for navigation	1	LS	$1,500,000	$1,500,000
B2	**S&P Rock Fill for Core**	1440600	t	$27	$38,896,200
					$0
B3	**S&P Rip Rap for Slopes**	95800	sq.m.	$40	$3,832,000
					$0
B4	**S&P Armour Stone for Slopes**	229500	t	$71	$16,294,500
					$0
B5	**S&P Filter Fabric (600R Tensor)**	95800	sq.m.	$3	$287,400
					$0
B6	**S&P CSP Culverts**				$0
	- 3000mm dia. Culverts	200	m	$3,000	$600,000
	- Installation	1	LS	$200,000	$200,000
					$0
B7	**S&P Steel Beam Guiderail**				
	- Guiderail	6400	m	$125	$800,000
	- Structure Connection	4	EA	$500	$2,000
	- Extruder	4	EA	$5,500	$22,000
C	**ROADWAY**			**TOTAL:**	**$989,100**
C1	**Base**				
	- S&P Granular 'B' (300mm depth)	25700	t	$12	$308,400
	- S&P Granular 'A' (150mm depth)	15400	t	$15	$231,000
C2	**Road Finish**				
	- S&P HL3 ACP (50mm)	3900	t	$75	$292,500
	- S&P HL8 ACP (40mm) HD	2300	t	$60	$138,000
	- Pavement Markings	12800	m	$1.50	$19,200
D	**BASE CONSTRUCTION TOTAL (no index factors):**				**$65,977,200**
E	**CONTINGENCY (10% of Construction):**				**$6,598,000**
F	**TOTAL CONSTRUCTION COST (D + E):**				**$72,575,200**
	ARCHITECTURAL & ENGINEERING COSTS				
	(Percentage of Estimated Construction Cost, as per INAC Cost Reference Manual)				
			% of Construction		**Total**
G	**Project Definition**		1.2%		$871,000
H	**Investigation & Design**		4.7%		$3,411,100
I	**Inspections**		5.1%		$3,701,400
J	**Consultant Project Management**		2.2%		$1,596,700
K	**First Nations Project Management**		3.5%		$2,540,200
	- From start of project to finish (estimated)				
L	**PROJECT DEVELOPMENT COST (G+H+I+J+K):**				**$12,120,400**
M	**TOTAL ADJUSTED COST (F+L):**				**$84,695,600**

ANNUAL O&M for OPTION 3A

Description	Quantity	Unit	Unit Price	Zone Index (Zone 2)	Total
Causeway*	3.05	km	$40,000.00	1.02	$124,440
Bridge (50m x 8m)	400	sq.m.	$29.14	0.99	$11,539
Roadway (Paved)	3.15	km	$3,806.83	1.02	$12,267
Toll Operator (Crew of 8 @ $25,000 EA per year)	8	EA	$25,000.00	1.00	$200,000

Index = City Centre Index X Zone Index
City Index (Toronto) = 1.00
Zone Index (Zone 2) = As Noted

Annual O&M: $348,247

*** Note: No value exists in the INAC Cost Reference Manual for a 'Causeway'. This value is estimated**

Table E10

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Option 3A - Georgina Island to Virginia Beach Marina via Causeway Structure

Capital Cost Year 1 =	$84,695,600.00
Annual O&M Costs =	$348,246.76

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$84,695,600	$84,695,600	$348,247	$85,043,847
1	0.980		$0	$341,351	$341,351
2	0.961		$0	$334,593	$334,593
3	0.942		$0	$327,968	$327,968
4	0.923		$0	$321,474	$321,474
5	0.905		$0	$315,109	$315,109
6	0.887		$0	$308,870	$308,870
7	0.869		$0	$302,754	$302,754
8	0.852		$0	$296,759	$296,759
9	0.835		$0	$290,884	$290,884
10	0.819		$0	$285,124	$285,124
11	0.803		$0	$279,479	$279,479
12	0.787		$0	$273,945	$273,945
13	0.771		$0	$268,521	$268,521
14	0.756		$0	$263,204	$263,204
15	0.741		$0	$257,993	$257,993
16	0.726		$0	$252,884	$252,884
17	0.712		$0	$247,877	$247,877
18	0.698		$0	$242,969	$242,969
19	0.684		$0	$238,158	$238,158
20	0.670		$0	$233,443	$233,443
21	0.657		$0	$228,821	$228,821
22	0.644		$0	$224,290	$224,290
23	0.631		$0	$219,849	$219,849
24	0.619		$0	$215,496	$215,496
25	0.607		$0	$211,229	$211,229
26	0.595		$0	$207,047	$207,047
27	0.583		$0	$202,947	$202,947
28	0.571		$0	$198,929	$198,929
29	0.560		$0	$194,990	$194,990
30	0.549		$0	$191,129	$191,129
31	0.538		$0	$187,345	$187,345
32	0.527		$0	$183,636	$183,636
33	0.517		$0	$180,000	$180,000
34	0.507		$0	$176,436	$176,436
35	0.497		$0	$172,942	$172,942
36	0.487		$0	$169,518	$169,518
37	0.477		$0	$166,161	$166,161
38	0.468		$0	$162,871	$162,871
39	0.458		$0	$159,647	$159,647
40	0.449		$0	$156,486	$156,486
41	0.440		$0	$153,387	$153,387
42	0.432		$0	$150,350	$150,350
43	0.423		$0	$147,373	$147,373
44	0.415		$0	$144,455	$144,455
45	0.407		$0	$141,595	$141,595
46	0.399		$0	$138,791	$138,791
47	0.391		$0	$136,043	$136,043
48	0.383		$0	$133,350	$133,350
49	0.375		$0	$130,709	$130,709
50	0.368		$0	$128,121	$128,121

Total 50 Year Life Cycle Cost in 2007 Dollars	**$92,821,934**
Calculated Effective Interest	2.020 %

Table E11

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates
Option 3B - Georgina Island to Virginia Beach Marina via Bridge Structure

Crossing Length: 3050m (3050m Bridge)
Total Route Length: 3170m.

		Quantity	Unit	Unit Price	Total
A	**SITEWORKS**			**TOTAL:**	**$2,554,000**
A1	**Mobilization & Demobilization**	1	LS	$75,000	$75,000
A2	**Rehab to Existing Marina**	1	LS	$750,000	$750,000
A3	**Parking Lot**				
	- Asphalt; 100 spaces	3000	sq.m.	$25	$75,000
	- Light Standards	20	EA	$3,200	$64,000
	- Site Development	3500	sq.m.	$20	$70,000
A4	**Existing Road Realignment**	1	LS	$400,000	$400,000
A5	**Toll System**				
	- Electronic Gates and Barriers (manual operation)	1	LS	$100,000	$100,000
	- Gatebooths	2	EA	$10,000	$20,000
A6	**Environmental Control Measures**	1	LS	$1,000,000	$1,000,000
B	**BRIDGE CONSTRUCTION**			**TOTAL:**	**$150,348,225**
B1	**S&P Concrete Substructure**				
	- 50m span lengths	3050	m	$12,580	$38,369,000
B2	**S&P Concrete Parapet Walls**	3050	m	$392	$1,195,600
B3	**S&P Concrete Deck**				
	- Concrete Deck	3050	m	$30,350	$92,567,500
	- Reinforcing Steel	3050	m	$550	$1,677,500
B4	**S&P Steel Girders**	3050	m	$5,000	$15,250,000
B5	**Bridge Finishes**				
	- Bridge Deck Waterproofing	3050	m	$400	$1,220,000
	- Joint Fillers Seal and Compunds	3050	m	$2.50	$7,625
	- Bearings	3050	m	$20.00	$61,000
C	**ROADWAY**			**TOTAL:**	**$453,600**
C1	**Approach Roadway**	1	LS	$71,400	$71,400
C2	**Road Finish**				
	- S&P HL3 ACP (50mm)	3000	t	$75	$225,000
	- S&P HL8 ACP (40mm) HD	2300	t	$60	$138,000
	- Pavement Markings	12800	m	$1.50	$19,200
D	**BASE CONSTRUCTION TOTAL (no index factors):**				**$153,355,825**
E	**CONTINGENCY (10% of Construction):**				**$15,336,000**
F	**TOTAL CONSTRUCTION COST (D + E):**				**$168,691,825**
	ARCHITECTURAL & ENGINEERING COSTS				
	(Percentage of Estimated Construction Cost, as per INAC Cost Reference Manual)				
		% of Construction			**Total**
G	**Project Definition**		1.2%		$2,024,400
H	**Investigation & Design**		4.7%		$7,928,600
I	**Inspections**		5.1%		$8,603,300
J	**Consultant Project Management**		2.2%		$3,711,300
K	**First Nations Project Management**		3.5%		$5,904,300
	- From start of project to finish (estimated)				
L	**PROJECT DEVELOPMENT COST (G+H+I+J+K):**				**$28,171,900**
M	**TOTAL ADJUSTED COST (F+L):**				**$196,863,725**

ANNUAL O&M for OPTION 2b

	Description	Quantity	Unit	Unit Price	Zone Index (Zone 2)	Total
	Bridge (3050m x 8m)	20000	sq.m.	$29.14	0.99	$576,972
	Roadway (Paved)	0.12	km	$3,806.83	1.02	$467
	Toll Operator (Crew of 8 @ $25,000 EA per year)	8	EA	$25,000.00	1.00	$200,000

Index = City Centre Index X Zone Index — **Annual O&M: $777,439**

City Index (Toronto) = 1.00

Zone Index (Zone 2) = As Noted

Table E12

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Option 3B - Georgina Island to Virginia Beach Marina via Bridge Structure

Capital Cost Year 1 =	$196,863,725.00
Annual O&M Costs =	$777,439.33

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$196,863,725	$196,863,725	$777,439	$197,641,164
1	0.980		$0	$762,046	$762,046
2	0.961		$0	$746,957	$746,957
3	0.942		$0	$732,168	$732,168
4	0.923		$0	$717,671	$717,671
5	0.905		$0	$703,461	$703,461
6	0.887		$0	$689,532	$689,532
7	0.869		$0	$675,879	$675,879
8	0.852		$0	$662,497	$662,497
9	0.835		$0	$649,380	$649,380
10	0.819		$0	$636,522	$636,522
11	0.803		$0	$623,919	$623,919
12	0.787		$0	$611,565	$611,565
13	0.771		$0	$599,456	$599,456
14	0.756		$0	$587,587	$587,587
15	0.741		$0	$575,953	$575,953
16	0.726		$0	$564,549	$564,549
17	0.712		$0	$553,371	$553,371
18	0.698		$0	$542,414	$542,414
19	0.684		$0	$531,674	$531,674
20	0.670		$0	$521,147	$521,147
21	0.657		$0	$510,828	$510,828
22	0.644		$0	$500,714	$500,714
23	0.631		$0	$490,800	$490,800
24	0.619		$0	$481,082	$481,082
25	0.607		$0	$471,556	$471,556
26	0.595		$0	$462,219	$462,219
27	0.583		$0	$453,067	$453,067
28	0.571		$0	$444,097	$444,097
29	0.560		$0	$435,304	$435,304
30	0.549		$0	$426,685	$426,685
31	0.538		$0	$418,236	$418,236
32	0.527		$0	$409,955	$409,955
33	0.517		$0	$401,838	$401,838
34	0.507		$0	$393,882	$393,882
35	0.497		$0	$386,083	$386,083
36	0.487		$0	$378,438	$378,438
37	0.477		$0	$370,945	$370,945
38	0.468		$0	$363,600	$363,600
39	0.458		$0	$356,401	$356,401
40	0.449		$0	$349,344	$349,344
41	0.440		$0	$342,427	$342,427
42	0.432		$0	$335,647	$335,647
43	0.423		$0	$329,001	$329,001
44	0.415		$0	$322,487	$322,487
45	0.407		$0	$316,102	$316,102
46	0.399		$0	$309,843	$309,843
47	0.391		$0	$303,708	$303,708
48	0.383		$0	$297,695	$297,695
49	0.375		$0	$291,800	$291,800
50	0.368		$0	$286,023	$286,023

Total 50 Year Life Cycle Cost in 2007 Dollars	**$215,005,262**
Calculated Effective Interest	2.020 %

Table E13

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Forecast for Ferry Remining in Service - 50 Years

Capital Cost Year 1 =	$0.00
Annual O&M Costs =	$590,000.00

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$0	$0	$590,000	$590,000
1	0.973		$0	$573,909	$573,909
2	0.946		$0	$558,257	$558,257
3	0.920		$0	$543,032	$543,032
4	0.895		$0	$528,222	$528,222
5	0.871		$0	$513,816	$513,816
6	0.847		$0	$499,803	$499,803
7	0.824		$0	$486,172	$486,172
8	0.802		$0	$472,912	$472,912
9	0.780		$0	$460,015	$460,015
10	0.758	$25,000,000	$18,960,550	$447,469	$19,408,019
11	0.738		$0	$435,265	$435,265
12	0.718		$0	$423,394	$423,394
13	0.698		$0	$411,847	$411,847
14	0.679		$0	$400,615	$400,615
15	0.660		$0	$389,689	$389,689
16	0.642		$0	$379,061	$379,061
17	0.625		$0	$368,723	$368,723
18	0.608		$0	$358,667	$358,667
19	0.591		$0	$348,885	$348,885
20	0.575		$0	$339,370	$339,370
21	0.560		$0	$330,115	$330,115
22	0.544		$0	$321,112	$321,112
23	0.529		$0	$312,354	$312,354
24	0.515		$0	$303,835	$303,835
25	0.501		$0	$295,549	$295,549
26	0.487		$0	$287,488	$287,488
27	0.474		$0	$279,648	$279,648
28	0.461		$0	$272,021	$272,021
29	0.448		$0	$264,602	$264,602
30	0.436	$25,000,000	$10,906,183	$257,386	$11,163,569
31	0.424		$0	$250,366	$250,366
32	0.413		$0	$243,538	$243,538
33	0.402		$0	$236,896	$236,896
34	0.391		$0	$230,435	$230,435
35	0.380		$0	$224,151	$224,151
36	0.370		$0	$218,038	$218,038
37	0.359		$0	$212,091	$212,091
38	0.350		$0	$206,307	$206,307
39	0.340		$0	$200,680	$200,680
40	0.331		$0	$195,207	$195,207
41	0.322		$0	$189,883	$189,883
42	0.313		$0	$184,705	$184,705
43	0.305		$0	$179,667	$179,667
44	0.296		$0	$174,767	$174,767
45	0.288		$0	$170,001	$170,001
46	0.280		$0	$165,364	$165,364
47	0.273		$0	$160,855	$160,855
48	0.265		$0	$156,468	$156,468
49	0.258		$0	$152,200	$152,200
50	0.251	$25,000,000	$6,273,279	$148,049	$6,421,329

Total 50 Year Life Cycle Cost in 2007 Dollars **$42,319,969**

Assume Interest Rate	10
Assume Escalation Rate	7
Calculated Effective Intrest	2.804 %

NEEGAN BURNSIDE

Appendix F
25 Year Revenue Generation Estimates

Table F1

Chippewas of Georgina Island First Nation
25 Year Revenue Generation for Fixed Link
Based on 1.96% Population Growth
and Number of Passes Sold

Option 1 - Similar Prices to Current Use

	Members			Non-Members			Oversized	Revenue	
Year	Monthly @ $225	Weekly @ $60	Daily @ $15	Monthly @ $600	Weekly @ $160	Daily @ $35	Per Use $70	Per Month	Per Year
2007	100	25	10	15	75	100	50	$52,150	$625,800
2008	102	25	10	15	76	102	51	$53,172	$638,066
2009	104	26	10	16	78	104	52	$54,214	$650,572
2010	106	26	11	16	79	106	53	$55,277	$663,323
2011	108	27	11	16	81	108	54	$56,360	$676,324
2012	110	28	11	17	83	110	55	$57,465	$689,580
2013	112	28	11	17	84	112	56	$58,591	$703,096
2014	115	29	11	17	86	115	57	$59,740	$716,877
2015	117	29	12	18	88	117	58	$60,911	$730,927
2016	119	30	12	18	89	119	60	$62,104	$745,253
2017	121	30	12	18	91	121	61	$63,322	$759,860
2018	124	31	12	19	93	124	62	$64,563	$774,754
2019	126	32	13	19	95	126	63	$65,828	$789,939
2020	129	32	13	19	97	129	64	$67,118	$805,422
2021	131	33	13	20	98	131	66	$68,434	$821,208
2022	134	33	13	20	100	134	67	$69,775	$837,304
2023	136	34	14	20	102	136	68	$71,143	$853,715
2024	139	35	14	21	104	139	70	$72,537	$870,448
2025	142	35	14	21	106	142	71	$73,959	$887,508
2026	145	36	14	22	108	145	72	$75,409	$904,903
2027	147	37	15	22	111	147	74	$76,887	$922,640
2028	150	38	15	23	113	150	75	$78,394	$940,723
2029	153	38	15	23	115	153	77	$79,930	$959,162
2030	156	39	16	23	117	156	78	$81,497	$977,961
2031	159	40	16	24	120	159	80	$83,094	$997,129
2032	162	41	16	24	122	162	81	$84,723	$1,016,673

Table F2

Chippewas of Georgina Island First Nation
25 Year Revenue Generation for Fixed Link
Based on 1.96% Population Growth
and Number of Passes Sold

Option 2 - 5% Rate Increase

	Members			Non-Members			Oversized	Revenue	
Year	Monthly @ $236	Weekly @ $63	Daily @ $16	Monthly @ $630	Weekly @ $168	Daily @ $37	Per Use $74	Per Month	Per Year
2007	100	25	10	15	75	100	50	$54,758	$657,090
2008	102	25	10	15	76	102	51	$55,831	$669,969
2009	104	26	10	16	78	104	52	$56,925	$683,100
2010	106	26	11	16	79	106	53	$58,041	$696,489
2011	108	27	11	16	81	108	54	$59,178	$710,140
2012	110	28	11	17	83	110	55	$60,338	$724,059
2013	112	28	11	17	84	112	56	$61,521	$738,251
2014	115	29	11	17	86	115	57	$62,727	$752,720
2015	117	29	12	18	88	117	58	$63,956	$767,474
2016	119	30	12	18	89	119	60	$65,210	$782,516
2017	121	30	12	18	91	121	61	$66,488	$797,853
2018	124	31	12	19	93	124	62	$67,791	$813,491
2019	126	32	13	19	95	126	63	$69,120	$829,436
2020	129	32	13	19	97	129	64	$70,474	$845,693
2021	131	33	13	20	98	131	66	$71,856	$862,268
2022	134	33	13	20	100	134	67	$73,264	$879,169
2023	136	34	14	20	102	136	68	$74,700	$896,400
2024	139	35	14	21	104	139	70	$76,164	$913,970
2025	142	35	14	21	106	142	71	$77,657	$931,884
2026	145	36	14	22	108	145	72	$79,179	$950,149
2027	147	37	15	22	111	147	74	$80,731	$968,772
2028	150	38	15	23	113	150	75	$82,313	$987,760
2029	153	38	15	23	115	153	77	$83,927	$1,007,120
2030	156	39	16	23	117	156	78	$85,572	$1,026,859
2031	159	40	16	24	120	159	80	$87,249	$1,046,986
2032	162	41	16	24	122	162	81	$88,959	$1,067,506

Table F3

Chippewas of Georgina Island First Nation
25 Year Revenue Generation for Fixed Link
Based on 1.8% Population Growth
and Number of Passes Sold

Option 3 - 10% Rate Increase

	Members			Non-Members			Oversized	Revenue	
Year	Monthly @ $248	Weekly @ $66	Daily @ $17	Monthly @ $660	Weekly @ $176	Daily @ $39	Per Use $77	Per Month	Per Year
2007	100	25	10	15	75	100	50	$57,365	$688,380
2008	102	25	10	15	76	102	51	$58,489	$701,872
2009	104	26	10	16	78	104	52	$59,636	$715,629
2010	106	26	11	16	79	106	53	$60,805	$729,655
2011	108	27	11	16	81	108	54	$61,996	$743,957
2012	110	28	11	17	83	110	55	$63,212	$758,538
2013	112	28	11	17	84	112	56	$64,450	$773,405
2014	115	29	11	17	86	115	57	$65,714	$788,564
2015	117	29	12	18	88	117	58	$67,002	$804,020
2016	119	30	12	18	89	119	60	$68,315	$819,779
2017	121	30	12	18	91	121	61	$69,654	$835,846
2018	124	31	12	19	93	124	62	$71,019	$852,229
2019	126	32	13	19	95	126	63	$72,411	$868,933
2020	129	32	13	19	97	129	64	$73,830	$885,964
2021	131	33	13	20	98	131	66	$75,277	$903,329
2022	134	33	13	20	100	134	67	$76,753	$921,034
2023	136	34	14	20	102	136	68	$78,257	$939,086
2024	139	35	14	21	104	139	70	$79,791	$957,492
2025	142	35	14	21	106	142	71	$81,355	$976,259
2026	145	36	14	22	108	145	72	$82,949	$995,394
2027	147	37	15	22	111	147	74	$84,575	$1,014,904
2028	150	38	15	23	113	150	75	$86,233	$1,034,796
2029	153	38	15	23	115	153	77	$87,923	$1,055,078
2030	156	39	16	23	117	156	78	$89,646	$1,075,757
2031	159	40	16	24	120	159	80	$91,404	$1,096,842
2032	162	41	16	24	122	162	81	$93,195	$1,118,340

NEEGAN BURNSIDE

Appendix G
Population Data

HISTORICAL POPULATION GROWTH
CHIPPEWAS OF GEORGINA ISLAND

15-Jan-08

YEAR	POPULATION				ANNUAL % GROWTH	
	ON-RESERVE	OFF-RESERVE	NON-MEMBERS ON RESERVE	TOTAL POPULATION	ON RESERVE	TOTAL
1968	110	88		198		
1969	103	93		196	-6.36%	-1.01%
1970	105	98		203	1.94%	3.57%
1971	98	113		211	-6.67%	3.94%
1972	96	114		210	-2.04%	-0.47%
1973	89	118		207	-7.29%	-1.43%
1974	97	112		209	8.99%	0.97%
1975	95	110		205	-2.06%	-1.91%
1976	91	118		209	-4.21%	1.95%
1977	88	117		205	-3.30%	-1.91%
1978	88	115		203	0.00%	-0.98%
1979	94	117		211	6.82%	3.94%
1980	105	109		214	11.70%	1.42%
1981	101	113		214	-3.81%	0.00%
1982	119	112		231	17.82%	7.94%
1983	116	115		231	-2.52%	0.00%
1984	119	117		236	2.59%	2.16%
1985	124	120		244	4.20%	3.39%
1986	128	162		290	3.23%	18.85%
1987	132	216		348	3.13%	20.00%
1988						
1989						
1990						
1991						
1992	142	360		502		
1993	141	387		528	-0.70%	5.18%
1994	142	401		543	0.71%	2.84%
1995	146	414		560	2.82%	3.13%
1996	151	444		595	3.42%	6.25%
1997	158	455		613	4.64%	3.03%
1998	158	459		617	0.00%	0.65%
1999	163	461		624	3.16%	1.13%
2000	170	470		640	4.29%	2.56%
2001	170	475		645	0.00%	0.78%
2002	172	472		644	1.18%	-0.16%
2003	177	478		655	2.91%	1.71%
2004	180	480	24	660	1.69%	0.76%
2005	184	488	25	672	2.22%	1.82%
2006	187	495	25	682	1.63%	1.49%
2007	190	498	24	688	1.60%	0.88%
GROWTH RATE (1968 to 2007)	1.41%	4.54%		3.25%		
GROWTH RATE (1992 to 2007)	1.96%	2.19%		2.12%		
AVERAGE GROWTH RATE (1968 to 2007)					1.52%	2.72%

Notes:
1. Population data for years 1988 to 1991 was not available.
2. Non-members on reserve population are shown only for information. They have not been included in population data.

POPULATION PROJECTIONS
CHIPPEWAS OF GEORGINA ISLAND

		OPTION 1 On Reserve Only with Historical Growth Rate			OPTION 2 On Reserve Only with Recent Historical Growth Rate			OPTION 3 Total First Nation Population
	GROWTH RATE	1.41%			1.96%			2.36%
	YEAR	POPULATION	NON-MEMBER RESIDENTS	TOTAL	POPULATION	NON-MEMBER RESIDENTS	TOTAL	POPULATION
	2007	190		190	190		190	688
0	2008	193	25	218	194	25	219	705
1	2009	196	25	221	198	25	223	722
2	2010	199	25	224	202	25	227	740
3	2011	202	25	227	206	25	231	758
4	2012	205	25	230	211	25	236	776
5	2013	208	25	233	216	25	241	795
6	2014	211	25	236	221	25	246	814
7	2015	214	25	239	226	25	251	834
8	2016	218	25	243	231	25	256	854
9	2017	222	25	247	236	25	261	875
10	2018	226	25	251	241	25	266	896
11	2019	230	25	255	246	25	271	918
12	2020	234	25	259	251	25	276	940
13	2021	238	25	263	256	25	281	963
14	2022	242	25	267	262	25	287	986
15	2023	246	25	271	268	25	293	1010
16	2024	250	25	275	274	25	299	1034
17	2025	254	25	279	280	25	305	1059
18	2026	258	25	283	286	25	311	1084
19	2027	262	25	287	292	25	317	1110
20	2028	266	25	291	298	25	323	1137
21	2029	270	25	295	304	25	329	1164
22	2030	274	25	299	310	25	335	1192
23	2031	278	25	303	317	25	342	1221
24	2032	282	25	307	324	25	349	1250
25	2033	286	25	311	331	25	356	1280
26	2034	291	25	316	338	25	363	1311
27	2035	296	25	321	345	25	370	1342
28	2036	301	25	326	352	25	377	1374
29	2037	306	25	331	359	25	384	1407
30	2038	311	25	336	367	25	392	1441
31	2039	316	25	341	375	25	400	1476
32	2040	321	25	346	383	25	408	1511
33	2041	326	25	351	391	25	416	1547
34	2042	331	25	356	399	25	424	1584
35	2043	336	25	361	407	25	432	1622
36	2044	341	25	366	415	25	440	1661
37	2045	346	25	371	424	25	449	1701
38	2046	351	25	376	433	25	458	1742
39	2047	356	25	381	442	25	467	1784
40	2048	362	25	387	451	25	476	1827
41	2049	368	25	393	460	25	485	1871
42	2050	374	25	399	470	25	495	1916
43	2051	380	25	405	480	25	505	1962
44	2052	386	25	411	490	25	515	2009
45	2053	392	25	417	500	25	525	2057
46	2054	398	25	423	510	25	535	2106
47	2055	404	25	429	520	25	545	2156
48	2056	410	25	435	531	25	556	2207
49	2057	416	25	441	542	25	567	2260
50	2058	422	25	447	553	25	578	2314

Notes:
Option 1 respresents the low growth rate characterized by the 40 year historical data from 1988, and allows for no returnees from off reserve.
Option 2 represents a medium growth rate, as characterized by the more recent historical data from 1992, and allows for no returnees from off reserve.
Option 3 represents the bandmembership increasing at the recent historical figure of 2.36%. This option would represent the maximum if all members returned to the reserve.

Non-members are considered in the Total Population Figures, but do not contribute to the growth of the population directly. More study would be required to comment accurately on their



"Sylvia" <smccue@georginaisland.com>

09/Jan/2008 09:18 AM

Please respond to "Sylvia" <smccue@georginaisland.com>

To "Cory Jones" <Cory.Jones@rjburnside.com>

cc

Subject Re: Updated Population data - Georgina Island First Nation

Dear Mr. Jones:

Please excuse the delay but could not be helped, here are the following stats:

2004 - Total Status: 660
180 On Reserve
480 Off Reserve
8 Other Band
24 Non Members

2005 - Total Status: 672
184 On Reserve
488 Off Reserve
5 Other Band
25 Non Members

2006 - Total Status 682
- 187 On Reserve
- 495 Off Reserve
- 5 Other Band
- 25 Non Members

2007 - Total Status 688
- 190 On
- 498 Off
- 5 Other Band
- 24 Non Members

----- Original Message -----
From: Cory Jones
To: smccue@georginaisland.com
Cc: mstiles@georginaisland.com
Sent: Thursday, December 20, 2007 12:02 PM
Subject: Updated Population data - Georgina Island First Nation

Hi Sylvia,

I'm just following up on a phone message I left for you earlier this morning.

We at Neegan Burnside are currently working with chief and council and the Fixed Link Committee on a pre-feasibility study for a fixed link for the island. Part of what we need to do at this stage is update the current population data we have. This will let us estimate future growth, as well as comment on current

NEEGAN BURNSIDE

Appendix H

Interest Rate Information – CP Indices

Bank of Canada Regular page >>

Monetary Policy

Data

Consumer Price Index, 1995 to present

22 June 2007: Please note that CPIW has been updated. The changes in the series are minor.

See also: Inflation Control-Target

	Total CPI		Core CPI (1)	Percentage change over 1 year ago (unadjusted)			
				Total CPI	Core CPI (1)	Alternative measures of trend inflation	
		(seas. adj.)				CPI-XFET (2)	CPIW (3)
November 2007	111.9	112.3	110.3	2.5	1.6	1.8	2.0
October 2007	111.6	111.9	110.3	2.4	1.8	1.9	2.1
September 2007	111.9	111.8	110.5	2.5	2.0	2.1	2.2
August 2007	111.7	111.5	110.1	1.7	2.2	2.2	2.1
July 2007	112.0	111.5	110.0	2.2	2.3	2.4	2.3
June 2007	111.9	111.6	109.9	2.2	2.5	2.7	1.8
May 2007	112.1	111.6	109.9	2.2	2.2	2.4	1.7
April 2007	111.6	111.3	109.6	2.2	2.5	2.5	2.0
March 2007	111.1	111.1	109.5	2.3	2.3	2.4	1.8
February 2007	110.2	110.6	109.1	2.0	2.3	2.4	1.8
January 2007	109.4	110.0	108.6	1.1	2.3	2.3	1.5
December 2006	109.4	109.7	108.4	1.7	2.1	2.1	1.5
November 2006	109.2	109.4	108.6	1.4	2.2	2.1	1.6
October 2006	109.0	109.0	108.4	1.0	2.4	2.4	1.4
September 2006	109.2	109.1	108.3	0.7	2.3	2.2	1.3
August 2006	109.8	109.4	107.7	2.1	2.0	2.0	1.5
July 2006	109.6	109.4	107.5	2.3	2.0	1.9	1.5
June 2006	109.5	109.4	107.2	2.4	1.7	1.4	1.8

May 2006	109.7	109.4	107.5	2.8	2.0	1.8	2.0
April 2006	109.2	109.1	106.9	2.4	1.6	1.7	1.7
March 2006	108.6	108.6	107.0	2.2	1.7	1.4	1.8
February 2006	108.0	108.3	106.6	2.2	1.7	1.3	1.8
January 2006	108.2	108.5	106.2	2.8	1.6	1.4	2.0
December 2005	107.6	108.0	106.2	2.1	1.5	1.3	1.7
November 2005	107.7	107.9	106.3	2.0	1.5	1.4	1.7
October 2005	107.9	107.9	105.9	2.6	1.7	1.4	1.9
September 2005	108.4	108.3	105.9	3.2	1.7	1.5	2.1
August 2005	107.5	107.4	105.6	2.6	1.7	1.5	1.9
July 2005	107.1	107.0	105.4	2.0	1.3	1.1	1.7
June 2005	106.9	106.7	105.4	1.7	1.5	1.4	1.6
May 2005	106.7	106.4	105.4	1.6	1.6	1.2	1.6
April 2005	106.6	106.5	105.2	2.4	1.6	1.1	1.8
March 2005	106.3	106.1	105.2	2.3	1.8	1.5	1.9
February 2005	105.7	105.8	104.8	2.1	1.7	1.4	1.7
January 2005	105.3	105.6	104.5	1.9	1.7	1.1	1.6
December 2004	105.4	105.8	104.6	2.1	1.8	1.3	1.7
November 2004	105.6	105.7	104.7	2.4	1.7	1.2	1.8
October 2004	105.2	105.2	104.1	2.3	1.4	0.9	1.7
September 2004	105.0	104.8	104.1	1.8	1.5	1.0	1.6
August 2004	104.8	104.7	103.8	1.8	1.6	1.0	1.7
July 2004	105.0	104.8	104.0	2.3	1.9	1.4	1.9
June 2004	105.1	104.8	103.8	2.5	1.7	1.3	1.8
May 2004	105.0	104.7	103.7	2.4	1.5	1.2	1.8
April 2004	104.1	104.0	103.5	1.7	1.8	1.2	1.8
March 2004	103.9	103.7	103.3	0.8	1.3	1.1	1.2
February 2004	103.5	103.7	103.0	0.7	1.2	1.0	1.2
January 2004	103.3	103.7	102.8	1.3	1.5	1.5	1.5
December 2003	103.2	103.6	102.8	2.1	2.1	1.6	2.1
November 2003	103.1	103.1	103.0	1.6	1.8	1.8	1.7
October 2003	102.8	102.9	102.7	1.6	1.8	1.8	1.7
September 2003	103.1	103.0	102.6	2.2	1.7	1.9	1.9

August 2003	102.9	102.8	102.2	2.0	1.5	1.7	1.7
July 2003	102.6	102.5	102.1	2.1	1.9	1.8	1.9
June 2003	102.5	102.3	102.1	2.6	2.1	2.1	2.0
May 2003	102.5	102.1	102.2	2.8	2.4	2.5	2.2
April 2003	102.4	102.3	101.7	2.9	2.1	2.7	2.1
March 2003	103.1	103.0	102.0	4.2	2.8	3.1	2.7
February 2003	102.8	102.9	101.8	4.7	3.0	3.3	2.9
January 2003	102.0	102.4	101.3	4.5	3.3	3.4	2.9
December 2002	101.1	101.5	100.7	3.8	2.8	3.3	2.4
November 2002	101.5	101.6	101.2	4.4	3.2	3.1	3.0
October 2002	101.2	101.3	100.9	3.2	2.5	2.5	2.4
September 2002	100.9	100.8	100.9	2.3	2.5	2.2	2.3
August 2002	100.9	100.7	100.7	2.5	2.4	2.3	2.3
July 2002	100.5	100.3	100.2	2.1	2.0	2.1	2.0
June 2002	99.9	99.6	100.0	1.2	2.1	2.1	1.9
May 2002	99.7	99.4	99.8	1.1	2.1	2.0	2.0
April 2002	99.5	99.5	99.6	1.7	2.3	1.9	2.1
March 2002	98.9	98.8	99.2	1.9	2.2	1.7	2.1
February 2002	98.2	98.4	98.8	1.4	2.3	1.4	2.1
January 2002	97.6	98.1	98.1	1.3	1.9	1.3	1.9
December 2001	97.4	97.7	98.0	0.7	1.7	1.2	1.6
November 2001	97.2	97.4	98.1	0.6	1.8	1.3	1.7
October 2001	98.1	98.1	98.4	1.9	2.2	1.8	2.1
September 2001	98.6	98.4	98.4	2.6	2.3	2.0	2.3
August 2001	98.4	98.2	98.3	2.8	2.4	2.0	2.3
July 2001	98.4	98.1	98.2	2.7	2.5	2.0	2.4
June 2001	98.7	98.4	97.9	3.4	2.2	1.8	2.4
May 2001	98.6	98.4	97.7	3.9	2.3	1.9	2.5
April 2001	97.8	97.8	97.4	3.5	2.2	1.9	2.3
March 2001	97.1	97.1	97.1	2.4	1.9	1.7	1.9
February 2001	96.8	96.9	96.6	2.9	1.7	2.0	1.9
January 2001	96.3	96.8	96.3	3.0	1.8	1.9	1.9
December 2000	96.7	97.0	96.4	3.2	1.7	1.9	2.0

November 2000	96.6	96.8	96.4	3.2	1.5	1.8	1.8
October 2000	96.3	96.3	96.3	2.8	1.3	1.5	1.6
September 2000	96.1	95.9	96.2	2.7	1.1	1.3	1.5
August 2000	95.7	95.5	96.0	2.6	1.2	1.5	1.6
July 2000	95.8	95.6	95.8	2.9	1.2	1.6	1.7
June 2000	95.5	95.3	95.8	2.8	1.3	1.5	1.6
May 2000	94.9	94.7	95.5	2.4	1.1	1.4	1.4
April 2000	94.5	94.4	95.3	2.2	1.2	1.3	1.3
March 2000	94.8	94.8	95.3	3.0	1.3	1.6	1.7
February 2000	94.1	94.3	95.0	2.7	1.3	1.6	1.6
January 2000	93.5	94.0	94.6	2.2	1.2	1.5	1.5
December 1999	93.7	94.0	94.8	2.6	1.4	1.7	1.7
November 1999	93.6	93.7	95.0	2.2	1.4	1.6	1.6
October 1999	93.7	93.6	95.1	2.3	1.5	1.6	1.7
September 1999	93.6	93.5	95.2	2.6	1.9	1.9	1.9
August 1999	93.3	93.2	94.9	2.1	1.6	1.5	1.6
July 1999	93.1	92.8	94.7	1.9	1.5	1.5	1.6
June 1999	92.9	92.6	94.6	1.6	1.5	1.6	1.5
May 1999	92.7	92.6	94.5	1.5	1.4	1.4	1.5
April 1999	92.5	92.5	94.2	1.6	1.3	1.4	1.5
March 1999	92.0	92.0	94.1	1.0	1.2	1.1	1.3
February 1999	91.6	91.8	93.8	0.7	1.0	0.9	1.1
January 1999	91.5	91.8	93.5	0.7	1.0	1.0	1.1
December 1998	91.3	91.6	93.5	1.0	1.3	1.3	1.3
November 1998	91.6	91.6	93.7	1.2	1.4	1.3	1.5
October 1998	91.6	91.6	93.7	1.1	1.3	1.3	1.3
September 1998	91.2	91.1	93.4	0.7	1.1	1.2	1.3
August 1998	91.4	91.3	93.4	0.9	1.2	1.3	1.3
July 1998	91.4	91.2	93.3	1.0	1.3	1.2	1.3
June 1998	91.4	91.2	93.2	1.0	1.2	0.9	1.3
May 1998	91.3	91.1	93.2	1.1	1.3	1.3	1.3
April 1998	91.0	91.0	93.0	0.9	1.2	1.1	1.2
March 1998	91.1	91.1	93.0	1.0	1.4	1.2	1.3

February 1998	91.0	91.1	92.9	1.0	1.5	1.4	1.4
January 1998	90.9	91.1	92.6	1.1	1.4	1.1	1.4
December 1997	90.4	90.6	92.3	0.8	1.3	0.8	1.1
November 1997	90.5	90.5	92.4	0.9	1.2	1.0	1.1
October 1997	90.6	90.6	92.5	1.5	1.9	1.6	1.5
September 1997	90.6	90.6	92.4	1.7	1.8	1.5	1.5
August 1997	90.6	90.6	92.3	1.8	2.0	1.5	1.7
July 1997	90.5	90.4	92.1	1.7	2.0	1.5	1.6
June 1997	90.5	90.3	92.1	1.7	2.2	2.1	1.8
May 1997	90.3	90.2	92.0	1.5	2.1	1.5	1.7
April 1997	90.2	90.2	91.9	1.7	2.2	1.8	1.8
March 1997	90.2	90.2	91.7	1.9	2.1	1.8	1.9
February 1997	90.1	90.1	91.5	2.3	1.9	1.6	1.8
January 1997	89.9	90.0	91.3	2.2	2.1	1.7	1.9
December 1996	89.7	89.9	91.1	2.2	2.1	1.8	1.9
November 1996	89.7	89.7	91.3	1.9	1.9	1.4	1.7
October 1996	89.3	89.4	90.8	1.8	1.7	1.3	1.6
September 1996	89.1	89.1	90.8	1.5	1.7	1.2	1.4
August 1996	89.0	89.0	90.5	1.5	1.7	1.3	1.3
July 1996	89.0	88.9	90.3	1.3	1.7	1.4	1.3
June 1996	89.0	88.9	90.1	1.5	1.7	1.3	1.4
May 1996	89.0	88.9	90.1	1.5	1.7	1.6	1.4
April 1996	88.7	88.7	89.9	1.4	1.6	1.6	1.3
March 1996	88.5	88.5	89.8	1.5	1.6	1.5	1.3
February 1996	88.1	88.1	89.8	1.3	1.7	1.5	1.3
January 1996	88.0	88.0	89.4	1.6	1.7	1.6	1.4
December 1995	87.8	87.9	89.2	1.7	1.8	1.7	1.5
November 1995	88.0	87.9	89.6	2.1	2.4	2.3	1.9
October 1995	87.7	87.8	89.3	2.3	2.4	2.5	2.1
September 1995	87.8	87.8	89.3	2.2	2.4	2.5	2.0
August 1995	87.7	87.7	89.0	2.2	2.5	2.6	2.1
July 1995	87.9	87.8	88.8	2.6	2.4	2.5	2.1
June 1995	87.7	87.7	88.6	2.7	2.3	2.4	2.1

May 1995	87.7	87.7	88.6	2.9	2.4	2.5	2.2
April 1995	87.5	87.4	88.5	2.5	2.1	2.1	1.9
March 1995	87.2	87.2	88.4	2.1	2.1	2.1	1.8
February 1995	87.0	87.0	88.3	1.9	2.0	1.8	1.6
January 1995	86.6	86.6	87.9	0.6	2.0	2.2	1.7

1. Core CPI: The CPI excluding eight of the most volatile components (fruit, vegetables, gasoline, fuel oil, natural gas, mortgage interest, inter-city transportation and tobacco products) as well as the effect of changes in indirect taxes on the remaining components. CANSIM identifier for this series is V41693242.

2. CPI-XFET: The CPI excluding food, energy and the effect of changes in indirect taxes.

3. CPIW: In this measure, each component of the total CPI is multiplied by an additional weight that is inversely proportional to the component's volatility, so that the more volatile the component the less it influences the overall index.

Commodity Price Index 1982-90=100 (U.S. dollars)
Indice des prix des produits de base (dollars É.-U.); 1982-1990#100

	Total *Total*	Excluding Energy *Énergie exclue*	Energy *Énergie*	Food *Alimen-tation*	Industrial Materials *Matières industrielles*
1995	106.17	125.21	70.62	108.08	132.17
1996	110.25	123.74	85.05	119.36	125.52
1997	106.22	118.44	83.39	106.71	123.20
1998	89.97	103.57	64.58	92.68	108.00
1999	96.02	105.17	78.94	88.28	112.03
2000	113.71	108.80	122.87	93.95	114.84
2001	107.85	101.34	118.83	96.31	103.86
2002	101.45	94.69	112.50	94.55	95.13
2003	121.82	103.00	153.38	101.76	103.94
2004	146.82	125.02	183.32	114.76	129.93
2005	180.70	129.90	266.53	116.25	136.28
2006	193.16	153.44	260.04	119.30	168.71
2007	208.75	168.58	276.31	138.29	182.26

Appendix B
Fixed Link Socio-Economic Study



C·I·P·S
Cambium Indigenous Professional Services

Fixed Link Socio-Economic Study

2022-03-01
Reference No.: 17-1019-001

Prepared for:

Chippewas of Georgina Island First Nation

Our Spirit is **What Sets Us Apart**

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1.0 INTRODUCTION

1.1 THE CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

The Chippewas of Georgina Island First Nation is located both on and off the east shore of Lake Simcoe and is approximately 100 km north of the Greater Toronto Area (GTA). Georgina Island First Nation Reserve No.33 consists of four separate land masses. There are three separate islands (Georgina Island, Snake Island, and Fox Island) and a small acreage located at Island Grove on the mainland. The primary community centre is located on Georgina Island lies approximately 3 km off the southern shore of Lake Simcoe.

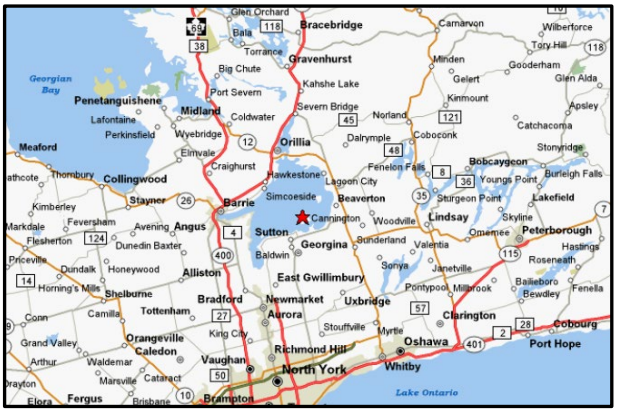


Figure 1 - Central Ontario

1.2 THE FIXED LINK PROJECT

The majority of the population of the First Nation resides on the largest Island, Georgina Island. Georgina Island is only accessible by the Aazhaawe Ferry during the spring, summer and autumn months of the year and by airboat or ice road during the winter months. GIFN is proposing to build the Georgina Island Fixed Link (Fixed Link), a combination of bridge and causeway, that will connect the First Nation's reserve on Georgina Island to its lands on the mainland.

The Aazhaawe Ferry's operational life cycle is coming to an end and the reliance on ferry service has caused significant health and safety issues for the GIFN community. This project will eliminate the need for risky crossings for community members and provide safe, reliable Island accessibility across all seasons and all-weather conditions. This legacy project will position the community to protect the environmental, cultural, social and economic future of the community for the next Seven Generations. The Georgina Island Fixed Link presents an opportunity for investment in a safer, more dependable, and cost-effective transportation alternative to allow continuous access for both pedestrians and vehicles to cross Lake Simcoe from Georgina Island to the mainland.

A study completed in 2008 by Neegan Burnside demonstrated the potential costs and detailed some options for a fixed link. This was a surface look at the opportunity and did not fully explore the implications of a fixed link to Georgina Island. Since 2008, two key considerations make this the right time for the community to fully establish a plan for a fixed link for the community. The community currently has the financial means to undertake the project and the community members have instructed leadership to formalize the communities' desire to establish a fixed link. With financial and community support for the project, the Chippewas of

Georgina Island are prepared to move forward to fully understand the scope and implications of an infrastructure project of this magnitude. Figure 2 provides a timeline of key project benchmarks for the Fixed Link Project.

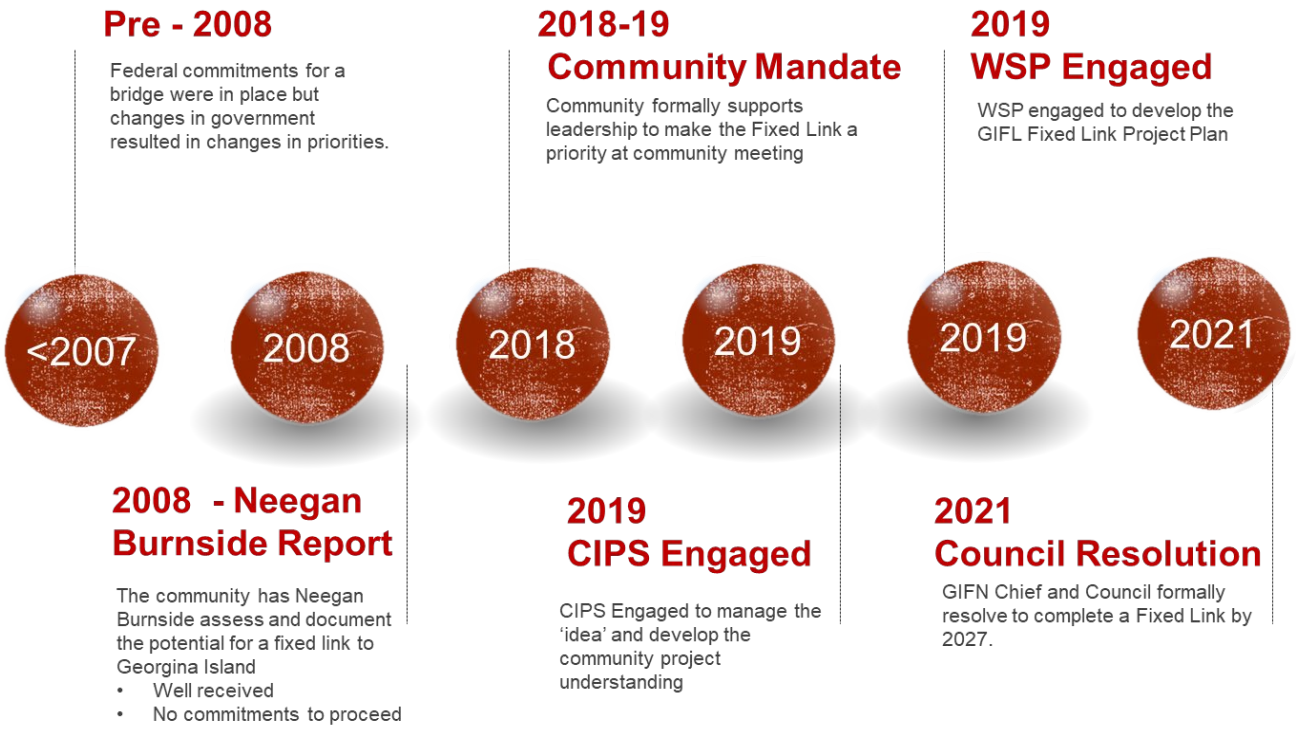


Figure 2 – *Fixed Link Decision Benchmarks*

This study examines the socio-economic considerations of the Fixed Link. This portion of the project is one component piece required by the community in their Fixed Link Project Plan process.

2.0 ABOUT GEORGINA ISLAND FIRST NATION

It is apparent that the Georgina Island First Nation has the potential for economic growth due to its geographic location in the province. An evaluation of the First Nation is required to determine the areas where the First Nation can capitalize on opportunities.

The First Nation is governed by an elected band council, consisting of one chief and four councillors. There is an administration building, a health centre, a police station, a fire hall, and a community centre. As well, the Island children attend a two-classroom school until Grade 5, and there is a daycare for infants and toddlers. A church, the community centre and an outdoor rink provide opportunities for the community to gather for various events.

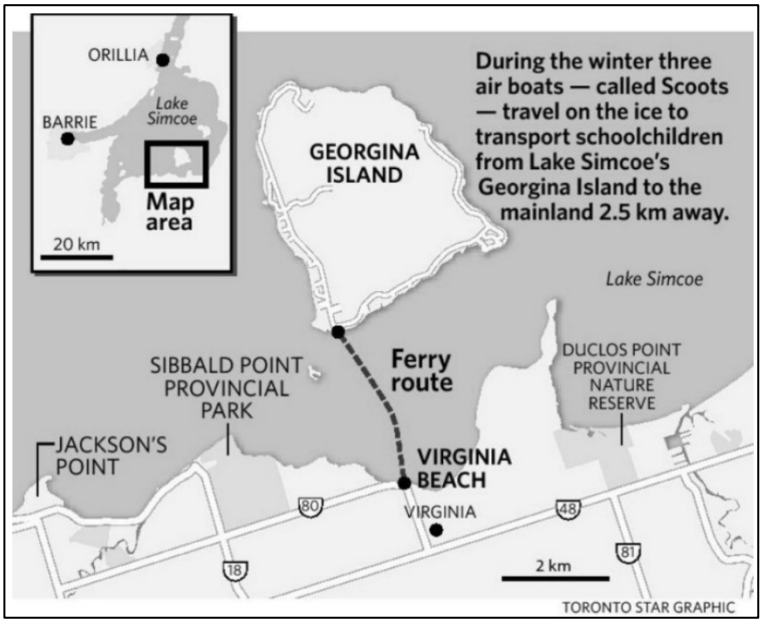


Figure 3 - Georgina Island

The community buildings and most residential structures are centralized on the eastern and western shores providing their membership with easier access to local services. The First Nation has beautiful, undeveloped Lake Simcoe shoreline and has excellent highway proximity to Highway #12 and Highway #48 leading directly from the GTA to the northern cottage regions. Georgina Island is only accessible by the Aazhaawe Ferry during the spring, summer, and autumn months of the year and by scoot or ice road during the winter months. The ferry can carry up to 18 cars and there is comfortable cabin space for 50 walk-on passengers.

2.1 REGISTERED MEMBERSHIP POPULATION

The main population of the reserve reside on the largest Island, Georgina Island. As of 2019, 179 of 618 band members permanently reside on the Island's land mass of approximately 15 km^2, which is 4.5 km long and 3.2 km wide with an area of 1,416 hectares (3,499 acres). The community's registered membership demographics are provided in Table 1, as of 2019.

2.2 GEORGINA ISLAND FIRST NATION DEMOGRAPHICS[1]

DATA LIMITATIONS

As a First Nation community, Georgina Island First Nation members are generally reluctant to participate in federal census activities. The result is that marginalized, lower income, youth and those who believe in a strained federal government/First Nation relationship are often under-represented in statistical data provided by census-based sources.

POPULATION

As of 2016, Georgina Island has a total population of 261 people. Overall, the population is declining at a rate of 0.3% per year over the past 15 years from 2001 to 2016. In the last two censuses, its populations declined by 14 people, an average decline rate of 1% per year from 2011 to 2016. First Nations or persons with Registered or Treaty Indian status make up 84% of the total population.

Residency of Registered Member	Number
Registered Males On Own Reserve	96
Registered Females On Own Reserve	111
Registered Males On Other Reserves	1
Registered Females On Other Reserves	0
Registered Males On Own Crown Land	0
Registered Females On Own Crown Land	0
Registered Males On Other Band Crown Land	0
Registered Females On Other Band Crown Land	0
Registered Males On No Band Crown Land	0
Registered Females On No Band Crown Land	0
Registered Males Off Reserve	341
Registered Females Off Reserve	362
Total Registered Population	**911**

Table 1 - Registered Membership Population (2019)

AGE

Georgina Island has a median age of 41 years old. The largest population is the age group between 55 and 59 years old, and the least populated age group is 85+ years old. 66% of the population are in the working age group between 15 to 64 years old, while 25.7% make up the younger population which will be a part of labour force in less than two decades.

GENDER

The most recent census did not provide gender statistics for Georgina Island, but as of the 2019 registered membership, 42% of people were registered female members living within Georgina Island, and 37% of people were registered males also living within the community.

[1] *https://townfolio.co/on/chippewas-of-georgina-island-first-nation/demographics*

HOUSEHOLD INCOME

Georgina Island First Nation members have, in general income levels that exceed the federally determined low-income cut-off. GIFN members are also reported to earn more than the 2016 national median income of $44,160 per year. Although income levels are considered positive, engagements and key person interviews indicate that disposable income is often much less. The Health Impact Assessment prepared by Intrinsik in 2021 indicated the need for multiple vehicles and additional costs of the ferry and transportation as a contributor to health stressors within the community.[2]

EMPLOYMENT

In the last two censuses, Georgina Island First Nation employment rates grew by 8.4%, an average growth rate of 1.7% per year from 2011 to 2016. A growing employment rate reflects positive economic conditions in the community and implies that people looking for a job are getting matched to an employer.

Overall, the participation rate in Georgina Island is growing at a rate of 1% per year over the past 5 years from 2011 to 2016. In the last two census, its participation rates grew by 5.2%, an average growth rate of 1% per year from 2011 to 2016. An increase in participation rate means that higher proportions of people residing in the community are involved in the labour force and contributing to the community's economy. A breakdown of the labour force is available in Figure 4.[3]

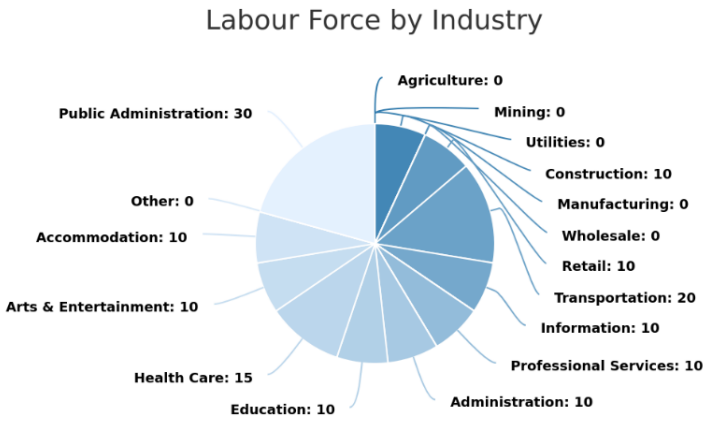


Figure 4 - Labour Force by Industry (2016)

2.3 COST OF LIVING

Cost of living for residents of Georgina Island is higher than Ontario averages. Ontario is Canada's largest province and is one of the most expensive provinces on a cost basis. This is partially explained by the province

[2] *GIFN Transportation Health Impact Assessment, Intrinsik, 2021*
[3] *https://townfolio.co/on/chippewas-of-georgina-island-first-nation/labour-force*

having some of the highest housing costs in Canada, especially around the Greater Toronto Area (GTA), where 48% of Ontarians call home.[4]

ELECTRICITY

With 84% of residents being First Nations, costs associated with delivery for electricity are not incurred due to the On Reserve First Nations Delivery Credit from Hydro One, implemented July 1, 2017, resulting in a lower average monthly electricity bill. However, the Ontario Fair Hydro Plan was only promised for four (4) years, and the future of electricity pricing is unknown. As per the updated Community Energy Plan (CEP) for Georgina Island (2018), electricity is the most common energy type for space-heating used year-round in residential and seasonal residential sectors.[5]

PROPANE

Propane is the second most common energy type used for space heating in both the year-round residential and seasonal residential sectors. Propane is supplied the community by Budget and Superior Propane and delays due to freezing and thawing seasons on Lake Simcoe do occur for the community so propane must be pre-ordered at times during the year, compounding costs for residents.[5]

INTERNET

Internet in the community is provided by Xplornet and Bell Communications. Internet connectivity has been historically poor, but a new connection in 2021 has improved access to community buildings. Many individual households' connections are established wirelessly. Costs associated with internet would be consistent with other local municipalities. As Internet access improves across households, the quality of Internet who must work from home or within band facilities will improve.[6]

HOUSING

From the 2016 census, 91% of families owned their homes, with the remaining 9% renting their home. Housing prices on First Nations have been historically lower due to standards set by the First Nation itself to ensure homes are affordable for members, or due to the value placed on dwellings that reside on leased lands. This may differ to some degree for cottages located on lakefront. Costs associated with renting on a First Nation have also remained lower than regional averages due to a decreased access to services that are available outside of communities. It can be expected that costs associated with housing/ renting would be lower than regional averages.

[4] *https://wowa.ca/cost-of-living-canada#toronto*
[5] *GIFN Update to Community Energy Plan – 2019 – Cambium Aboriginal Inc.*
[6] *https://www.yorkregion.com/news-story/10301954-georgina-gets-connected-high-speed-internet-coming-soon/*

FOOD AND ESSENTIALS

Food costs for residents of Georgina Island can be expected to be higher than mainland residents due to the added element of transportation. Georgina Island does not currently have any grocery or convenience stores available, and residents must travel to nearby centres to shop for essentials.

TRANSPORTATION

Transportation costs in Ontario are also some of the highest in Canada, with car ownership and associated insurance premiums being high as well. Many Georgina Island residents must travel by vehicle to the mainland for education, employment, essential services, social and recreation activities. Residents of the community must also carry comprehensive insurance for their personal vehicles, for the purposes of crossing an ice-road, resulting in higher-than-average premiums. From the updated CEP, 80% of transportation energy use between 2014-2017, was by the residential and seasonal residential sectors.[7]

CHILDCARE

Childcare provided by Niigaan-Naabiwag Child Care Centre, for members of Georgina Island is subsidized by the federal government, but for the purposes of cost of living, it has been included. Members who reside outside the community but wish to take advantage of subsidized childcare must transport their children to the facility within the community, thus incurring additional risks/costs of transportation, and ferry wait times.

SUMMARY

The cost of living on Georgina Island is higher than local and regional averages. Higher costs of living due to the nuances of 'island life' would be mitigated (close to resolved) significantly by the construction of a fixed link.

2.4 PAST AND CURRENT BUSINESSES

Community and membership have tried many ventures over the past 10 years. Some were an attempt to reach the tourism market, some were designed to reach an external goods and services market. At the present time, there are very few ventures operating as full-time. This limited economy is the direct result of the community's island location.

Table 2 illustrates the operations that are either operational today or were established and closed, and the type of ownership structure in place.

[7] *GIFN Update to Community Energy Plan – 2019 – Cambium Aboriginal Inc.*

GIFN Ventures Past and Present			
Business Name	**Service**	**Still Operational?**	**Ownership**
Neezh Meegwunun Family Campground	Camping	Y	Privately owned
Island B&B	Weekly cottage rental	Y	Privately owned
Big Canoe Cabin Rentals	Angler accommodation	Y	Privately owned
Other Private Cottages	Weekly and seasonal cottage rentals	Y	Privately owned
Island Crafts	Small craft store	N	Privately owned
Island Arcade	Light fare and convenience items	N	Privately owned
Island on the Lake Horse Trail Rides	Horse back riding	N	Privately owned
Virginia Beach Marina	Marina, Restaurant, Fuel Boat Storage and Repair	Y	FN owned
Georgina Island Tourism Company	Nanabush Trails management, interpretive guides and maintenance	N	FN owned
Aazhaawe Ferry Service	Car and person ferry	Y	First Nation owned
Island View Business Centre	Small Business Centre (mainland)	Y	FN owned
Tobacco Trails	Cigarettes and Lottery (mainland)	Y	FN Owned
Daawegamig	Cannabis Products (mainland)	Y	FN Owned

Table 2 - GIFN Businesses

2.5 FIRST NATION ORGANIZATION

The most recent organizational chart (2017) is provided in Figure 5.

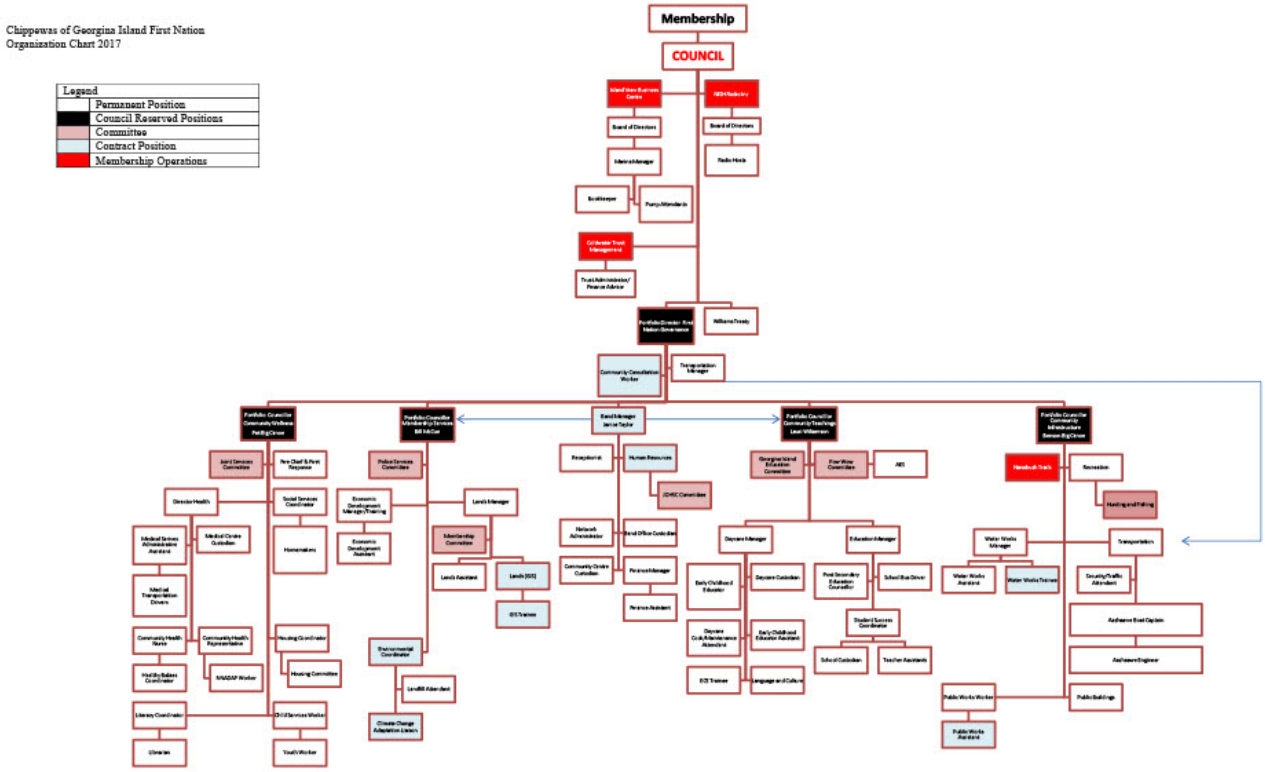


Figure 5 - Georgina Island First Nation Organizational Chart (2017)

2.6 COMMUNITY SWOT ANALYSIS

The results of a community engagement session determined the strengths, weaknesses, opportunities, and threats reveals the following for the First Nation (without a fixed link):

2.6.1 *GEORGINA ISLAND STRENGTHS*

- Extensive land base with shore access to Lake Simcoe and lake access to Lake Couchiching;
- Centrally located within the Lake Simcoe Region which boasts an already established and renowned tourism infrastructure.
- Surrounded by a local population in excess of 5 million (1.5 hours drive radius);
- Located on the Trent Severn Waterway which is travelled by thousands of boaters every year;

- Located on world famous Lake Simcoe waters for anglers wishing to fish year-round for perch, walleye, whitefish, lake trout, pike, muskie and bass;
- Centrally located to over 280 resorts, bed and breakfasts, farming accommodations and campgrounds.
- Within a ten-minute drive to Sibbald Point Provincial Park, one of the most popular parks in Ontario (70,000 people per year).
- Market is centrally located in a highly populated and developed part of the country.
- Access to markets is relatively easy given the highly organized tourism industry and current infrastructure in place.
- The Island community provides the opportunity for a rare transportation experience in Ontario (car, ferry / boat, All Terrain Utility Vehicle, walking etc.).
- The Island community offers an element of isolation over other tourism products offered in the area.
- The rich culture provides another unique element currently not satisfied in the southern Ontario marketplace.
- First Nation is within an hour drive of the GTA - Simcoe County's top market.
- First Nation is centrally located within prime cottage country.
- First Nation is within the proximity of numerous seasonal activities, and tourism attractions.
- First Nation has developed and launched a premier internet website www.georginaisland.com;
- Commercial presence in the community has a strong and consistent theme.
- Current tourist impression is favourable.
- Local tourism infrastructure is in place now and fully operational.
- Private tourism industry is now in the development stages (business development); and
- Both the community and its membership have good access to capital.

GEORGINA ISLAND WEAKNESSES

- Local waterfront is not fully developed.
- Local market base is very small.
- During the shoulder seasons, island access is poor and not appealing to most tourists. Therefore, shoulder seasons are a very low activity period for existing businesses.
- Many tourists will not travel an ice road in winter.
- There are only 100 accommodation spaces available at peak times and less during shoulder and winter seasons.
- There are only four accommodation alternatives for potential visitors.
- There are no formal eating establishments available for dining.
- Local tourism businesses have difficulty making initial contact with tourists to attract them to their businesses due to the location of the community.

OPPORTUNITIES FOR GEORGINA ISLAND

- The community has a good mix of complimentary support businesses which provides for a more "market sharing" operating environment. Duplication of services and products is extremely low;
- Support businesses to have the opportunity to ride the marketing "coat tails" of the community's Tourism Company. Therefore, entrepreneurs can place more emphasis on advertising locally to attract the tourist to their businesses.

- The level of First Nation commercial regulation is low; and
- Proximity to the GTA provides a world class market opportunity for many ventures.

THREATS TO GEORGINA ISLAND FIRST NATION

- Overbearing and uncontrolled tourists will be opposed by local community members.
- Overuse of existing land base.
- Overuse of ferry system may create a reaction by local community members.

SUMMARY

A wide range of research and statistics have been compiled to determine whether there is a market opportunity for Georgina Island First Nation. Upon review of the information, there is a definite market opportunity for a community. Many weaknesses and threats can be reduced or removed through the construction of a fixed link. The Georgina Island First Nation offers a prime location to offer venues that are:

- Sufficiently removed from the fast-paced world of concrete and day to day life demands.
- Sufficiently located within a region where travel is fostered, and visitors are welcome.
- Sufficiently located within excellent proximity to a major market.
- Suitable to provide most of the population with a marketable experience in a number of areas including wildlife viewing, aboriginal culture, plant life, water activities, hiking and guiding.

3.0 THE REGIONAL UNTAPPED MARKET

The Chippewas of Georgina Island First Nation are within one of the most prosperous demographic markets in Canada. This market includes the following Ontario counties, districts, regions, or single-tier municipalities within 100 km:

- Durham Region
- City of Kawartha Lakes
- Peel Region
- Peterborough County
- Muskoka Region
- Simcoe County
- Toronto Region
- York Region

The reliance on a ferry boat to reach the mainland creates limited access to this market. Travel delays, inconsistent travel and other barriers that are apparent result in new entrepreneurs unable to access the direct, non-substantial market of the Island community.

As of the 2016 census, the total populations of counties, districts, regions or single-tier municipalities located within 25km of Georgina Island is more than 2.3 million people, and within 50 km of the community was nearing 2.5 million people, with Muskoka Region included. The total population of counties, districts, regions or single-tier municipalities located within 100 km of Georgina Island is very substantial, and growing area (over 6.5 million

people) and includes the Greater Toronto Area and most of the Golden Horseshoe population. It is understood that portions of these district municipalities or regions may extend beyond 100km, but for the purposes of this report, they have been included in their entirety. Table 3 outlines the populations, on a regional basis.

Population of County/Districts/Municipalities Near GIFN (Census 2016)				
County/District/Municipality /Region	**Within 25km** Durham Region City of Kawartha Lakes Simcoe County York Region	**Within 50km** Durham Region City of Kawartha Lakes Muskoka Region Simcoe County York Region	**Within 100km** Durham Region City of Kawartha Lakes Peel Region Peterborough County Simcoe County Toronto Region York Region	**Ontario**
Total Population	**2,310,844**	**2,371,403**	**6,622,949**	**13,448,494**

Table 3 - Regional Population

3.1 REGIONAL POPULATION[8]

DURHAM REGION

As of 2016, Durham region has a population of 645,862 people. Overall, the population of Durham region is growing at a rate of 1.8% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 37,738 people, an average growth rate of 1.2% per year from 2011 to 2016.

CITY OF KAWARTHA LAKES

As of 2016, The City of Kawartha Lakes (CKL) has a population of 75,423 people. Overall, the population of CKL is growing at a rate of 0.6% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 2,204 people, an average growth rate of 0.6% per year from 2011 to 2016.

[8] *https://townfolio.co/find-community-data?keyword=*

MUSKOKA REGION

As of 2016, Muskoka has a population of 60,599 people. Overall, the population of Muskoka is growing at a rate of 0.9% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 2,552 people, an average growth rate of 0.9% per year from 2011 to 2016.

PEEL REGION

As of 2016, Peel region has a population of 1,381,739 people. Overall, the population of Peel region is growing at a rate of 2.6% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 84,925 people, an average growth rate of 1.3% per year from 2011 to 2016.

PETERBOROUGH COUNTY

As of 2016, Peterborough County has a population of 138,236 people. Overall, the population of Peterborough County is growing at a rate of 6.2% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 3,308 people, an average growth rate of 0.5% per year from 2011 to 2016.

SIMCOE COUNTY

As of 2016, Simcoe County has a population of 479,650 people. Overall, the population of Simcoe County is growing at a rate of 1.8% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 33,587 people, an average growth rate of 1.5% per year from 2011 to 2016.

TORONTO REGION

As of 2016, Toronto region has a population of 2,731,571 people. Overall, the population of Toronto region is growing at a rate of 0.7% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 116,511 people, an average growth rate of 0.9% per year from 2011 to 2016.

YORK REGION

As of 2016, York region has a population of 1,109,909 people. Overall, the population of York region is growing at a rate of 1.5% per year over the past 5 years from 2011 to 2016. In the last two census, its populations grew by 77,385 people, an average growth rate of 1.5% per year from 2011 to 2016.

SUMMARY

The populations for district municipalities/regions above can be observed to be increasing from 2011 to 2016 at an average rate of 1.0%. With Simcoe County, York and Peel Regions having the largest increases at 1.5%, 1.5% and 1.3% respectively.

3.2 GENDER AND AGE[9]

DURHAM REGION

As of the 2016 Census, overall, women outnumber men by 16,515 people. The 20 to 24 years old age cohort exhibits the largest discrepancy with a difference of 1,430 people between the sexes. Furthermore, majority of the population is between the ages 50 to 54 years old, comprising 8.5% of the population.

The largest population of Durham is the age group between 50 and 54 years old, and the least populated age group is 85+ years old. 67.6% of the population are in the working age group between 15 to 64 years old, while 26.6% make up the younger population which will be a part of labour force in less than 2 decades.

CITY OF KAWARTHA LAKES

As of the 2016 Census Overall, women outnumber men by 855 people. The 20 to 24 years old age cohort exhibits the largest discrepancy with a difference of 190 people between the sexes. Furthermore, majority of the population is between the ages 55 to 59 years old, comprising 9.1% of the population.

The largest population of CKL is the age group between 55 and 59 years old, and the least populated age group is between 80 and 84 years old. 61.6% of the population are in the working age group between 15 to 64 years old, while 21.3% make up the younger population which will be a part of labour force in less than 2 decades.

MUSKOKA REGION

As of 2016, overall, women outnumber men by 165 people. The 20 to 24 years old age cohort exhibits the largest discrepancy with a difference of 230 people between the sexes. Furthermore, majority of the population is between the ages 55 to 59 years old, comprising 9.1% of the population.

The largest population of Muskoka is the age group between 55 and 59 years old, and the least populated age group is between 80 and 84 years old. 61.9% of the population are in the working age group between 15 to 64 years old, while 20.3% make up the younger population which will be a part of labour force in less than 2 decades.

PEEL REGION

As of 2016, overall, women outnumber men by 24,340 people. The 15 to 19 years old age cohort exhibits the largest discrepancy with a difference of 4,470 people between the sexes. Furthermore, majority of the population is between the ages 50 to 54 years old, comprising 7.8% of the population.

[9] *https://townfolio.co/find-community-data?keyword=*

The largest population of Peel region is the age group between 50 and 54 years old, and the least populated age group is 85+ years old. 68.9%% of the population are in the working age group between 15 to 64 years old, while 26.6% make up the younger population which will be a part of labour force in less than 2 decades.

PETERBOROUGH COUNTY

As of 2016, overall, women outnumber men by 4,695 people. The 0 to 4 years old age cohort exhibits the largest discrepancy with a difference of 245 people between the sexes. Furthermore, majority of the population is between the ages 55 to 59 years old, comprising 8.2% of the population.

The largest population of Peterborough County is the age group between 55 and 59 years old, and the least populated age group is between 80 and 84 years old. 62.8% of the population are in the working age group between 15 to 64 years old, while 22.9% make up the younger population which will be a part of labour force in less than 2 decades.

SIMCOE COUNTY

As of 2016, overall, women outnumber men by 8,045 people. The 20 to 24 years old age cohort exhibits the largest discrepancy with a difference of 1,415 people between the sexes. Furthermore, majority of the population is between the ages 50 to 54 years old, comprising 8.33 per cent of the population.

The largest population of Simcoe County is the age group between 50 and 54 years old, and the least populated age group is 85+ years old. 65.5% of the population are in the working age group between 15 to 64 years old, while 25.2% make up the younger population which will be a part of labour force in less than 2 decades.

TORONTO REGION

As of 2016, overall, women outnumber men by 104,420 people. The 0 to 4 years old age cohort exhibits the largest discrepancy with a difference of 3,790 people between the sexes. Furthermore, majority of the population is between the ages 25 to 29 years old, comprising 8.5% of the population.

The largest population of Toronto region is the age group between 25 and 29 years old, and the least populated age group is between 80 and 84 years old. 69.8% of the population are in the working age group between 15 to 64 years old, while 20.9% make up the younger population which will be a part of labour force in less than 2 decades.

YORK REGION

As of 2016, overall, women outnumber men by 28,395 people. The 20 to 24 years old age cohort exhibits the largest discrepancy with a difference of 2,970 people between the sexes. Furthermore, majority of the population is between the ages 50 to 54 years old, comprising 8.31 per cent of the population.

The largest population of York region is the age group between 50 and 54 years old, and the least populated age group is 85+ years old. 67.8% of the population are in the working age group between 15 to 64 years old, while 26% make up the younger population which will be a part of labour force in less than 2 decades.

The regional population is comprised of slightly more women (53%) than men (47%). In 2016, within a 25 km distance from Georgina Island 49% of the population were male and 51% were female. This discrepancy grows slightly as a greater area is evaluated. Within 100 km of Georgina Island, 52% of the population was female.

SUMMARY

The regional age distribution illustrates that 67-68% of the local population is between the ages of 15-64. Overall, in all areas of age distribution, there is a substantial market opportunity for each group. Given the size of the Island and the small amount of potential space for visitors, opportunities that are developed for any age category will generally carry a market size that will warrant investments. Table 4 illustrates the age distribution.

Population Age Distribution by Geographic Distance 2016 Census								
Population	Within 25km		Within 50km		Within 100km		Ontario	
	Total	%	Total	%	Total	%	Total	%
0-14	400,760	17.3	408,380	17.2	1,079,935	16.3	2,207,975	16.8
15-64	1,550,090	67.1	1,587,625	67.0	4,532,310	68.4	8,988,870	68.4
65 <	359,995	15.6	375,435	15.8	1,010,750	15.3	1,950,585	14.8

Table 4 - Regional Population Distribution

3.3 HOUSEHOLDS AND INCOME

Within the primary market (25km), there are over 840,000 households and this number increases dramatically to over 2.5 million households for districts/municipalities included in the range of 100km, half of all Ontario dwellings. Table 5 shows households within market reach.

The average income per household within the local region is moderately higher than the Ontario average. Within Ontario, the average household income is almost $75,000. Within the primary market area (25km), the average

family income is over $78,000. This difference is notable when assessing household purchasing power- an examination of the households within 100km also show an income larger than the Ontario average. The difference is less significant, however, and over the next five years is expected remain in line with Ontario averages. In other words, the area currently showing the largest income growth is the group within the local market. Table 6 illustrates household median income.

Range	Total Dwellings (2016 Census)
Within 25km	848,857
Within 50km	895,064
Within 100km	2,588,590
Ontario	5,169,175

Table 5 - Regional Dwellings Totals

Range	Household Median Income (2016 Census)
Within 25km	$78,405
Within 50km	$75,979
Within 100km	$76,117
Ontario	$74,260

Table 6 - Regional Household Median Income

Along with having higher household incomes, a larger portion of households are in the top percentiles for income ranges. Approximately 67% of households within the local market (25km) have an income over $60,000 per year and has the lowest percentage of households earning below the poverty line (less than 5%). The more favourable

of the statistics is that throughout all households within the more regional markets, the largest earning groups are those that earn between $40k-$60k, $60k-80K and over $100k. Table 7 outlines these trends.

Household Income Distribution By Geographic Distance (2016 Census)				
Household Income	**Within 25km**	**Within 50km**	**Within 100km**	**Ontario**
Under $20k	**49,865**	**52,025**	**230,980**	**476,605**
$20k - $40k	**101,695**	**106,220**	**356,575**	**985,225**
$40k - $60k	**108,375**	**112,800**	**359,460**	**797,440**
$60k - $80k	**102,570**	**106,540**	**318,975**	**699,350**
$80k - $100k	**94,055**	**97,290**	**272,390**	**591,845**
Over $100k	**343,080**	**350,205**	**887,545**	**1,404,545**

Table 7 - Regional Household Income Distribution

It becomes quite evident as the research is gathered and assembled that the local area and the surrounding communities provides a significant market opportunity for the proposed ventures within the Georgina Island First Nation. Within the local market the key variables are:

i. there are over 800,000 households.

ii. the average household income within this area is $78,405.

iii. nearly 70% of the households have an income greater than $60,000 per year. Given these facts and understanding that the Georgina Island First Nation has limited access to these markets now, it is undeniable, that opening the community to this market base would be a real economic opportunity for the community and membership.

4.0 SOCIO-ECONOMICS BACKGROUNDER

Social economics (Socioeconomics) is a branch of economics that focuses on the relationship between social behavior and economics. It examines how social norms, ethics, emerging popular sentiments, and other social philosophies influence consumer behavior and shape public buying trends. It uses history, current events, politics, and other social sciences to predict potential results from changes to society or the economy.

For the purposes of this study, we will be focussing on the potential changes to the Georgina Island First Nation resulting from the construction of a Fixed Link. This report is the first phase of socioeconomic analysis intended to assist leadership in their pursuit of a Fixed Link.

At this time, the full economic impacts of construction are unknown, however construction and development costs are anticipated to be in excess of $225 Million.

4.1 UNDERSTANDING THE SOCIAL ECONOMICS OF INFRASTRUCTURE DEVELOPMENT

4.1.1 *WHAT IS A SOCIO-ECONOMIC IMPACT ASSESSMENT?*

Performing a socio-economic impact assessment is a way of setting out the various effects of a project in a clear and structured way. A socio-economic impact assessment weighs the socio-economic cost against the socio-economic benefit. As far as possible, the analysis includes the consequences for all participants in society and all kinds of impacts, for example:

i. Social impacts (health, recreation)
ii. Economic impacts (can include effects on employment)
iii. Environmental impacts (soil, air, and water quality)
iv. Cultural Impacts/Impacts to Indigenous Rights and Culture (access to traditional foods, medicines, traditional lands, and resource use)

The impacts should, if possible, be described in economic terms. Thus, a socio-economic impact assessment differs from, for example, an environmental impact assessment, which focuses on the environmental and health-related effects from a scientific perspective.

4.2 HOW IS ECONOMY AFFECTED BY LARGE INFRASTRUCTURE PROJECTS?

4.2.1 *THE POSITIVE ECONOMIC IMPACTS OF BRIDGES*

In an article published by Bridge Masters on Mar 16, 2018, entitled, *The Positive Economic Impact of Bridges*, they identified that economists have recognized three key things bridges do that propel economic activity.

i. Bridges are a critical component of infrastructure, making it possible to ship raw materials and finished goods to factories, warehouses, suppliers, distributors, stores, and end-consumers. Bridges also facilitate travel so consumers can purchase goods and services in their own communities and beyond. When a bridge closes (or doesn't exist), economic activity slows or grinds to a complete halt.

ii. Wages earned by bridge construction and maintenance workers have a positive economic impact when used to buy things at local businesses. An investment in wages, and the related consumer spending that results from bridge construction, is proven to pay off many times over.

iii. Bridges increase cash flow when they join two places that complement each other economically.

In addition to above, economic benefits of the bridge in comparison to a ferry/ice road include[10]:

i. Negating the need to operate the ferry, thus avoiding the on-going costs of operation. Those costs include the contract outlays for the ferry operation, equipment rentals, fuel and utilities expenses, and costs of staff positions. These costs also include provision for ferry refits and ancillary facilities and equipment.

ii. Allowing for disposition of the existing ferry and alternative use of other water crossing vehicles.

iii. Benefits attributable to commercial and non-commercial traffic include the value of time saved compared to the ferry and ice road.

iv. Regularizing of traffic movement to allow for local, regional, and provincial economic stimulation.

v. Immediate opportunity for local and regional public transit services into Georgina Island to further reduce costs associated with transportation.

4.2.2 *ECONOMIC IMPACT OF BRIDGE INFRASTRUCTURE*

Every four years, the American Society of Civil Engineers releases a Report Card for America's Infrastructure. It documents the condition and performance capabilities of all types of infrastructure across the United States, including bridges, roads, highways, utilities, schools, municipal buildings, and more. The report takes the form of a

[10] *https://reviewboard.ca/upload/project_document/EA03-008_Appendix_12_-_Nichols_Benefit-Cost_Analysis__Feb_2003.pdf*

school report card. Each infrastructure category gets its own letter grade, and the overall network receives a score as well. The report also provides information on how the evaluators arrived at the grades.

The latest infrastructure report was released in 2017, and the grade for all types of infrastructure was a shockingly low D+. It came as a surprise to many that the nation's bridges received a somewhat more respectable grade of C+. Why the higher score? The primary reason cited is the recognition that bridges are a critical component of national and local economies, especially when compared with things like municipal buildings and schools.

In addition, unsafe (or questionable) transportation routes often result in higher insurance premiums and expose municipalities to the risk of costly lawsuits resulting from accidents and injuries. This is another key driver of spending on bridge construction and maintenance.

4.2.3 *ECONOMIC IMPACT OF BRIDGE WORKER WAGES*

Another monetary benefit generated by bridge development and maintenance projects is the impact of government spend on worker salaries and the use of these wages to purchase goods and services. Cash spent by workers doesn't just pay off once. It does so repeatedly.

Here is a simple explanation of how this multiplier works:

i. A government entity or agency (or public-private partnership) commits to funding a bridge construction, repair, or maintenance project.

ii. They contract the project work to a private firm.

iii. The firm uses a significant percentage of the government money (or money generated through a public-private partnership) to hire people to work on the project.

iv. The workers spend a significant percentage of the money they receive in wages on goods and services, with most of the money going to local businesses.

v. People selling the workers goods and services earn income and spend it at other businesses. Firms may also need to hire more people to handle increased consumer traffic. These new employees are paid for their services and eventually use that money to buy things.

This process plays out repeatedly, creating a multiplier effect, increasing the value of the original investment in a bridge construction project to more than that of the cash originally put into it. Experts set this multiplier at a factor of 1.5, meaning that every dollar spent on bridge worker salaries typically generates $1.50 in economic benefit. Most of the benefit happens in local economies, making it worthwhile for governments to use taxpayer dollars or cash generated through bonds or public-private partnerships on bridge infrastructure projects.

4.2.4 *ECONOMIC IMPACT OF NEW CASH FLOWS*

This is one of the greatest economic opportunities for the First Nation population. As a community that has many barriers to reaching commercial markets, community members have difficulty selling goods and services as well as purchasing goods and services. Investment in a fixed link would result in new business venture opportunities for members. It would also result in the community paying less for goods and services as they can now reduce shipping costs and or shop from a greater variety of goods and service providers. Either benefit will result in cash in the pockets of the community.

4.2.5 *TOURISM*

Georgina Island is situated in the prosperous Ontario Regional Tourism (RTO) Zone 6 – also known as the Central Counties. The Central Counties has a population of over 2 million people, residing within over 670,000 households.[11] Tourism in Central Counties is an increasingly significant contributor to economic growth. The retention of businesses and services in the area is increasingly dependent on visitor spending, resulting in nearby economies investing heavily in attracting those visitors.

From the RTO Zone 6 visitor profile survey in 2018, Cultural Sampling, Attraction to Nature and Ecological Lifestyle scored as the highest social values in the survey.[12] With GIFN being the larger of two First Nations located in this zone, the addition of a Fixed Link will provide a definite opportunity for Georgina Island to provide these unique experiences to visitors with existing or with new businesses. The construction of a fixed link, connecting Georgina Island to the mainland will provide easy, and regular access to and from Georgina Island and contribute to the growth of the local tourism sector.

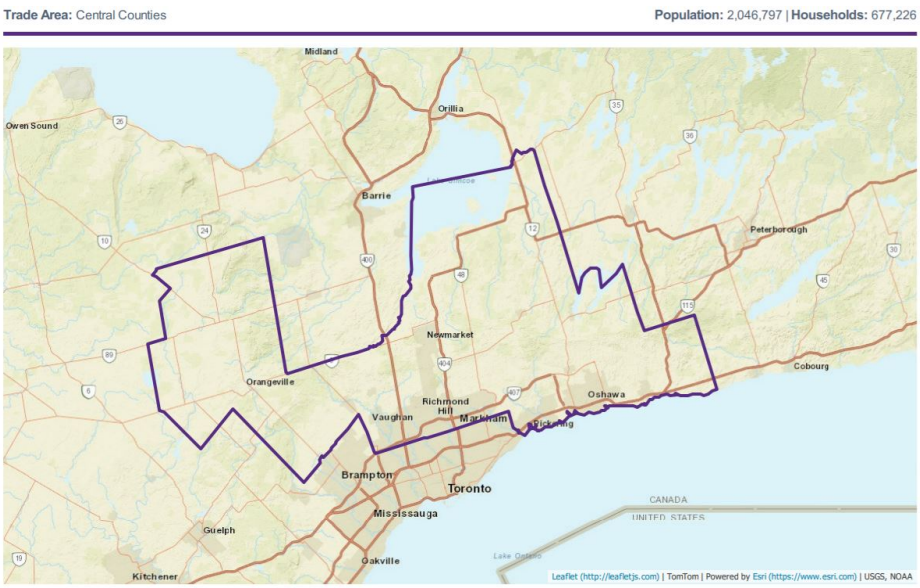


Figure 6 - Central Counties

[11] *https://centralcounties.ca/wp-content/uploads/Central-Counties-Demographics.pdf*
[12] *https://centralcounties.ca/wp-content/uploads/RTO6-CCT-Visitor-Research-Program-Report-Fiscal-Year-2018-2019.pdf*

4.2.6 *COVID-19 PANDEMIC*

In March of 2020, the COVID-19 pandemic (the pandemic) emerged in Ontario, forcing many industries to either close or operate at a reduced capacity. These measures and the hardships with public health measures has forced many tourism businesses to lay off staff with concerns of cashflow to pay for fixed costs such as rent, utilities and existing debt. From a survey and report released in October 2020, by the Tourism Industry of Ontario (TIAO), it was estimated that tourism businesses were suffering a 69% revenue decline at that time.[13]

Further pandemic waves, and a regression into more stringent physical distancing protocols has caused sectors like restaurants, bed and breakfast and other local tourism attractions even further hardships, which are yet to be fully understood as the pandemic continues. At the beginning of the pandemic, Georgina Island First Nation leadership decided to limit access to the island, for the protection of community health.This choice, which was in the best interests of the community, has had obvious impacts to local businesses both on the island and mainland.

As well, Indigenous Peoples experience a more significant burden of noncommunicable and infectious diseases generally, and this is related to social and health inequities stemming from invasion and subsequent colonisation. The Island closure impacted the momentum of the fixed link project as stakeholder meetings and community engagements regarding the fixed link have either been rescheduled for times when public health measures have relaxed or switched to virtual options, which most of the work force has become familiar with. As well community members experienced increased challenges in accessing cultural practices due to public health protocols, lack of ability to travel to communities due to lockdown measures, increased fear/concern surrounding contracting the virus and the shutdown of recreational activities such as sports, entertainment, cultural gatherings, and family vacations. Close living quarters also impacted mental health, especially in cases of unhealthy emotional and physical situations for women, children, and LGBTQ2S+ peoples as a non-exhaustive list.

Further, because of the heightened public health protocols, community members experienced lack of culturally safe health care and access to personal protection equipment (PPE). Meetings and engagements regarding the fixed link have either been rescheduled for times when public health measures have relaxed or switched to virtual options, which must of the work force has become familiar with. The impacts of COVID-19 are ongoing and will serve as a generational case study for the economy and how it adapts as we continue in this new normal.

In response to the pandemic and Island closure, Georgina Island First Nation (GIFN) entered into a six-month commercial agreement with Drone Delivery Canada Corp. (DDC). Dated July 30, 2020, the agreement was established with the assistance of DDC sales agent Air Canada, and the Pontiac Group. DDC's drone delivery platform was crucial to limit person-to-person contact on its island ferry service by transporting COVID-19-related cargo like personal protection equipment (PPE), hygiene kits, test kits, test swabs, among other goods. This project

[13] *https://centralcounties.ca/wp-content/uploads/Covid-19-Provincial-Survey-8-Report-TIAO-October-8-2020.pdf*

was not successful and did not provide a plausible for solution for a number of reasons pertaining to the weather uncertainties of the Island community.

5.0 COMMUNITY OPERATIONS IMPACTS

There are multiple impacts that a fixed link would have for the community. At an engagement session of First Nation management, many impacts were viewed from either a positive or negative lens. All of these are significant areas of impact for the community that will require development and/or mitigation plans. The demands this will place on First Nation administration are considered significant and will directly impact community-based service levels from human resource capability standpoint. Moreover, there will be significant financial costs association with opportunity development and negative impact mitigation. The following impacts were reported.

5.1 CULTURAL IMPACTS

When considering connecting the community to Southern Ontario, the element of cultural impacts, which are dominantly negative, cannot be underestimated. Immediate or tangible effects may be obvious, like the risk of culturally significant areas facing potential exposure or pressure due to increased visitors to the community. Some other effects may be not as immediate or visible, like the potential loss of Island identity due to community members choosing alternative employment on the mainland or re-locating completely to the mainland.

5.1.1 *POSITIVE IMPACTS*

Positive cultural impacts include, but are not limited to:

- Off-reserve members or public having an increased desire to seek-out Georgina Island cultural activities, with access being regularized due to a fixed link vs. ferry.

5.1.2 *NEGATIVE IMPACTS*

Negative cultural impacts include, but are not limited to:

- Culturally Significant Area exposure, pressure, and potential destruction.
- Traditional food and medicine areas on the island facing increased exposure due to increase in visitors.
- Loss of Island identity due to students re-locating to mainland schools, community members seeking better employment on the mainland and assumed increase developments within the community.

These impacts will need to be revisited and monitored as the construction of a fixed link nears completion to prevent and mitigate potential loss of spiritually or culturally significant areas or plants and wildlife, that are critical to the quality of life for the community.

5.2 ECONOMIC DEVELOPMENT IMPACTS

Overall, it is strongly believed that the fixed link will have a net positive impact on the community. The simple fact that the access to commercial markets becomes simple via a trustworthy transportation route is the key reason for the positive feelings towards the fixed link and the economy.

5.2.1 *POSITIVE IMPACTS*

The community views the following as positive impacts:

- Increased Employment opportunities
- Airboat Rescue Agreements possible with Town and surrounding areas
- Partnerships with small business between Band and others
- Opportunities for Band Members to start or expand small businesses
- More access to markets in the GTA
- The overall size of GI's economy is expected to grow.
- Lower costs for food and other everyday necessities as travel time and ferry costs are eliminated and potential for businesses supplying necessities within community.

5.2.2 *NEGATIVE IMPACTS*

The community views the following as negative impacts:

- There will be a significant need to develop communication plans to realize procurement benefits – this is currently not in place.
- There are limited by-laws/by law enforcement for development to take place in a positive way – this will need to be developed, supported and enforced.
- There may be negative effects to things like fishing access points or other points of interest in the community – there is nothing formal in place to manage possible development of sites of significance in the community.
- The small amount of community expenditures will flow outside of the community more easily. What used to be a 1.5-hour trip to get items of convenience can be reduced to 10-15 minutes. The local market will reduce as a result of a fixed link.

5.3 EDUCATION IMPACTS

It is believed that there will be a net positive impact to the education within the community. Although many concerns pertaining to the social 'island' fabric of the community being somewhat lost by the fixed link, it is believed that education will become better in the long run.

5.3.1 *POSITIVE IMPACTS*

The community views the following as positive impacts:

- It is believed that the fixed link will be a managed entry point (toll station) allowing for better security and scrutiny of visitors. This will result in a safe school / student environment
- One of the most significant benefits will be that kids are able to stay at home throughout the whole school year without billeting during freeze up and thaw season.
- Students will be able to travel, uninterrupted, by bus or personal vehicle to school rather than bus/scoot/bus in the winter months or bus by ferry during warmer months. This will reduce travel time to and from school, will negate tardiness or absenteeism due to unexpected ferry issues.
- Increased time for extra-curricular offerings.
- Students will be able to have more opportunity for youth employment.
- There will be the opportunity to attract and hire qualified teachers at a at a more competitive salary, rather than those having to cross on ferry boat.
- Parents residing off territory will be able to send kids to Community School to retain their “island identity’ and teachings.

5.3.2 *NEGATIVE IMPACTS*

The community views the following as negative impacts:

- Kids Safety – if the fixed link is not monitored, there will be many more people coming and going through the community
- There may be a need for a Residency By-law to support education, taxation if population begins to grow.
- More kids staying to attend school or off reserve sending kids to Community School creating a bigger demand on the current education system
- Fear that school needs to be closed due to parents pulling kids out and sending them to mainland schools causing numbers to fall

5.4 EMERGENCY SERVICES

It is believed by administrative staff that emergency services will require significant changes to the way it operates if a fixed link were constructed. Due to the change to the status quo required, the community would see the impact to emergency services (not to be confused with overall health to be discussed later) to be negative. At the present, the community has significant emergency services for a community of its size – being served by local, First Nation

members. This has real value to the community and the change in emergency services that may result would be considered negative.

5.4.1 ***POSITIVE IMPACTS***

The community views the following as positive impacts:

- Ambulance Services quicker and more reliable especially in winter months.
- Ambulances cannot travel on ice and stretcher can't fit in scoot.
- There would be a reduction in overall costs of services from the hourly rates being charged now.
- There would be cost savings for equipment and maintenance of that equipment.
- The current Georgina Island emergency responders could have new agreements put in place where services are contracted out to Township/Region for Airboat Rescue, Fire and other EMS Supports
- There should be closer to 24/7 services across all services resulting in a more safe, secure community
- There may be a decrease in homeowner insurance with the perceived increase access to services.

5.4.2 ***NEGATIVE IMPACTS***

The community views the following as negative impacts:

- The current services offered may be eliminated with the construction of the fixed link.
    - The loss of Emergency Services would eliminate the current culturally appropriate and sensitivities that is beloved by the community and there is a fear that there is no need for Island Services.
    - Community specific jobs would be lost as a result
- Current First Nation staff may be lost as the community cannot compete with compensation packages on the mainland Emergency Services
- Increased traffic, economic activity and crime may all result in increased crime potential placing a higher demand on emergency services

5.5 ENVIRONMENT

Although construction will have many impacts to the environment, it is believed that they will be mitigated to the extent they are in any other bridge construction project. This comfort, along with the security and safety of the route, as well as the elimination of a potential environmental disaster with a ferry accident, the net impact is viewed as positive for the environment.

5.5.1 ***POSITIVE IMPACTS***

The community views the following as positive impacts:

- Looming fear of diesel spill or other catastrophe with the current ferry route.
- Climate change and weather effects everything with current transportation system from ice road stability to ferry boat traveling in extreme weather events. This uncertainty will be eliminated as a result of a fixed link.
- Off territory service providers and not for profit groups will be able to better monitor the Island's unique ecosystems for protecting against invasive species and protecting for species at risk.
- The fixed link will allow for a possible Waste Transfer Station over the current landfill located near the centre of the community. The waste transfer station would reduce the potential for negative environmental impacts due to landfill.

5.5.2 ***NEGATIVE IMPACTS***

The community views the following as negative impacts:

- Increase in development may cause environmental issues such as flooding and biodiversity decrease.
- Potential increase in visitors - may increase illegal harvesting of plants and animals or destruction of important cultural medicines.
- Potential increase in the number and volume of invasive species.
- Road salt run-off into Lake Simcoe causing an increase in sodium levels.
- Foreign animals crossing to the community affecting ecosystems.
- Significant change in the natural view with a large, fixed link becoming a part of the landscape.
- Potential change of water flow and the effects on Lake Simcoe habitats.
- People bringing waste for disposal to the community at the Landfill site.
- Increase use of landfill due to more people and visitors may shorten landfill life span.
- Need for by-laws to be implemented and enforced pertaining to the environment and protections mechanisms.

5.6 HEALTH IMPACTS

The primary supporting measure for the community will be the improvement in health and health services. Regularized access to health care services will improve greatly if a fixed link is constructed. Reduced travel time and transportation costs will lower costs of food and necessities, improving mental health. The elimination of loss of life due to ice road related accidents will clearly improve the community's mortality rate but will also improve overall community mental health. Whether it is worrying that someone is safe coming home to the stresses of the

ice road being safe, to the significant community grieving that occurs when an accident does take place, overall community health would improve with a fixed link.

5.6.1 *POSITIVE IMPACTS*

The community views the following as positive impacts:

- Ambulance Services quicker and more reliable especially in winter months which means much faster access to health care.
- More services can be offered in the community from health professionals.
- Safe access to winter scheduled appointments.
- Better food security and access to nutrient foods.
- Less physical and mental stress for everyday living such as going out to get groceries or running other household errands.
- Potential for members remain on Georgina Island and receive medical care and long-term care access 24/7.
- Health services required confidentiality or discretion can be sought after as there is perceived no privacy or confidentiality of health services offered in the community.
- Lower costs for food and other everyday necessities as travel time and ferry costs are eliminated, reducing stresses on residents, improving mental health.

5.6.2 *NEGATIVE IMPACTS*

The community views the following as negative impacts:

- There will be a loss of local services and on territory jobs in the health services as many will be perceived as duplication once the government designation of remote location is lost.
- Current health services professional may be lost as the First Nation cannot compete with mainland pay scales.

The direct impacts of current transportation can be fully reviewed in the GIFN Transportation Health Impact Assessment study completed in 2021 by Intinsik.

5.7 HUMAN RESOURCES IMPACTS

The human resource potential for community members will be net positive. As access to direct transportation for employment improves, so too does the opportunity for employment. On the flip side, the community may begin to run into human resource retention issues. As the employment market expands and becomes affordable (time wise in travel and money wise in the cost of the ferry) there is a real threat of the First Nation being less competitive as an employer of choice. From a community socioeconomic benefit, the fixed link will be positive. From a First Nation operations standpoint, the fixed link would be net negative.

5.7.1 ***POSITIVE IMPACTS***

The community views the following as positive impacts:

- Greater opportunity for training.
- Opportunity for a more qualified work force to be developed with access to employment related services off territory.
- Reduced commute time to off territory employment.
- Opportunity to schedule more training.
- Hiring of By-law Officers possible as new sector developed as a part of the community's growth.
- More qualified/educated members coming home to work.
- More opportunities for members to be employed.
- Succession planning possible.
- New employment opportunities to staff potential controlled access stations to the fixed link, as well as increased requirement of road maintenance.

5.7.2 ***NEGATIVE IMPACTS***

The community views the following as negative impacts:

- Loss of quality employees to mainland opportunities.
- The community will have a hard time competing with mainland for pay scale.
- There may be less opportunity for less qualified members trying to remain on territory as the market of job seekers increases to include filling positions on the Island.

5.8 LANDS IMPACTS

As growth occurs, stresses on the current, limited lands of Georgina Island will occur. The effects of a fixed link on the overall lands for the community will be noticed and will be a net negative to the community leadership.

5.8.1 ***POSITIVE IMPACTS***

The community views the following as positive impacts:

- Members wanting to move home will be more likely to return.
- Opportunity for a more qualified work force in the lands department – instead of sourcing outside consultation may be able to attract local service providers.
- Can get experts and services needed at market rates without paying the 'Island premium'.

5.8.2 ***NEGATIVE IMPACTS***

The community views the following as negative impacts:

- No Land Use Management system in place to control the development/people
- Hard to enforce action on undesirable activities pertaining to community lands and land policy
- Conservation plans, By-laws and Land Use Plan needs to be in place, implemented and enforced
- Members want different laws than cottagers/visitors to the Island
- No communication plans or by-laws in place to regulate lands in a meaningful, proactive manner

5.9 SOCIAL/RECREATION

A fixed link is a critical infrastructure perquisite to support the advancement of Georgina Island and their access to essential services The construction of a fixed link will be a net positive when social and recreation impacts are considered. Social impact is considered as a consequence or effect of decisions or intervention undertaken which led to development. It can also be considered as a social consequence of development or the issues that directly or indirectly affect people. As for the impacts for Georgina Island specifically, they are expanded on below.

5.9.1 ***POSITIVE IMPACTS***

The community views the following as positive impacts from the construction of a fixed link:

- Reduction in the Hauling of groceries, gas etc. during scoot season
- More opportunity for physical activities/ extra curricular activities
- Increased social activities planned and reduction in absence and cancellations due to transportation issues
- Can make social plans without worry of the ferry schedule and weather-related changes to that schedule
    - Can host dinners, friends over with out having to stay the night
    - Community Members can stay home in the winter months without having to worry about job or health issues that may be seriously impact by ferry
- Recreation opportunities increase as ferry schedule may not fit recreation offerings off territories
- Ability to fit employment opportunities to any schedule, not just the ferry schedule

5.9.2 ***NEGATIVE IMPACTS***

The community views the following as negative impacts from the construction of a fixed link:

- There may be an increase in crime and access to drugs and other narcotics.
- Community members may be exposed to negative comments or racial stereotyping by participating in mainland base recreation and social improvement programs.

- There is strong fear that the community may lose Island identity and a significant piece of what it means to be a Georgina Islander.

As mentioned above, the social and recreation impacts are expected to be a net positive, but the negative impacts listed above will need to be addressed and mitigated near project completion. Mitigation measures may include but are not limited to:

- Further enhancement or reinforcement of essential services such as health, social and police services.
- Controlled access (gates) of fixed link and security (cameras, persons).
- Enhancement of cultural activity offerings both within community, and nearby schools.
- Continued consultation with the community during all stages of construction
- Implementing clear signage for pedestrians and vehicle operators to ensure smooth transition once the fixed link is operational
- Developing a governance structure that steers and facilitates system-based community development.

5.10 TRANSPORTATION

The most obvious changes will occur in the transportation segment of community operations. There will be many positives from the development of a fixed link, like regularized access to public transportation, reduced demand and long wait times to access the ferry for crossing. From a recent Health Impact Assessment Survey – Access to Transportation Options to and From the Island – responses including cottagers as a reason for their response totaled 43. These questions included:

- Which time of the year would be of the greatest concern for you accessing emergency healthcare services on the mainland?
- Do the costs to use the ferry, airboat and other current transportation options pose a financial hardship for you?
- How have the uncertainties in the current transportation options to and from the island impacted your physical, emotional, and mental health?
- What changes can be made to the current transportation options (i.e., ferry, scoot, etc.) for the Island to improve your overall mental, physical, and emotional health?
- What other potential transportation option(s) to and from Georgina Island would improve your overall mental, physical, and emotional health?

- What do you see as the main advantages or disadvantages of the transportation option(s) to travel to and from Georgina Island you identified in the question above?
- Please list the ways (if any) that the current Island transportation affects your participation in recreational activities:

but the loss of community jobs on the ferry will significantly hurt the community in the short term. Ferry boat positions require skills and leadership, are considered good jobs in the community, and twelve of those positions would be lost or seriously downsized. There may be potential to recover or lessen some of these position losses with redirection for security positions as it pertains to potential tolls for the fixed link.

5.10.1 *POSITIVE IMPACTS*

The community views the following as positive impacts:

- Ferry is too small for current community demand and will need to be replaced in the mid/near future.
- Varying schedule due to demand on service, goes back and forth almost all the time now.
- Scoots are overused and endure a lot of wear and tear, this will be alleviated
- Boat fuel and repairs and maintenance costs will be much less than the costs of managing the fixed link.
- Alleviate dangers and inconvenience of transportation of dangerous goods
- Decrease time and costs of construction projects as materials can be delivered on demand rather than being based on ferry boat.

5.10.2 *NEGATIVE IMPACTS*

The community views the following as negative impacts:

- Twelve community members and spares will require retraining and new employment
- People are discouraged learning the ferry trade due to community initiative pertaining to the fixed link
- More traffic in community will result in additional wear and tear on the roadsSeasonal Influxes

From a recent Health Impact Assessment (HIA) Survey – Access to Transportation Options to and From the Island – explanations including ‘cottagers’ as a reason for their response totaled 43[14]. These questions included:

- Which time of the year would be of the greatest concern for you accessing emergency healthcare services on the mainland?

[14] *Health Impact Assessment – Access to Transportation Options to and From the Island, Intrinsik, 2021*

- Do the costs to use the ferry, airboat and other current transportation options pose a financial hardship for you?
- How have the uncertainties in the current transportation options to and from the island impacted your physical, emotional, and mental health?
- What changes can be made to the current transportation options (i.e., ferry, scoot, etc.) for the Island to improve your overall mental, physical, and emotional health?
- What other potential transportation option(s) to and from Georgina Island would improve your overall mental, physical, and emotional health?
- What do you see as the main advantages or disadvantages of the transportation option(s) to travel to and from Georgina Island you identified in the question above?
- Please list the ways (if any) that the current Island transportation affects your participation in recreational activities

Year	Total Number of Passenger Vehicle Trips	Winter (5%)	Spring (20%)	Summer (45%)	Fall (30%)	Difference (Summer-Spring)	Difference (Summer-Fall)
2009	153,000	7,650	30,600	68,850	45,900	38,250	22,950
2010	121,500	6,075	24,300	54,675	36,450	30,375	18,225
2011	123,300	6,165	24,660	55,485	36,990	30,825	18,495
2012	129,600	6,480	25,920	58,320	38,880	32,400	19,440
2013	128,850	6,443	25,770	57,983	38,655	32,213	19,328
2014	121,500	6,075	24,300	54,675	36,450	30,375	18,225
2015	122,400	6,120	24,480	55,080	36,720	30,600	18,360
2016	163,800	8,190	32,760	73,710	49,140	40,950	24,570
2017	136,575	6,829	27,315	61,459	40,973	34,144	20,486
2018	126,450	6,323	25,290	56,903	37,935	31,613	18,968
2019	164,250	8,213	32,850	73,913	49,275	41,063	24,638
TOTAL	**1,491,225**	**74,561**	**298,245**	**671,051**	**447,368**	**Avg. = 33,891**	**Avg. = 20,335**

Table 8 - Total Ferry Passenger Vehicle Trips

From the varying responses to questions above from the HIA survey, the seasonal influxes due to cottagers and summer tourists causes additional strain on both the ferry and community as a whole. Table 8 illustrates the influx from seasonal passenger vehicle trips from 2009-2019. Seasonal passenger vehicle trip percentages are based on community knowledge, provided from the Transportation Manager of GIFN. It is presumed that ferry passenger vehicles during Spring (March 20 - June 21) consists almost entirely of community members (staff, families, etc.) and that ferry passenger vehicles during Fall (September 22 - December 21) consists again of mainly community

members, but to a lesser extent than the Spring season. The influx of passenger vehicle trips in the Summer, versus Spring and Fall is between 20,000 and 33,000 from 2009-2019, which can be attributed to seasonal visitors.

Impacts like easy access island residences, mainland emergency healthcare or recreational activities, due to long ferry wait times would be mitigated with an alternative transportation option such as a fixed link.

5.10.3 *PUBLIC TRANSPORTATION*

It is expected that the construction of a fixed link will provide an increased opportunity for public transportation in comparison to the current ferry system. The current ferry provides space for fifty walk-on passengers during operating hours (7am-7pm) and pedestrians must wait for ferry to arrive either to the Island, or to Virginia Beach before proceeding to their destination. It is the communities desire, for historical importance, for the design of the fixed link to include a multi-use pedestrian path. From the Community Visioning Workshop, 63% of participants were interested in including a multi-use path or other form of connection and part of the Fixed Link Study. In the event of unfavourable weather and winter months, options such as a community shuttle bus, car-pooling or public transit busses can accommodate pedestrians to allow persons to reach their destinations.

Given Georgina Island's location in proximity to large municipalities like York and Simcoe, it can be anticipated that the preliminary discussions for public transportation will take place while the fixed link is being constructed. Access to centres like Newmarket, Orillia and Barrie can be achieved in approximately one hour, if travelling from the mainland. This can be projected as a priority for the community, for this access to be pursued in alignment with the completion of a fixed link, and ideally expanded upon. Having public transportation agreements into the community in place, for the completion of the fixed link will allow for those who relied on the walk-on passenger option of the ferry, to continue to have modes of transportation.

From the GIFN Community Skills Inventory Survey (2019), 41% of respondents were asked to indicate a barrier to employment. Transportation or the lack of driver's licence accounted for 21% and 21% of responses, respectively. The impact of the construction of a fixed link and how pertains to public transportation can be viewed as a positive as it creates the potential for safe, regularized public transit routes to and from the community, to access essential services, education opportunities, employment, as well as contribute to the local and regional economies.

5.10.4 *ACCESS CONTROL & TOLLS*

Several community engagement workshops were carried out by WSP with Georgina Island leadership, community members as well as staff. From an access control standpoint, the vision of the workshop attendees for the fixed link were to:

- have a two-lane cross-section with one lane in each direction;
- incorporate a multi-use path for cyclists and pedestrians;

- have enhanced security and controlled access with ideally an attendant positioned at a guard booth; and
- generate revenue for GIFN by charging a toll to visitors to the island.

WSP has carefully reviewed of information developed to date, and has created recommendations for security crossings for the fixed link:

For this application, a layered approach to both vehicle and pedestrian control is recommended, considering both high traffic and normal operational hours.

1. During peak traffic times, a gate arm solution is recommended. This would provide high throughput at a low cost compared to other options.
2. It is recommended to provide pedestrian/cyclist control in the form of either a turnstile or gate.
3. Residents of the GIFN and Cottagers should be given a credential to allow for quick access, plus access in times when the gate house is not attended.
4. A Card Reader and intercom be designed for deployment of off hours. A card reader would be for approved users of the crossing, while the intercom would be to assist with technical issues or to advise visitors when they are permitted to cross.
5. To enhance security after-hours and to avoid unauthorized access, it is recommended to design for a sliding gate. This will close the gap in fencing that is prevalent with the gate arm and still allow for pedestrians crossing. The gate will need to be coordinated with emergency services to ensure efficient access to Georgina Island in the event of an emergency.

As mentioned above, with the expected employment losses due to a ferry no longer in operation, the opportunity for some of these staff to be redirected to potentially manned-toll stations, security positions or additionally required road maintenance will be explored. Employment Opportunities

6.0 EMPLOYMENT OPPORTUNITES

The Chippewas of Georgina Island First Nation will, as the study phases of the project commence provide the following unique employment opportunities

6.1 GEORGINA ISLAND FIXED LINK SECRETARIAT

The Georgina Island Fixed Link Secretariat has already developed a youth-based position for this project, the Georgina Island Fixed Link Community Liaison. The community liaison position is currently filled by a youth member of the community. The liaison is supported by an employment program GenPower, supported by Indigenous Clean Energy. Taking a future-focused approach, the program introduces Indigenous youth to the growing clean energy sector in Canada and around the globe, and the broad range of energy careers that exist today as well those that are beginning to emerge. In addition to engagement and project management support duties, the Liaison position will achieve the following objectives through the completion of the program:

a. Explore the range of careers that encompass the energy sector;

b. Gain exposure to clean energy projects through mentorship and on-the-land learning camp;

c. Enhance understanding of the current and future energy landscape in Canada and globally;

d. Develop leadership and essential employability skills;

e. Leverage existing skills and experience to launch a career in the energy sector;

f. Build a network of support with ICE's community; and

This position is intended to grow from a support to a leadership role for the Fixed link as experienced is gained.

6.2 SUMMER AND YOUTH OPPORTUNITIES

BEAHR Indigenous training programs (Eco Canada) offer locally customized learning that provide accessible and meaningful career development to First Nation, Métis and Inuit members to overcome barriers to employment and develop competencies needed to actively contribute to Canada's growing environmental sector.

The courses offered provide introductory training to those who want to work in the environmental sector in Canada. Graduates will have all the necessary technical, cultural, safety and soft skills required to secure meaningful environmental employment. We offer two streams, Workforce Training and Technician Training. The latter gives you further recognition if you already have environmental experience or training.

GIFN will begin to provide BEAHR certified or unique opportunities for youth that includes on the job support. The summer of 2022 will provide a job shadowing opportunity for all high school and post- secondary aged youth. Managed by the GIFL Secretariat, the community will assign youth workers to shadow field professional as they

undertake study work. With core training in field-based health and safety and the GIFL Environment Principles, youth will be encouraged to shadow study team members as they complete the multitude of activities over the course of the next two years.

The intent of this program will be to inspire youth and to build a legacy of knowledge of what work was completed and what results of the studies mean. This integration with western science will allow for community-based understanding of processes. It will also enhance work experiences to become more employable in the future.

6.3 CASUAL EMPLOYMENT OPPORTUNITIES

There are a number of Georgina Island members that will realize project-based employment opportunities over the course of the next three years:

- Many members are currently certified harbour pilots and meet the necessary insurance requirements to transport study teams on the ice.
- Caterers will be provided opportunities to support team meals and field teams.
- There will be the need for traditional based services for meeting openings, closings and areas where traditional knowledge is being shared.
- Those with boats, ATV's/UTV's and vans may be required to transport field teams around the Island.

These types of positions will be offered through a 'community roster'. The roster will identify skill sets and abilities to be offered to contractors on the Island. These opportunities will provide a more robust resume and experiences following their service. The GIFL Secretariat will continue to monitor and project the number of casual employment opportunities as the project continues, and demand is better understood.

6.4 FIRST NATION EMPLOYEE DEVELOPMENT

There are a number of skill development opportunities that will be offered as a result of the Fixed Link project. Employees at the First Nation will be able to learn through direct relationships with suppliers about their job, the analysis and interpretation of data and the recommendations that result from this work. The overall internal skill development for current employees as the First Nation will result in:

- A better understanding of the local environment
- A better understanding of western science-based methods of data collection on lands
- A better understanding of how to integrate community based ecological and traditional knowledge into western based scientific studies

- A better understanding of project management, deliverable assessment and financial modeling for projects being undertaken on community lands.
- A better understanding of the IAAC process to respond to other proponent's projects more effectively.

6.5 EMPLOYMENT THROUGH PROCUREMENT INITIATIVES

There will be $2M worth of studies occurring over the next 18 months. These studies will require many team members from many different contractors. The GIFN procurement process is intended to award 'points' to those projects that incorporate employment opportunities for:

a. Members of the Chippewas of Georgina Island First Nation

b. Members of Williams Treaties ally communities

c. Members of the Indigenous community at large including Metis and Huron Wendat community members

The GIFL Secretariat will continue to monitor and project the number of employments through procurement opportunities available, as the project continues and project deliverables, scopes of work are identified.

7.0 EVALUATING COMMUNITY SOCIO-ECONOMIC EFFECTS OF FIXED LINK

The potential fixed link project will have a significant impact on the social and economic factors of the GIFN community. The development of the project is expected to boost the local economy of GIFN and the surrounding area, both through the creation of direct and indirect jobs during construction and as a result of increased access to the community by the fixed link. The demand for a variety of skills and labour that is involved with the construction of a fixed link will be identified as the project progresses and procurement priority will be created for members and family members of Georgina Island to fill these demands.

In addition, the bridge will provide year-round road access between Georgina Island and the mainland once completed. The availability of access to and from Georgina Island is expected to have a number of long-term effects on the community as a whole. Upon completion of the fixed link, the community anticipates a demand for land development both residential and commercial, as a direct result of the regularized access created to the island.

In an attempt to quantify the socio-economic impacts of the GIFN fixed link project, the Community Well-Being Index (CWB) from Indigenous and Northern Affairs Canada has been used as a basis.

7.1 COMMUNITY WELL-BEING INDEX

The Community Well-Being (CWB) index provides a systematic method of measuring the socio-economic well-being for individual communities across Canada, and consists of the 4 following components:

- Education;

- Labour Force Activity;
- Income; and
- Housing.[15]

Scores in each of the CWB index components listed above are calculated using available census data for individual communities. Table 9 outlines the methodology for calculating the individual CWB index components.

Methodology for Components of the Community Well-Being Index

Component	Description
Education	The education component is composed of the following 2 variables: • high school plus: the proportion of a community's population, 20 years and over, that has obtained at least a high school certificate. For simplicity's sake, this proportion is often referred to in this document as high school completion rate, even though it includes individuals who did not obtain a high school certificate, but did acquire a credential beyond the high school level • university: the proportion of a community's population, 25 years and over, that has obtained a university degree at the bachelor's level or higher The high school plus variable accounts for two thirds of the education component, while the university variable accounts for one third.
Labour Force Activity	The labour force activity component is composed of the following 2 equally-weighted variables: • labour force participation: the proportion of a community's population, aged 20 to 64, that was involved in the labour force during the week preceding census day, that is census reference week. • employment: the percentage of a community's labour force participants, aged 20 to 64, that were employed during census reference week.
Income	The income component of the CWB index is defined in terms of total income per capita, in accordance with the following formula: $Income\ Score = \left(\frac{Log(income\ per\ capita) - Log(\$2{,}650)}{Log(\$75{,}000) - Log(\$2{,}650)}\right) \times 100$

[15] *https://www.sac-isc.gc.ca/eng/1345816651029/1557323327644*

Housing	The housing component comprises equally weighted indicators of housing quantity and quality: • housing quantity: the proportion of a community's population living in dwellings that are not crowded as measured by having no more than one person per room • housing quality: the proportion of a community's population living in a dwelling that is not in need of major repairs

Table 9 - CWB Index Components

7.2 CURRENT COMMUNITY WELL-BEING INDEX SCORES

The average CWB index scores for First Nations and non-Indigenous communities in Ontario are also provided in Table 10.[16]

Current CWB Index Score of Georgina Island First Nation in Comparison to the Provincial Averages

Component	*Georgina Island First Nation*	*Ontario First Nations Average*	*Ontario Non-Indigenous Average*
Education	56	38	60
Labour Force Activity	83	72	83
Income	71	53	81
Housing	89	70	93
Overall CWB index Score	75	59	79

Table 10 - CWB Index Scores

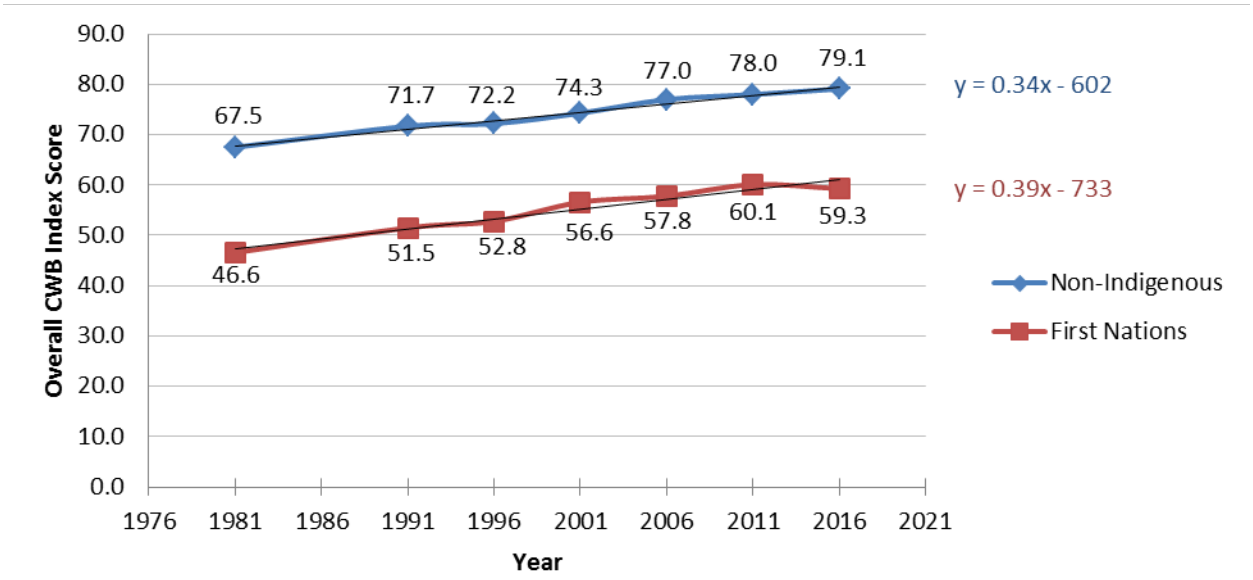
Currently, GIFN`s CWB index scores significantly exceed the Provincial First Nations average in every category but are slightly under the Provincial non-Indigenous community scores. Although GIFN scores high in CWB index in comparison to other Ontario First Nations, it is recommended that GIFN strive to meet or exceed the average non-Indigenous community scores in relation to CWB index.

[16] *https://www.sac-isc.gc.ca/SAC-ISC/CWB/index-map-en.html*

7.3 TRENDS IN COMMUNITY WELL-BEING INDEX SCORES

Figure 6 shows the trends in CWB index scores for First Nations and non-Indigenous communities in Ontario from 1981 to 2016. The CWB index scores of both groups have increased over this timeframe.[17]

Assuming a simplistic linear trend from 1981 to 2016, the CWB index score of Ontario First Nations communities in Ontario have increased at rate of about 0.39 per year, slightly faster than non-Indigenous Ontario communities, which have increased at a rate of about 0.34 per year.



Average Overall CWB Index Score for Ontario First Nations and Non-Indigenous Communities

Figure 7 - CWB Index Scores

For the purposes of our analysis, the effects of the slightly higher CWB index growth rate in Ontario First Nations in comparison to non-Indigenous communities will be considered negligible when considering future trends due to the amount of time it would take for this rate difference to have any significant impact. Furthermore, there are limiting factors that will restrict these rates of growth from continuing indefinitely.

7.4 ANTICIPATED IMPACT OF FIXED LINK ON COMMUNITY WELL-BEING INDEX SCORE

Overall, the fixed link project is anticipated to have a significant positive impact on GIFN's overall CWB index score. The sections below outline how the fixed link will impact each of the four CWB index components.

[17] *https://www.sac-isc.gc.ca/SAC-ISC/CWB/index-graphs-en.html*

7.4.1 *EDUCATION CWB INDEX COMPONENT*

It is anticipated that the fixed link project will have a long-term positive impact to the education component of GIFN's CWB index.

As described in the above table, the education component of the CWB index for GIFN is based on two factors;

- the percentage of the GIFN population (20 years and older) that has obtained at least a high school certificate; and
- the percentage of the GIFN population (25 years and older) that has obtained at least a university bachelor's degree.

The percentage of the population that has a high school certificate is weighted higher than the university degree component. It is also important to note that the education component of the CWB index is based on the population residing within the community. As such, increasing the percentage of the population that has received an education that remains within the GIFN community is also an important consideration.

The fixed link project is expected to impact the education component of GIFN's CWB index as follows:

- **Increase the ability of the GIFN population to complete high school.** The fixed link project will increase year-round access to the GIFN community. As a result, it will aid in reducing the burden currently encountered by GIFN elementary students and their families. Located on Georgina Island, the Waabgon Gamig School has 2 classrooms with students from kindergarten to Grade 5.[i] GIFN students Grade 6 and above are required to attend school located outside of the GIFN community. Being an island community, this presents several unique challenges. GIFN students attending school outside of the community experience longer than average transportation times due to the ferry crossing. In addition, although the Aazhaawe ferry is reliable, the transportation of students to and from the island is susceptible to delays and cancellations associated with the operation of the ferry. Finally, the lack of dependable transportation to and from the island in winter months is an issue, with most students being required to billet on the mainland during these timeframes, putting stress on elementary students and their families. The fixed link project is expected to eliminate these challenges, ultimately increasing the ability for GIFN students to complete high school.

- **Increase the ability of the GIFN population to attend university.** As discussed above, the fixed link project is expected to increase the ability for the GIFN population to complete high school. This will translate into an increase in the overall education of the GIFN population and should result in a higher participation rate in postsecondary education amongst residents, including university. Please note that since in most cases, postsecondary students will leave the community to complete their studies, access to the community created by the fixed link project is not expected to significantly impact university completion of the GIFN population directly. Instead, the fixed link project is expected to increase the overall high school completion rate of the population, which will in turn increase the percentage of the community that is eligible to attend university and other postsecondary studies.

- **Increase the desire for community members with an education to reside within the GIFN community.** As discussed above, increasing the percentage of the population that has received an education that

remains within the GIFN community is an important consideration. Overall, the fixed link project is expected to make it easier for residents that reside on Georgina Island to access well-paying jobs outside of the community, increasing the ability for the educated population to remain within the community.

The following potential issues have been identified:

- The increase in access to schools outside of the GIFN community may result in the Waabgon Gamig School becoming seemingly less essential than it is currently viewed. However, the benefits that students obtain by attendance to the Waabgon Gamig School in relation to community and cultural identity cannot be understated. As a result, it is recommended that the school continue to operate regardless.[18]

7.4.2 *LABOUR FORCE ACTIVITY CWB INDEX COMPONENT*

The potential fixed link project is expected to have a positive impact to GIFN's labour force activity CWB index component, both in the short-term and long-term.

As described in the table above, the labour force activity CWB index component is based on two equally weighted factors:

- The percentage of the population, aged 20 to 64, that are either employed or unemployed (but able to work);[19] and
- The percentage of the population that can work (the labour force participants), aged 20 to 64, that are employed.

The labour force activity CWB index component is calculated using census data, which includes employment statistics for the week prior to census day (referred to as census reference week).

The fixed link project is expected to impact the labour force participation component of GIFN's CWB index as follows:

- **Jobs created during construction of the fixed link project.** Initial estimates put the total project cost at between $60M to $200M. As a rough estimate, every $1M of construction creates about 5 man-years of employment.[19] Based on these initial values, it can be expected that between 300 to 1,000 man-years of employment will be created over the course of the project. The GIFN population will have access to this employment.

- **Greater access to jobs outside of GIFN once the fixed link is complete.** Increasing access to and from the community is expected to have a significant impact on access to employment opportunities for residents of Georgina Island. Overall commute times will be reduced for GIFN workers employed outside of the community, and the potential for delays and cancellations associated with the operation of the ferry will be eliminated. Furthermore, reliable year-round access to and from Georgina Island will be established.

[18] *http://georginaisland.com/community-services/waabgon-gamig-school/*
[19] *Proposed Fixed Link Study – Preliminary Evaluation of Engineering and Environmental Alternatives (Fline No: FCO10428). 2008. Neegan Burnside.*

These factors will help to reduce the unique challenges experienced by the population of the island community in relation to obtaining and maintaining employment.

- **Increase in employment opportunities within GIFN.** The fixed link project has the potential to boost tourism within GIFN, resulting in a boost to employment opportunities from an increase in local business on the island. In addition, ongoing maintenance and the potential for manned tolls will create direct jobs associated with the operation of the fixed link.

- **Increase in desire for community members with employment to reside within the GIFN community.** Similarly, to the education component described above, increasing the percentage of the population that is employed and remains within the GIFN community is an important consideration. Overall, the fixed link project is expected to make it easier for residents that reside on Georgina Island to access well-paying jobs outside of the community, increasing the ability for the employed population to remain within the community.

The following potential issues have been identified:

- The Aazhaawe Ferry currently employs a number of GIFN community members. The fixed link will eliminate these employment opportunities. However, the employment benefits that the fixed link will bring to the GIFN community are expected to far exceed the loss of employment associated with the discontinuation of the ferry. Furthermore, community members currently employed in relation to the Aazhaawe Ferry could be reassigned to work associated with maintenance and manned tolls associated with the proposed fixed link.

7.4.3 *INCOME CWB INDEX COMPONENT*

The potential fixed link project is also expected to have a positive impact to GIFN's income CWB index component, both in the short-term and long-term. These positive impacts are primarily related to increases related to education and labour force activity component increases, as described above.

As described in the table above, the income CWB index component is based on income per capita of the population.

The fixed link project is expected to impact the income component of GIFN's CWB index as follows:

- **Income from increased labour force activity.** The fixed link project is expected to increase employment opportunities for the GIFN population during construction itself, as well as through ancillary benefits such as creating greater access to jobs outside of GIFN and increasing employment opportunities within the community. This is expected to increase the community's employment rate and provide higher paying jobs, both of which will increase overall income per capita amongst the GIFN population.

- **Income from increased education.** The fixed link is expected to increase GIFN's education CWB index component, ultimately resulting in a higher employment rate and access to higher paying jobs for community members. Both of these factors will increase overall income per capacity amongst the GIFN population.

- **Income from increased residence within GIFN.** As previously described, the fixed link project is expected to make it easier for residents that reside on Georgina Island to access well-paying jobs outside of the community, increasing the ability for the employed population to remain within the community and ultimately increasing income per capita.

7.4.4 *HOUSING CWB INDEX COMPONENT*

The fixed link project is expected to increase GIFN's housing CWB index component by improving both the quantity and quality of housing available within the community.

As described in Table 1, the CWB index housing component is based on two equally weighted factors:

- The quantity of housing, measured as the percentage of a community's population dwelling in homes that are not overcrowded; and
- The quality of housing, measured as the percentage of a community's population dwelling in homes that are not in need of major repairs.

The fixed link project is expected to impact the housing component of GIFN's CWB index as follows:

- **Reduction in overcrowding and housing repairs from increased income.** The increase in income expected to result from the benefits of the fixed link project is anticipated to help improve the housing CWB index component in two ways. First, higher levels of income will help to reduce overcrowding within the community as community members will be better positioned to either build new homes with greater resident capacity, renovate existing homes to increase resident capacity, or move to larger homes as required. Secondly, higher levels of income will help to better position community members to complete repairs on their homes as needed, helping to increase the quality of overall housing stock within GIFN.

- **Increased access to cost-effective materials and labour.** An increase in transportation costs as a result of the Aazhaawe ferry is currently a fact of life within the GIFN community. The fixed link project will help to reduce additional transportation costs associated with the ferry, especially goods and services. Specifically, to housing, this reduction in transportation costs will result in access to better priced construction materials and labour. Again, this is expected to help reduce overcrowding in the community as members will be better positioned to increase resident capacity as needed. GIFN residents will also be better positioned to complete home repairs as needed, as the overall cost of these repairs will be reduced.

The following potential issues have been identified:

- Improved access to Georgina Island is expected to significantly increase demand for homes within the community. In fact, improvements to education, labour force activity, and income CWB index components are partly dependent upon this fact. However, there are limitations to housing growth within the community, particularly the availability of developable land within the community. This challenge is compounded due to the island nature of the community. It is recommended that GIFN proactively consider this issue and include room for housing growth in its planning processes moving forward.

Appendix C
Project Plan

GEORGINA ISLAND FIRST NATION

FIXED LINK PROJECT PLAN



MARCH 2022

wsp

FIXED LINK PROJECT PLAN

GEORGINA ISLAND FIRST NATION

PREPARED BY WSP GROUP CANADA

PROJECT NO.: 19M-01347-00

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1 INTRODUCTION

The Health and Safety of the Chippewas of Georgina Island First Nation (GIFN) community members is a core component of the community's vision for the future. For generations, the GIFN leadership have envisioned an opportunity for a **Fixed Link** to provide the community with safe passage from Georgina Island to the mainland and reduce reliance on personal passage, particularly during difficult seasonal and storm conditions. A **Fixed Link** is a permanent land-based access route from the mainland to the shoreline of Georgina Island.

Georgina Island First Nation (GIFN) retained Cambium Indigenous Professional Services (CIPS) to facilitate in the procurement of services to prepare a **Fixed Link Project Plan** and a Fixed Link **Community Vision**. Following a two (2) part evaluation process, WSP Canada was retained to support the Nation and its members with documenting the necessary steps needed to scope a Fixed Link Project Plan This Project Plan is a reporting tool that can be used by the GIFN leadership to commence pre-planning stages of a Federal Impact Assessment Project and develop a detailed work plan that meets the needs of the GIFN and various partners.

The contents of this Project Plan consider the current GIFN governance structure, the Community Vision and describes the current Federal and Provincial regulatory framework applied to infrastructure projects. Together, this Project Plan can be reviewed evaluated and used as a tool for GIFN for completing the necessary next steps in planning for a Fixed Link.

The WSP Project team has used recent guidance under the Federal *Impact Assessment Act* as a screening tool and look to GIFN to comment on the preferred method of a decision-making process using environmental planning best practices, community and agency consultation, detailed technical analysis, engineering and detailed design. The WSP project team is honored to have worked closely with the GIFN Community, Chief, Council and Staff in taking this next step in supporting the Community's Vision for a Fixed Link.

A Project Plan is required to establish a guiding framework that is led by the GIFN community and leadership, while having consideration for the regulatory and legal parameters in place for major infrastructure projects in Canada that have the potential to impact the environment. Regardless of the size, length, design of a Fixed Link, a framework for decision-making is needed in order to ensure the protection, conservation and wise management of the traditional lands of Georgina Island First Nation, the navigable waterbody of Lake Simcoe and surrounding lands.

This Project Plan documents the **decision-making framework** and **technical data gaps** explored at the time this Project Plan was written. This Project Plan contains **appendices** with further technical detail pertaining to the technical studies and next steps required during the Project Planning Phase and through to Detailed Design of a Fixed Link. The immediate next steps will involve the GIFN leadership providing critical feedback to the WSP Team on whether the project planning approach documented in this report meets the needs of the GIFN Community. We recommend that, depending on funding sources, a project screening with the Federal Government of Canada is completed to confirm project funding and to formally initiate any partnerships that may be required for this study.

WSP has provided the Nation with their best advice on the scope of the undertaking with consideration for assumptions that may exist when classifying projects under the Federal Impact Assessment Act.

This Project Plan is a framework through which the GIFN can initiate a Fixed Link Environmental Assessment and Preliminary Design Study that is specific to GIFN Vision and Community Needs.

1.1 GIFN Project Plan Objectives

The purpose of this Project Plan is to provide a decision-making framework for a future Fixed link and provide additional technical detail related to constraints, gaps and analysis of available information to initiate a Fixed Link Project. This report was completed after working with the GIFN Community on a Vision for a Fixed Link and sharing stories and goals of passage across the Island (past and future) through a writing contest with youth in the community.

> "*A good part of the cultural narrative of the Chippewas of Georgina Island involves stories of the crossing between island and mainland. Here are a few such stories. There are many more. Many are tragic; there have been several deaths due to the lake conditions. A number of people have fallen through the ice or had terrible accidents relating to crossing the lake. We honour and remember… individuals from our community who have passed as a result of the lake conditions…*"
>
> - John L. Stickley et. al The Chippewas of Georgina Island: A People of Stories:

The objectives of this Project Plan are:

- To summarize the background information and data gaps identified by the Technical WSP Project Team;
- To introduce a Preliminary Project Description for a Fixed Link that the GIFN can use to engage external representatives for the environmental planning of a Fixed Link;
- To document in a clear and concise format a scope of the Fixed Link Project for the purposes of procuring the necessary skills required for obtaining environmental planning approvals, studies and pre-design services; and,
- To summarize and document the Community's Needs and Engagement Practices completed as part of the Fixed Link Project Community Vision.

2 DESCRIPTION OF THE STUDY AREA

Section 2 introduces the study area limits of the project with consideration for the previous studies completed for a Fixed Link. This section also introduces the Community Vision Statement.

2.1 Study Area

The study area encompasses the south west tip of Georgina Island, and a mainland area from just east of Sibbald Point Provincial Park, to just south of Black River Road, and east to Hadden Road. The study area also includes the portion of Lake Simcoe between these two land areas and the Sand Islands. The Study area contains lands located between Sibbald Point Provincial Park on the west and Royal Beach on the east. The study area is generally described as a mixture of wetland, woodlot, residential, and natural/recreational, as well as a substantial area of open water. Two proposed Fixed Link alignments have been developed within the study area, as shown on **Figure 1.** These proposed alignments are preliminary and will be subject to refinements during future study phases.

Recommendation: A Defined Study Area, including any lands that may be required to access future construction sites, use for truck and materials and future associated buildings (Construction trailer, Stockpile location, safe boat routes and boat docking areas, and areas that require significant protection, should be considered).

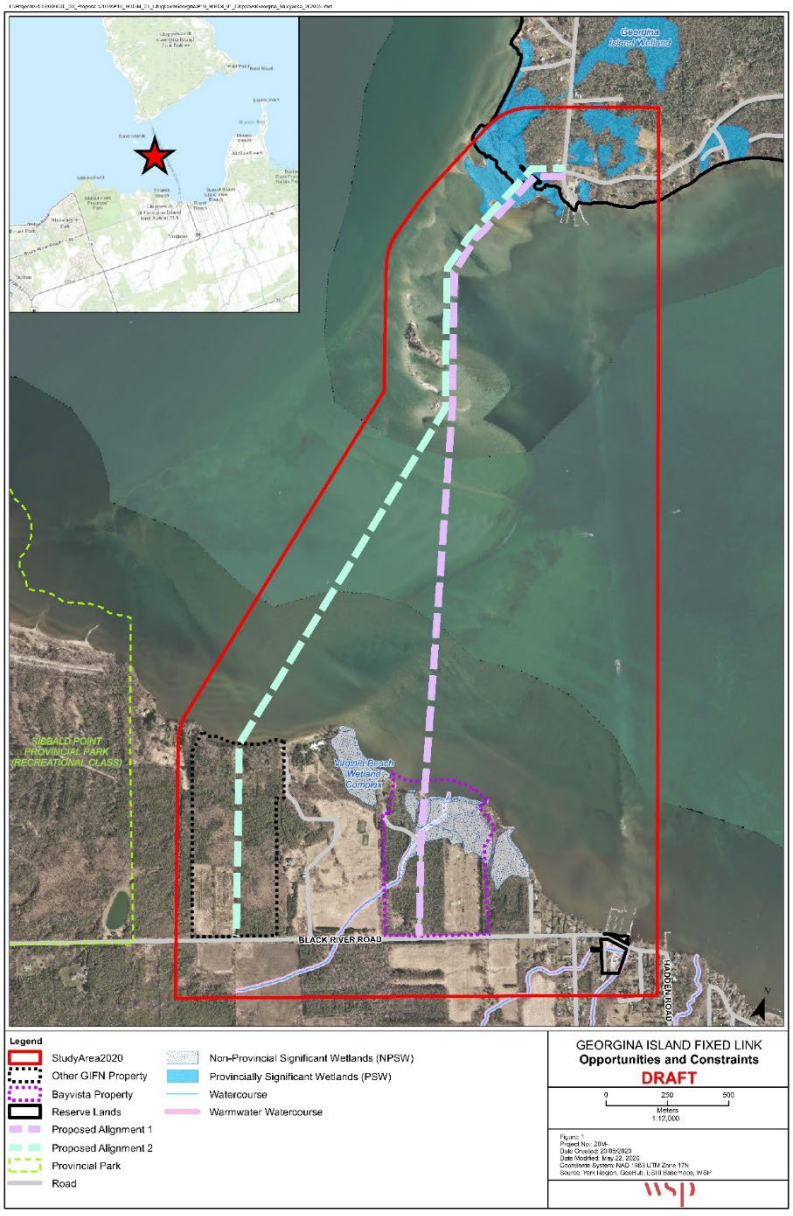


Figure 1 Fixed Link Project Study Area

2.2 Fixed Link Community Vision

After completion of a Community Member Visioning Workshop, A Community Pop-Up Event, and Workshop Survey, the following Draft Vision Statement was most preferred for the Fixed Link:

"Chippewas of Georgina Island First Nation is a responsible and sustainable community that values safety and community health. A fixed link will offer the community with safe passage during all seasons while protecting the cultural, social and economic future of the Island."

The Vision statement is also a communications tools for the Project. More information pertaining to the development of the Community Vision is provided in **Appendix A.**

Recommendation: A Vision statement for the Project that can be refined and approved by GIFN leadership at their discretion and or re-visited/updated with the community at key milestones in the Project Planning Process.

3 DESCRIPTION OF THE PROJECT PLANNING PROCESS AND HOW TO USE THE PROJECT PLAN

A planning process will enable the GIFN to document and mitigate adverse effects of a proposed project before commencing with construction. **Section 3** provides GIFN leadership with documentation of the regulatory framework and environmental planning process in Canada for infrastructure projects within or over navigable bodies of water and on reserve lands.

A planning process also enables the GIFN leadership to identify, assess, and where possible, mitigate impacts associated with a Fixed Link therefore, reducing risks and liabilities as part of project planning. This is particularly important when undertaking major projects on open bodies of water (i.e., Lake Simcoe) and with projects that have the potential to impact the natural environment and surrounding lands.

It is understood that GIFN has the broad authority to protect and manage its Reserve lands. The authority comes from the *First Nations Land Management Act*, with a formal Land Code that came into force on January 1, 2000. Based on WSP's interpretation of the Community Vison for the Fixed Link, a key principle will be to promote the avoidance or mitigation of adverse environmental effects to GIFN lands.

The intention of presenting current planning processes to the GIFN leadership is to establish a foundational framework through which projects are currently being evaluated, assessed and managed to ensure the wise use of resources and protection of the environment for current and future generations.

It is understood that the GIFN will use the information in the Project Plan to determine the best path forward. It is assumed that GIFN will use this project plan as their own guidance document for completing environmental assessment activities and associated permits and approvals for on-Reserve portions of the Fixed Link. However, should activities wish to be undertaken off reserve lands, regulatory approvals subject to the *Environmental Assessment Act* and Federal *Impact Assessment Act* are required and are therefore documented in detail in **Section 3** of this report.

An overall project planning process described herein encompasses the principles of the GIFN community vision and the technical procedures of federal and provincial EA processes with guidance and direction from GIFN leadership through an understanding of their governance framework, principles and objectives as a community. Developing a guidance document whereby GIFN can express their own approach has been something that other communities have taken for major infrastructure projects, including the Henvey Inlet First Nation in developing the Henvey Inlet Wind Energy Centre.

We have identified GIFN as the **"proponent"** of the Fixed Link and adopt the language under the *Environmental Assessment Act* and Federal *Impact Assessment Act* to develop this Project Plan because of the regulatory framework and laws that apply to projects of this size and magnitude in Canada. A detailed analysis of the timeline, scope and study constraints of a fixed link is provided in **Appendix B**. The GIFN Leadership, as proponents owning and leading the Fixed link Study, will be able to use this Project Plan to establish meaningful opportunities for engagement with community members and establishing an approach to environmental planning that is specific to the needs of the GIFN while participating in procedures prescribed by federal and provincial agencies and partners. Furthermore,

engagement with non-members, agencies and users of adjacent properties is also advised as part of this Project Plan in order to reduce project risk and fill in data gaps that are required through conversations with external agencies.

3.1 Identification of Project Proponent

The GIFN Chief and Council are the proponents of the Fixed Link project which means they are the decision-making body leading the initiation and financial obligations for the Fixed Link. Chief and Council oversee portfolios essential to the implementation of the Fixed Link Project and planning process, including public works, transportation, emergency services, economic development, financing, and environment.

The development and implementation of the Fixed Link Project Plan shall comply with any and all relevant provisions of the Chippewas of Georgina Island First Nation Land Management Code, as ratified in 1997. The Chief and Council may consider Band Council Resolution to initiate, authorize or approve specific aspects of the Fixed Link Project Plan.

The project planning process will take into consideration objectives under the Chippewas of Georgina Island First Nation Land Management Code, including, but not limited to, the provision of an adequate level of transportation, utilities, and infrastructure to meet the current and future needs of the community in an efficient, safe, and environmentally sustainable manner and within the financial capacity of the GIFN.

3.2 The Federal Impact Assessment Act (2019)

Infrastructure projects in Canada that are located on federal lands are regulated through the *Impact Assessment Act, 2019* (IAA). On August 28, 2019, the Government of Canada enacted IAA 2019 to repeal and replace the *Canadian Environmental Assessment Act* (CEAA 2012). IAA 2019 aims to provide better legislation to protect the environment, respect Indigenous rights and rebuild public trust in how decisions about resource development are made. A single government Agency, the Impact Assessment Agency, is now responsible for leading impact assessments and coordinating Crown consultations with Indigenous peoples. CEAA 2012 had previously included three government Agencies that could be responsible for leading assessments. The mandate of the Impact Assessment Agency is therefore to promote uniformity and coordination of impact assessment practices across Canada through research, guidance and ongoing discussion with stakeholders and partners.

The Project must be administered under the requirements of applicable federal laws, standards and permits as defined in the *IAA, 2019, Regulations Designating Physical Activities*.

As emphasized in its name, the objective of IAA, 2019 is to provide a more thorough impact assessment of a project by broadening the scope of the assessment beyond potential adverse environmental effects and to also recognize potential positive economic, social, health and gender-based impacts. Another key objective of IAA 2019 is to consider how the project contributes to broader sustainability objectives. Under Section 82 of the IAA, an authority from the Federal government is granted to have a role in reviewing the project.

New requirements and transparency measures have also been introduced for non-designated projects on federal lands. Federal lands impact assessments now include a mandatory 30-day public comment period to consider a set of prescribed factors, such as impacts on the rights of Indigenous peoples, Indigenous knowledge, community knowledge, comments received from the public, mitigation measures, etc. A notice of a proposed project and a decision on the significance of its effects are also required to be published on the Impact Assessment Agency website. This is markedly different to CEAA 2012, where no such notification was required for projects on federal lands.

3.2.1 APPLICATION OF THE FEDERAL IMPACT ASSESSMENT TO THE FIXED LINK PROJECT

The Fixed Link Project as it is currently defined, is subject to a federal Impact Assessment. Projects designated in the IAA 2019 Physical Activities Regulations (SOR/2019-285) (also known as the Project List) require consideration for a federal Impact Assessment, subject to confirmation from the Impact Assessment Agency. Designated projects are those that have the greatest potential for adverse environmental and socio-economic effects in areas of federal jurisdiction.

The Project List can be found at:

https://laws-lois.justice.gc.ca/eng/regulations/SOR-2019-285/page-3.html#h-1194153

The Fixed Link scope of work includes a causeway, and through technical investigation it was determined that the causeway length will be 400 metres or more, therefore, a Federal Impact Assessment is required.

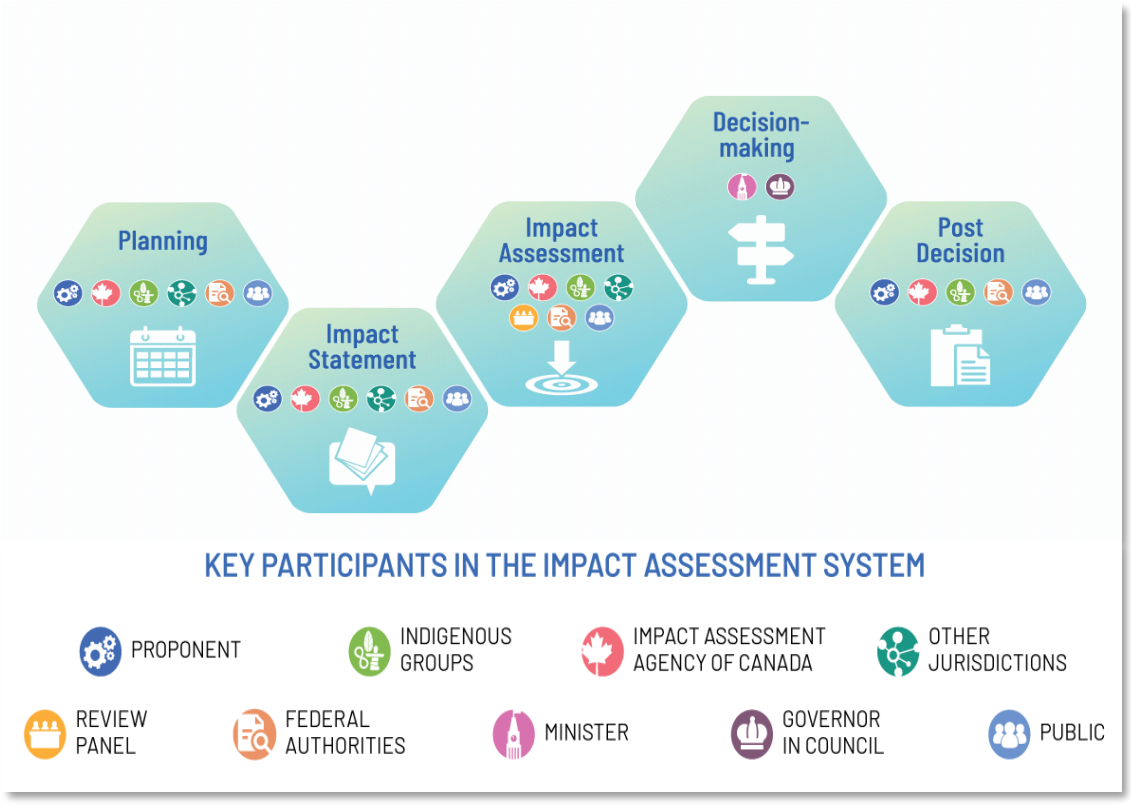
This description meets item 50 of the Project List. “The construction, operation, decommissioning and abandonment of a new permanent causeway with a continuous length of 400 m or more through navigable water.”

If the causeway design is less than 400 metres, a meeting with the Federal Impact Assessment Agency is still required. This is because any non-designated projects that occur on federally owned lands, the federal Authority must assess the project. This is a requirement described under **Section 82 of IAA 2019** and exists in order to determine if the project is likely to cause significant adverse environmental effects at the federal level.

Recommendation: A meeting with the Impact Assessment Agency was completed in October 2020 as part of developing this Project Plan with the GIFN.

3.2.1.1 *FEDERAL IMPACT ASSESSMENT PLANNING PROCESS (2019)*

Policies and guidance have been developed to help proponents navigate the requirements of IAA 2019 during this initial transition period. The documents are interim in nature and may change as a result of ongoing engagement and feedback received. An overview of the impact assessment process is provided in **Figure 2** and described below where hexagon shapes show each Phase of the planning process



Source: Impact Assessment Agency of Canada (2019)

Figure 2 Impact Assessment Process

The IAA process consists of 5 steps as described below and shown in **Figure 2**:

1. **Planning**. Projects go through a planning phase where the public and Indigenous peoples are invited to provide information on the Project Description and contribute to planning the assessment. The planning phase has a legislated timeline of up to 180 days. IAAC can extend this timeline by up to 90 days on the request of another jurisdiction and is required to post reasons for any extension on the Registry.
2. **Impact Statement**. The proponent is provided by the Agency with clear requirements for the information and studies required to complete an Impact Statement (i.e., Tailored Impact Assessment from the federal Agency). Sound science and Indigenous knowledge inform the Impact Statement. This phase has a legislated timeline of up to three (3) years, and timeline extensions may be requested by the Proponent. IAAC may extend the three-year timeline by any length of time that is necessary for the Proponent to satisfy the Agency that the required information or studies outlined in the Tailored Impact Statement Guidelines have been provided.
3. **Impact Assessment**. The assessment considers potential environmental, health, social and economic impacts of proposed projects, including benefits. Potential impacts on Indigenous treaty rights are also assessed and consulted on. The Agency or review panel uses the information to develop an impact assessment report. This phase has a legislated timeline of up to 300 days for agency review and 600 days for panel review, if needed.
4. **Decision**. The impact assessment report and Crown consultation outcomes informs the Minister or Governor in Council decision on whether a project's adverse impacts are in the public interest. If yes, the Minister must establish conditions for the proponent. Decision statements set out the rationale for the decision, providing transparency and accountability. This phase has a legislated timeline of up 30 days for the ministerial decision and 90 days for the Cabinet Decision.
5. **Post Decision (Monitoring**). The Agency will be active in verifying compliance with Decision Statements and correcting non-compliance. There will be greater transparency around follow-up programs, with increased access to key documentation, as well as increased opportunities for Indigenous and community participation in follow-up and monitoring programs. The Minister of Environment and Climate Change issues a Decision Statement setting out the public interest decision and outlining any enforceable conditions that the proponent must comply with. The Agency will be active in verifying compliance with Decision Statements and correcting non-compliance. During the post-decision phase, Indigenous groups and the public can participate in follow-up and monitoring activities or in Environmental Monitoring Committees.

The documents can be found at the following link and will continue to be updated as more information is available:

https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance.html

For more information on the types and locations of projects currently being undertaken under IAA 2019, please visit the Canadian Impact Assessment Registry at:

https://www.iaacaeic.gc.ca/050/evaluations/exploration?active=true&showMap=true&document_type=project

3.2.1.2 *DRAFT INITIAL PROJECT DESCRIPTION*

Under the *Impact Assessment Act* (IAA), an impact assessment may be required for designated projects. A designated project includes one or more physical activities that are listed in the Physical Activities Regulations (commonly known as the Project List), as well as any physical activity incidental to those listed physical activities.

Proponents of designated projects are required to submit two documents during the planning phase, which will be used to inform the decision by the Impact Assessment Agency of Canada (the Agency) on whether an impact assessment of the designated project is required. These documents are:

- An **Initial Project Description (IPD)** of the designated project. The 180-day planning phase of the impact assessment process starts when the Agency posts a copy of the Initial Project Description on the Canadian Impact Assessment Registry Internet Site (the Registry), which is expected to be 10 days following the receipt of the Initial Project Description, provided that the Initial Project Description conforms with the requirements of the Information and Management of Time Limits Regulations.
- A **Detailed Project Description (DPD)** of the designated project, which provides more detailed information about the designated project and updates the information provided in the Initial Project Description in response to issues raised by provincial, territorial and Indigenous jurisdictions, Indigenous groups, the public, federal authorities and other participants during consultations and engagement and includes the proponent's response to the Summary of Issues.

In September 2021, the Project Team prepared a draft Initial Project Description (IPD) and through this IPD, the Georgina Island First Nation (GIFN) is providing an early design-stage overview of the Project, with the intention that this document will form the basis for discussions, which will help to shape the final design of the Project. The draft IPD was submitted to the Impact Assessment Agency of Canada (IAAC) on September 20, 2021 for review IPD (see **Appendix P**), IAAC must decide whether the information provided meets the requirements set out in section 3 and Schedule 1 of the Information and Management of Time Limits Regulations. Within 10 calendar days after receiving the Initial Project Description, the Agency will determine whether the document is complete. If required information is missing, the Agency will notify the proponent and request that a revised Initial Project Description be submitted. The information contained in the IPD is a document representative of the Fixed Link Project at the time the Initial Project Description is submitted to IAAC and includes information related to all alternatives that were considered and studied prior to identifying the preferred alternative. Once the Agency accepts the Initial Project Description and posts it on the Registry, the planning phase commences (180-day time limit).

Once the IPD is accepted, the environmental assessment process formally starts. During this phase, environmental studies will be conducted to provide a detailed analysis of potential impacts; and affected stakeholders will have an opportunity to provide feedback on decisions that have been made about the Project.

3.2.1.3 *FEDERAL IMPACT ASSESSMENT COOPERATION PLAN*

The *Impact Assessment Act* requires for all projects subject to an impact assessment that the Impact Assessment Agency develop an Impact Assessment Cooperation Plan that describes how the Agency

will cooperate with other jurisdictions. These plans aim to satisfy the requirements and objectives of the *Impact Assessment Act* and the participating provincial, territorial and/or Indigenous jurisdictions to reduce duplication, increase efficiency and certainty, and draw on the best available expertise. A Cooperation Plan will be developed with other jurisdictions during the planning phase setting out how the jurisdictions plan to cooperate during the impact assessment process of a specific project. The Cooperation Plan will cover all environmental requirements for Georgina Island, the Provincial Ministry of Environment Conservation and Parks, and the Federal Impact Assessment Agency of Canada.

Pursuant to subsection 18(1) of the *Impact Assessment Act*, when providing the proponent with a Notice of Commencement, the Agency must also provide the proponent with any documents specified by regulations created under paragraph 112(1)(a) of the Act. This must include a copy of the Impact Assessment Cooperation Plan, to be provided within **180 days after the day on which the Initial Project Description of the project is posted on the Agency's online Registry**. As a result, the development of the cooperation plan is initiated early in the planning phase.

Pursuant to the *Impact Assessment Act*, cooperation may take different forms, including:

- Coordinated impact assessment in which the jurisdictions do such things as share information and analysis, have joint working groups or public engagement, coordinate guidance to proponents, which may include the delegation by the Agency of the carrying out of any part of the impact assessment and the preparation of the impact assessment report to another jurisdiction;
- Substitution allows the federal government to rely on another jurisdiction's assessment process to provide the information needed to support the federal government in making its decision related to a project; and
- Joint review panels in which the Minister of Environment and Climate Change (the Minister) would enter into an agreement with another jurisdiction to jointly establish a review panel to undertake an assessment of a project.

For the activities covered by each of the planning phase documents, there is a range of cooperation opportunities — from information sharing to aligning activities and/or key milestones — to preparing joint plans and undertaking activities jointly. The cooperation plan and the other planning documents required under the *Impact Assessment Act* will reflect cooperation commitments.

A cooperation plan does not change any existing Indigenous, federal or provincial legislative or regulatory jurisdiction, right, power, privilege, prerogative, or immunity by virtue, nor does it create any new legal powers, duties, or legally binding obligations.

For a given project, there may be more than two cooperating jurisdictions, for example the Agency, a province and an Indigenous Jurisdiction, or the Agency and two provinces. The cooperation plan would be developed with the cooperating jurisdictions, capturing the interests of each jurisdiction in cooperating in specific elements of the assessment process and reflecting the terms of any existing Cooperation Agreement(s).

A cooperation plan must include the following sections:

1. Introduction

Provides context to the cooperation plan, including identifying the project, the cooperating jurisdiction(s) and its regulatory authority, and reference to existing Cooperation Agreement(s).

2. Project Scope

Includes a summary of the project's components and activities and explains whether the scope of the project under review is consistent between the Agency and the other jurisdiction or, if different, identifies key differences in the scope.

3. Approach to Cooperation

High-level description of the cooperative mechanism being employed (e.g., coordination or delegation, or, if the Minister has made the decision, substitution or joint review panel).

4. Gathering and Review of Proponent Information

Provides a description of factors to be considered in the Impact Assessment by the Agency and by the other jurisdiction and identifies key commonalities and differences.

Describes cooperation related to the review of proponent information.

5. Timelines and Time Management

Provides an overview of the estimated timeline for the Impact Assessment and the assessment by the other jurisdiction, including harmonization of timelines using legislative authorities where possible.

Sets out plans and/or commitments to align key milestones and specific activities in the assessment process.

6. Sharing of Information

Identifies the type of information to be exchanged.

7. Public Participation (and Participant Funding)

Identifies plans for coordination of public notices and engagement activities, cross-posting of materials to online registries and, where relevant, coordination regarding participant funding.

8. Indigenous Consultation and Engagement

Identifies plans for coordinated consultation and engagement activities.

9. Decision Statement

Identifies plans to coordinate on the development of conditions of approval and to align timeline on final decisions.

10. Interpretation

Explains that the cooperation plan is not a legal document and does not change any legal powers or duties.

11. Contact Information

Provides contact information for the officials at the Agency and the other jurisdiction responsible for administering the cooperation plan.

Impact Assessment Agency of Canada. 2020. *Interim Overview: Cooperation Plan.* Retrieved from*:* *https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/overview-cooperation-plan.html*

3.2.2 FIRST NATIONS LAND MANAGEMENT

In 1991, a group of First Nation Chiefs first approached the Government of Canada with a proposal to opt-out of 40 provisions of the *Indian Act* on land, environment, and resources. As a result of this proposal, the Framework Agreement on First Nation Land Management was negotiated by 14 First Nations and Canada in 1996 and came into effect in 1999 through the *First Nations Land Management Act*. Together the Framework Agreement and the *First Nations Land Management Act* form the First Nations Land Management. To assist First Nations in implementing their own land management outside of the *Indian Act*, the Framework Agreement established both the Lands Advisory Board and First Nations Land Management Resource Centre.

As of January 2000, GIFN entered into the First Nations Land Management process and are either developing or operating under their own land code. As such, the GIFN and Impact Assessment Agency are to use their best efforts to ensure GIFN principles are used in the IA process.

Under the First Nations Land Management Regime, land administration is transferred to First Nations once their land codes come into effect. This includes the authority to enact laws with respect to land, the environment, and resources. As a member of the First Nations Land Management, GIFN qualifies to receive three types of funding from the Government of Canada:

1. Developmental funding for developing a land code, negotiating an individual agreement and holding a ratification vote;
2. Funding to facilitate the transition from the developmental phase to the operational phase; and,
3. Ongoing operational funding for managing land, environment and natural resources as determined through negotiations between Canada and First Nations.

3.2.3 IDENTIFICATION OF THE GIFN DECISION-MAKING FRAMEWORK

The following section is a summary of direction provided after reviewing the First Nations Major Projects Coalition. 2020. “Guide to Effective Indigenous Involvement in Federal Impact Assessment.”

Implementation of the Fixed Link Project Planning process will require technical assessment, socio-economic planning and community input through a documented planning process. Decision-making associated with essential project components will follow the existing GIFN governance structure and fall under the relevant portfolios specified (see **Section 3.1**). Decision-making will also require consultation with other government agencies and processes described in this section of the Project Plan.

The Nations Community Engagement Team is another essential component of the planning process. Community member engagement can also strengthen the decision-making process at all stages of planning and is further described in **Section 0.**

Under the new IAA, Indigenous Nations have the option to carry out or contribute to different kinds of impact assessment studies, **to conduct a collaborative assessment with the Agency**, or to conduct an **Indigenous-led assessment**. Any First Nation can decide the type and level of involvement in the impact assessment depending on the specific circumstances of the proposed project, the applicable laws. including the resources, needs, and capacities of a Nation.

It is important for GIFN to be actively involved in identifying and carrying out studies or retaining professionals that they can manage to complete technical studies. This approach provides a greater degree of control over whether the GIFN's knowledge is being collected and interpreted correctly.

When left entirely in the hands of the Federal Agency it is possible that GIFN knowledge be collected, applied, analyzed and considered incorrectly, or that GIFN history and existing conditions and community needs will not be given the same level of consideration as western scientific knowledge. See **Figure 3** for three options to Impact Assessments.

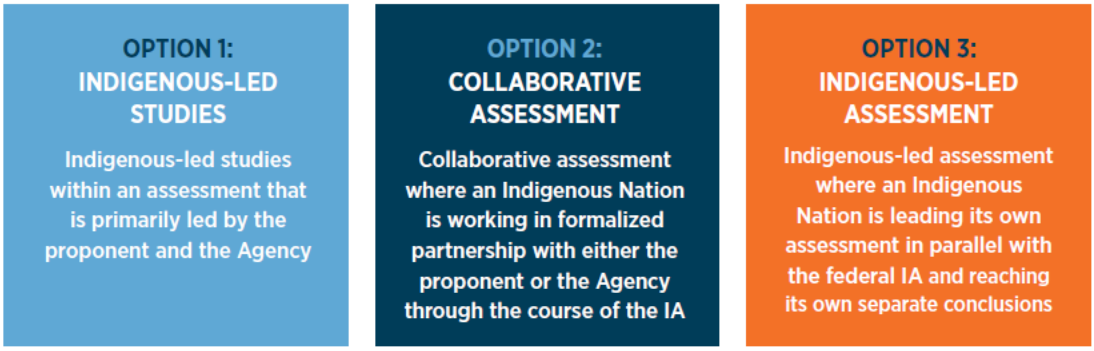


Figure 3 Options for an Indigenous-Led Role Within a Collaborative IA Framework

The following present opportunities for GIFN:

- Request certain studies be undertaken by their own consultant teams or staff;
- Request that certain information be considered in the IA planning process that meets community needs;
- Collaborate on studies; and,
- GIFN Staff conduct their own studies.

It is important for GIFN to be actively involved in deciding, identifying and carrying out studies they way they wish to undertake planning process, because it provides a greater degree of control over whether the Nation's knowledge is being collected and interpreted correctly. When left entirely in the hands of the Federal Agency it is possible that information important to the GIFN may be excluded or missed.

The type of GIFN-led studies that could be undertaken during an IA depends on what information is most important to understanding the potential impacts of the project on the Nation's rights, values and well-being.

Examples of studies that can be led by GIFN with consultant support include:

- Indigenous knowledge studies;
- Indigenous land use studies;

- Cultural impact assessment studies;
- Cumulative effects assessment;
- Rights impact assessments;
- Socio-economic impact assessments;
- Archaeological and heritage studies;
- Health studies;
- Harvest and food security studies; and,
- Ecological studies.

When determining the types of studies that a Nation should undertake for the assessment, and how a Nation wants the study to be undertaken, it is important to consider what matters most for a Nation and what capacity and needs are. For example, does the project pose a potential risk to a culturally important species? If so, a Nation may want to consider a Traditional Knowledge Study that applies to the species and the location of the project. In short, the type of study GIFN can take is project-specific and based on the needs of a community.

To help reflect on a GIFN's needs and capacity, the following questions should be considered:

1. What is the internal capacity of the Nation, especially the lands departments (strong to weak)? This can mean both your staff's experience, expertise and time to undertake a study; and alternatively, your staff's availability to oversee and coordinate studies being undertaken by external consultants hired by the Nation. The level of internal capacity will decide the number and depth of studies your Nation will want to conduct, and how it will conduct them.
2. How much funding do you have available to undergo the study(ies) (high to non-existent)? To estimate the funding that your Nation would need to undertake its own studies, refer to the "costing estimator" tool that will be available to download from the FNMPC website in 2021.
3. How much time does the Nation have available? This connects to question 1 and 2, if you are understaffed and limited on time, the type of study and the depth of the analysis might be impacted. If your Nation is engaged properly and your Nation follows the time limits of the project from the outset, then the study timeline can match the assessment timeline.
4. What is your Nation's leverage in relation to the project (strong to weak)? This means, how strong is your position (e.g., through legal action) to stop the project by withholding your Nation's consent, and how open is the proponent to working with your Nation and supporting whatever involvement your Nation identifies as necessary? Is the proponent open and do you have the backing of the Agency? This will help identify the amount of resources and support available to your Nation to carry out the project.
5. What are the likely impacts (e.g., ecological, rights-based, food security-related, cultural, health)? This will help identify the type of research that will need to take place to identify the type and level of impacts.
6. How concerned is your Nation about the project (very concerned vs. slightly concerned)? The greater the potential severity of the project on your Nation's rights, community well-being and the environment, the greater the potential for concern — e.g., Is the project proposed in a cultural and

ecologically important area? Are the possible project impacts reversible? How long will the project last?

7. What is your Nation's desired priority relationship (e.g., with the Agency, the proponent, or both)? This will help identify how your Nation wants the study undertaken — is it in collaboration with the Agency, the proponent, both, or independently with funding supports from proponent or Agency?

Source: First Nations Major Projects Coalition. 2020. "Guide to Effective Indigenous Involvement in Federal Impact Assessment."

Recommendation: To facilitate an efficient and effective planning process over the course of the project, the GIFN Chief and Council may wish to engage specially appointed individuals through a Technical Team or Working Group for the purpose of identifying key areas and resolving issues, thereby reducing the potential for delays in the process. Key GIFN staff or appointees chosen for this team can act as advisors and comment on the Project Plan and monitor it's progress by participating in key milestone meetings. This practice is often completed for individual environmental assessment planning projects through the creation of a Technical Advisory Committee.

3.3 Ontario Environmental Assessment Act

The Ontario ***Environmental Assessment Act*** (EA Act) provides for the protection, conservation and wise management of Ontario's environment by establishing a responsible and accountable process for decision-making before a project is undertaken. Following careful conversation with the Federal Government's Impact Assessment Agency (IAAC), the Ontario Ministry of Environment, Conservation and Parks (MECP) and the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) the GIFN may be in a position to voluntarily complete an **Individual Environmental Assessment (EA) – IEA Study**. An EA Study is a planning process for projects that are not federally designated or are not on the Project List referenced above. Through agency meetings and Federal Screening, the GIFN may be in a position to undertake an Individual EA which follows a general planning framework but enables the GIFN to specify detailed planning processes that meet the needs of GIFN leadership and community by creating a specific Terms of Reference Document for how decisions will be made throughout the planning and implementation of a Project Plan.

3.3.1 The Ontario Environmental Assessment Process

The Planning process for an Individual EA Study meets requirements of subsections 6(2)(a) and 6.1(2) of the *Ontario Environmental assessment Act*.

The IEA considers the following:

- A description of the purpose of the undertaking (provided in this Project Plan); and,
- A description and statement of the rationale for the proposed undertaking (In part provided in this Project Plan).

What are Alternative Solutions?

> **Alternatives** to the undertaking, and alternative methods for carrying out the undertaking (e.g. Alternative Bridge or Causeway, all possibilities considered, including the option of Doing Nothing is explored).

> Alternative Solutions are different ways to meet the Objectives of a Fixed Link – connecting the Island to the Mainland. Alternative Solutions for the Fixed Link are already explored through a technical and feasible lens, however, require a full evaluation against a set of criteria.

The Environmental Assessment process is completed in 5 Phases described below:

Phase 1- Problem or Opportunity Statement;

Phase 2 – Development and Evaluation of Alternative Solutions;

Phase 3 – Alternative Design Concepts;

Phase 4 – Environmental Study Report; and,

Phase 5 – Consultation Program.

Each of these phases is detailed in **Appendix B**.

Recommendation: Individual environmental assessments are prepared for large-scale, complex projects with the potential for significant environmental effects. They require Ministry of the Environment, Conservation and Parks approval. The process includes the development of a Terms of Reference that requires approval by the Ministry, a set of technical studies and evaluations, a consultation program and reporting. The process is typically longer than for Class EAs. While the proposed Fixed Link project does not appear to require an Individual EA (IEA), Proponents can voluntarily complete one. For the Fixed Link, potential advantages and disadvantages to this approach are presented in **Appendix B.** The Federal Impact Assessment Agency can initiate discussions with Ontario in order to determine what, if any EA requirements are needed for the Project. These requirements will form part of the federal Impact Assessment Cooperation Plan previously described.

3.4 Other Approvals

Other approvals (e.g., the Municipal Class Environmental Assessment) may be identified through the course of the EA and may be required for changes to infrastructure as a result of the Fixed Link Alternatives being explored. These other approvals are determined during the EA Study. During the EA Study, other agencies are engaged to inform the overall study requirements and reduce project risk. It is typical that after the EA is approved, additional permits are initiated for the purposes of detailed design and construction.

Should the Fixed Link connect to municipal property, additional approval processes may apply, and the coordination of environmental assessment approvals may be required. Connections to municipal infrastructure and roadways would require some level of permitting from York Region or the Town of

Georgina (e.g., road access permits, access permit to enter private property if investigation on lands is required).

Additionally, the Lake Simcoe Region Conservation Authority (LSRCA) administers a regulation made under Section 28 of the *Conservation Authorities Act* which allows LSRCA to ensure that proposed developments have regard for natural features. Applicable components may include regulation permits; plan input and review; and/or technical assistance.

4 DESCRIPTION OF EXISITING CONDITIONS AND DATA GAPS

Section 4 provides a summary of background studies that will be required in order to proceed with a project plan. The intention of Section 4 is to understand what studies are required, what data are required, and what major constraints or gaps exist to implementing a fixed link (causeway and bridge combination).

The section of the Study area for a proposed fixed link will require examination from several technical disciplines.

The following section documents the analysis completed by technical teams through information provided and desktop investigation. A majority of the data gaps and constraints identified can be reviewed in more detail in corresponding appendices.

4.1 Natural Environment

A number of ecological studies have been conducted on Georgina Island and within the Lake Simcoe watershed. Those that were available to WSP have been reviewed as part of this background screening and preliminary constraints analysis. These background resources, combined with available online natural heritage information, provided valuable information on known terrestrial and aquatic conditions, including the presence of Species at Risk (SAR) and potential Significant Wildlife Habitat (SWH) within the study area. In addition, a review of planning, legislation and policy documents was completed to inform the preliminary constraints determination. The preliminary constraints identified will inform the development of future Fixed Link alignment.

The following is a summary of key natural environmental considerations for the Fixed Link:

- Land Use Designations;
- Fish and Aquatic Habitat;
- Terrestrial and Migratory Bird habitat;
- Species at Risk including endangered and threatened species;
- Wetlands;
- Life Science Areas and Earth Science Areas of Natural and Scientific Interest;
- Environmentally Significant Areas;
- Designated Provincial and Federal Protected Areas;
- Shoreline, flood protection and Protected waterways; and,
- Significant Wildlife Habitat (Provincial or Federal Protected Areas, and Species).

The Fixed Link Project will require a field investigation and documentation of the natural environment. From a desktop study analysis completed (**Appendix C**) it was determined that the Study area contains a significant number of sensitive features including provincially significant wetlands, endangered species, habitat for migratory birds and significant aquatic habitat for fish populations. Furthermore, the shorelines of Georgina Island and the mainland contain areas for regulation of flooding associated with high lake

levels on Lower Simcoe during heavy rain events which will require correspondence with the Lake Simcoe Conservation Authority.

The Study area is also located in an area with several sensitive land use features and will require a close examination of several documents listed in **Appendix C**, such as the *Lake Simcoe Protection Act* and the Oak Ridges Moraine Conservation Plan for example.

The main aquatic feature within the study area is Lake Simcoe, which provides fish habitat for a range of coldwater, coolwater and warmwater fish species. Background information indicates a total of 58 species have been documented in the Lake Simcoe watershed. A warm water to cool water fishery generally exists north of mainland shoreline between Duclos Point, south-west to Sibbald Point and south of Georgina Island. Also, the south shoreline of Georgina Island is known to contain Muskellunge spawning and nursery habitat as well as Northern Pike spawning habitat (Anishinabek/Ontario Fisheries Resource Centre 2009). The study area also includes three warmwater tributaries of Lake Simcoe on the mainland, and one tributary on the island.

The fish population with the lake has shifted from coldwater species like lake trout, whitefish and herring to species preferring warmer water such as perch, bass and sunfish. These changes relate in part to changes in nutrient cycling and in dissolved oxygen concentrations, siltation over spawning sites, shifts in available food items and the invasion of non-native species. A review of the Natural Heritage Information Centre (NHIC) database for the study area did not reveal any fish species listed as endangered, threatened or vulnerable.

Species at Risk (SAR) refer to species that are ‘designated’ by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and/or listed under the federal *Species at Risk Act* (SARA 2002) and species ‘designated’ by the Committee on the Status of Species at Risk in Ontario (COSSARO), including those [Endangered and Threatened] species listed and regulated under the provincial *Endangered Species Act* (ESA 2007). The WSP team identified avian and terrestrial species at Risk in the Study Area.

No aquatic Species at Risk (SAR) have been identified through a review of the NHIC database, Department of Fisheries and Oceans (DFO) SAR Mapping (2020) and other SAR screenings. As the project progresses, it will require a detailed level of review by DFO under the *Fisheries Act*.

The federal *Species at Risk Act* (SARA) incorporates several prohibitions to protect individuals of listed threatened, endangered or extirpated Species at Risk (per Schedule 1 of SARA). Projects that may impact the habitat of endangered and threatened species directly or indirectly may require federal approval or permitting to remain in compliance with SARA.

Through a background review, it was determined that two Avian SAR: Least Bittern [Fed: THR; Prov: THR] and Barn Swallow [Fed: THR; Prov: THR] have been recorded in the study area. Least Bittern (Fed: THR; Prov: THR) may have nested in a marsh (wetland neM6) in the 1980s but habitat conditions may no longer be suitable (Toronto Zoo, 2015). Barn Swallow (Fed: THR; Prov: THR) have been recorded nesting on structures at the ferry dock and foraging over the shoreline and marsh areas at the south end of Georgina Island (E.P.D.I., 2015).

WSPs background review also identified the potential for three additional SAR birds to use the study area as habitat, though some have very low likelihood. This includes Bank Swallow [Fed: THR; Prov: THR], Cerulean Warbler [Fed: END; Prov: THR] and Acadian Flycatcher [Fed: END; Prov: END].

Field surveys have not occurred for migratory birds and would be necessary to determine the presence of presence of avian SAR and other migratory birds.

The *Migratory Birds Convention Act* (MBCA) protects all migratory birds, not just avian SAR and the project has the potential to impact migratory birds, primarily through construction activities. Nesting migratory birds are protected under the MBCA, therefore no work is permitted to proceed that would result in the destruction of active nests (nests with eggs or young), the wounding or killing of birds, of species protected under the MBCA, 1994 and / or Regulations under that Act.

A Deer Wintering Area (i.e., a seasonal concentration area for wildlife) is located in the study area, on the mainland is a Significant Wildlife Habitat (SWH) area.

SWH feature has been identified by the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) and mapped in the provincial Land Information Ontario (LIO) database. More details are provided in **Appendix C.**

Georgina Island is approximately 1,291 ha and supports a high diversity of 38 vegetation community types. This includes 25 wetland communities, nine terrestrial communities and four human-influenced communities. Most of the island is covered in broadleaf and mixed swamps with the mixed swamps largely confined to the southeast side of the island. The mixed swamps are dominated by White Birch and White Cedar as well as stands of Eastern Hemlock and Black Ash. In the northwestern portion of the island, there are small mixed swamps of Black Ash and Green Ash and Black Ash, Red Maple, White Cedar and occasionally Balsam Fir as secondary tree species. Scattered among the swamps are small openings supporting cattail marshes and thicket swamps of Red-osier Dogwood, willow species and Speckled Alder.

Additional background information for the study area will be obtained from relevant agencies (e.g., MNDMNRF, MECP, LSRCA) during future study phases, and field surveys will be completed to document existing conditions.

The GIFN, as part of the Project Planning process (either Federal or Provincial EA or a cooperative process), will require additional screening and consultation with government agencies to determine the specific field conditions. To ensure the proper mitigation and management of ecological resources field surveys (e.g. visual, bat acoustic, aquatic fish surveys, tree inventory) and data collection as well as necessary permits for fish rescue (for example) will be required as part of the planning and pre-construction process. A full list of details is provided in **Appendix C**.

The Ecological Technical team will also work closely with the GIFN and Project Team to assist with the assessment of alternatives and preliminary preferred fixed link option.

4.2 Transportation Planning and Traffic Analysis

The current major transportation option for community members between Georgian Island and the Mainland is a ferry service, known as the Aazhaawe Carferry. There are significant gaps in the ability to

report on existing transportation conditions for GIFN and the surrounding area. The Project Planning process will require a Traffic Impact Study and analysis of existing and future transportation operations in order to understand how possible Fixed Link Options and Routes will impact current pedestrian and vehicular traffic within the Study Area.

It is expected that the construction of a fixed link will provide an increased opportunity for public transportation in comparison to the current ferry system. The current ferry provides space for fifty walk-on passengers during operating hours (7am-7pm) and pedestrians must wait for ferry to arrive either to the Island, or to Virginia Beach before proceeding to their destination. It is the communities desire, for historical importance, for the design of the fixed link to include a multi-use pedestrian path. From the Community Visioning Workshop, 63% of participants were interested in including a multi-use path or other form of connection and part of the Fixed Link Study. In the event of unfavourable weather and winter months, options such as a community shuttle bus, car-pooling or public transit busses can accommodate pedestrians to allow persons to reach their destinations.

Given Georgina Island's location in proximity to large municipalities like York and Simcoe, it can be anticipated that the preliminary discussions for public transportation will take place while the fixed link is being constructed. Access to centres like Newmarket, Orillia and Barrie can be achieved in approximately one hour, if travelling from the mainland. This can be projected as a priority for the community, for this access to be pursued in alignment with the completion of a fixed link, and ideally expanded upon. Having public transportation agreements into the community in place, for the completion of the fixed link will allow for those who relied on the walk-on passenger option of the ferry, to continue to have modes of transportation.

From the GIFN Community Skills Inventory Survey (2019), 41% of respondents were asked to indicate a barrier to employment. Transportation or the lack of driver's licence accounted for 21% and 21% of responses, respectively. The impact of the construction of a fixed link and how pertains to public transportation can be viewed as a positive as it creates the potential for safe, regularized public transit routes to and from the community, to access essential services, education opportunities, employment, as well as contribute to the local and regional economies.

The Technical Team applies a future planning horizon of 2031 to examine impacts to current and future conditions. Meetings with York Region Transit (YRT) and York Region District School Board (YRDSB) to explore the potential for YRT to operate a transit bus and for YRDSB to operate a school bus between the mainland and island to aid both residents and visitors without private vehicle access is recommended.

Preliminary analysis and identification of required studies is presented in **Appendix D**.

In summary, the additional studies are required by the Project Team in order to establish baseline conditions that are relevant to current travel demands. This will require contacting contact the Town of Georgina and York Region in order to obtain information. Furthermore, additional site visits may be required as part of the Project Planning process associated with traffic counts in the area.

A traffic survey and transportation study are required. The data used in previous studies may be outdated and does not consider current traffic and transportation needs in and surrounding the Study area. However, previous studies did show the following:

- Passenger and vehicle demand for 2006 showed that the maximum monthly usage of the ferry occurred in the summer with a maximum of 4,398 vehicles and 138 passengers in a month;
- The number of vehicle trips utilizing the ferry link is significantly less than the number that would use a proposed Fixed Link, due to the cost and time constraint imposed by the ferry link;
- The long-term demand on the fixed link was forecasted to be about 2,180 vehicles per day, with 142 vehicle crossings in the am peak hour and 206 vehicle crossings in the pm peak hour;
- It is typical practice to utilize asphalt surface for roads that experience traffic volumes exceeding 400 vehicles per day and it was recommended that all roadways within the study area include asphalt surface; and,
- Traffic from the Fixed Link could impact the operations of the intersection of Hadden Road at Highway 48 and potentially trigger a signal subject to signal warrant analysis.

To assess existing traffic operations, traffic counters specialized in traffic data collection will be required to obtain the following information:

- Automatic traffic record (ATR) data for Black River Road; and,
- Peak period (7-9am and 4-6pm) turning movement counts at the intersection of Hadden Road at Highway 48 and Chief Joseph Snake Road at Bear Road.

It should be noted that traffic data collected at this time may not represent typical traffic patterns due to Covid-19. Therefore, the information from the Town of Georgina and the Ministry of Transportation Ontario (MTO) will be required in order to compare the data with historical counts (if available) to establish baseline existing conditions. Furthermore, weekday, morning and evening peak hour intersection capacity analyses of existing, traffic volumes for the study intersections using the Synchro 10 software package is recommended.

4.3 Transportation Engineering

Preliminary investigations of alternative fixed link routes (**Appendix L**), Environmental Site Assessments prepared by Cambium Inc., and Preliminary Engineering Plan and Profiles for road works on Georgina Island (Tatham and Associates Ltd) were reviewed to understand current road conditions and access routes for a Fixed Link.

Appendix E includes a detailed analysis of the constraints.

Recommendation: In summary, it is recommended that GIFN avoid a Fixed Link connection in the area of Black River Road due to property constraints, the narrow road right-of-way may require widening and may be a concern from a capacity standpoint (based on the traffic volumes required for the Fixed Link).

4.4 Hydrogeology and Drainage

Investigation of subsurface water and groundwater conditions is important to assess impacts and mitigate the impacts to source water in the Study Area (hydrogeology). Furthermore, the existing Lake Simcoe water levels, hydrologic cycle and storm events as well as overland drainage will be important considerations for the Fixed Link.

From a drainage perspective additional studies may be required as part of the Fixed Link Project Plan including studies during the preliminary design phase:

- Water quantity and quality control measures;
- Impact of ice forces on bridge piers and abutment; and,
- Climate change impact on lake water levels and wave action.

Ministry of the Environment, Conservation and Parks (MECP) (May 2020a) water well records and water supply records were reviewed and indicate that groundwater is present at depths ranging between 5.8 and 17.1 meters below the ground surface (mbgs) in the overburden. This means that the management of groundwater will need to be considered in the evaluation of a Fixed Link Alternative and it will be needed during construction of the Fixed Link, depending on the chosen construction methodology. Consultation with the MECP will be required at future stages of the Project. As well, the Project Team will seek guidance and ensure future designs align with the MECP's Stormwater Management Planning and Design Manual (2003).

Based on recent water supply well records, it is interpreted that the mainland may be partially serviced by groundwater and watermains. The "Georgina, Fox and Snake Islands Subwatershed Plan" (2017) confirms that drinking water within the area is provided through private wells and surface water from Lake Simcoe. A water well survey will need to be completed to confirm the reliance on and details of water wells available in the area.

A drilling program (to be completed as part of detailed geotechnical and hydrogeological investigations) at further stages of the project will also be required to confirm the existing conditions of sand deposits in the shallow groundwater areas of the Island that may be impacted by the Fixed Link.

Investigations, meetings with the LSRCA coordination with the Ecological technical Team with respect to wetland impacts and mitigation as well as an investigation of source water quality during and post construction will be required. The major risk to hydrogeological resources as a result of this project undertaking is resulting from the need to dewater during construction in Lake Simcoe. Details are further documented in **Appendix F**.

4.5 Geotechnical

Sound knowledge of the geotechnical conditions at the project location is important for understanding the soil, contamination and ground elevation conditions for construction of the fixed link between Georgina Island and the mainland. A geotechnical investigating is needed to assess a number of surface and sub-surface conditions and will enable proper assessment of impacts associated with erosion and sedimentation processes, bearing capacity of road design and much more (see **Appendix G**).

The bedrock geology in the Georgina Island area consists of flat lying, thinly bedded sedimentary rock comprising limestone, dolostone, shale, arkose and sandstone. This rock underlies all of the islands as well as the shoreline of the mainland. The top of bedrock is slightly higher at the northeast side of Georgina Island compared to the southwest. Bedrock may be locally exposed at ground surface in a zone along the northwestern to southeastern part of the island as well as along the shoreline elsewhere on the island.

The bedrock within the Georgina Islands is overlain by unconsolidated sediments (overburden). The surficial unit of the southwest portion on Georgina Island is glacial till, consisting of heterogeneous deposits of silt, sand, gravel, cobbles and boulders. The overburden thickness on the southwestern corner of the island is several meters thick. The overburden at the location where the fixed link is planned to connect to the mainland is part of a different geological unit, comprising glaciolacustrine deposits of sand, gravelly sand and gravel, nearshore and beach deposits.

Accurate geotechnical information is of utmost important for the design of the fixed link. It will assist in determining the most suitable foundation methods, slope angles of embankments, and any potential ground improvement requirements.

A large part of the project risk will be related to ground conditions. The design must be based on accurate geotechnical information obtained from geotechnical and geophysical investigations. Request for the locates of any utilities around the project area. GIFN will need a team to carry out an investigation to identify the presence of any utilities and other manmade features such as debris.

4.6 Stormwater Management

Land under the jurisdiction of the Lake Simcoe and Region Conservation Authority (LSRCA) is governed by the 2016 Technical Guidelines for Stormwater Management Submissions.

Stormwater Management criteria include:

- Water quantity control of all runoff to pre-development levels for the 2-year through 100-year events unless direct overland discharge to Lake Simcoe;
- “Enhanced” (level 1) water quality control equivalent to an 80% Total Suspended Solids (TSS) removal standard;
- Water balance mitigation to pre-development standards (minimum 5mm up to 25 mm of rainfall capture, with associated on-site disposal). Pending the level of additional imperviousness added on site, criteria from the LSRCA may include retention and treatment of the runoff from the 25 mm rainfall event from all new and reconstructed impervious surfaces;
- Removal of 80% of the annual Total Phosphorus (TP) load from all major development areas will be required; and,
- The property falls within several environmental protection/sensitive areas, and additional criteria are likely applicable depending on site-specific concerns identified during analysis.

To address these issues, the Project Team will:

- Verify stormwater management (SWM) requirements with the Town of Georgina and the LSRCA;
- Review preliminary findings and identify any known issues at the onset of the project and communicate any risks to the design team;
- Confirm and evaluate the site conditions of the project area as they relate to SWM including, but not limited to:
    - existing drainage patterns;
    - existing outlets;
    - impacts of regulated areas;

    - superficial geology;
    - preliminary hydrogeology; and,
    - existing land use.
- Devise a preliminary SWM strategy based on the preferred alignment concept, implementing on-site controls, such as:
    - enhanced landscaping;
    - pervious pavement surfaces;
    - subsurface storage; and,
    - infiltration galleries.
- To meet water quantity control criteria, including phosphorous loading, size any required water quality treatment devices such as OGS units, filter units, or establish a treatment train etc.;
- Provide input to the design team and the GIFN regarding cost, maintenance etc. as required, and recommend Best Management Practices (BMPs) as necessary to satisfy Agencies Having Jurisdiction (AHJs) and the LSRCA criteria;
- Consult with the GIFN on the integration of Low Impact Development (LID) features (rain gardens, enhanced landscaping, bioswales, etc.). Feasible LID options will be evaluated to help meet water balance and water quality criteria, specifically with TP;
- If LID options are pursued, identify the geotechnical investigations that may be required in support of the SWM or LID measures (percolation tests) and develop a conceptual map for LID integration into the site plan;
- Prepare a Phosphorous Loading Study in support of the development, to be submitted under separate cover or as part of the stormwater report;
- Coordinate inputs from hydrogeology, geotechnical, landscaping and other disciplines into the final SWM design;
- Provide input to the Site Servicing and Grading Plans;
- Produce a Stormwater Management Report for review by Authorities Having Jurisdiction (LSRCA, MNDMNRF, etc.); and,
- Refine and finalize the Stormwater Management Report in consultation with the GIFN and the relevant stakeholders.

4.7 Marine Investigation

Marine investigations are significantly more expensive and will take more time to conduct compared to on-land investigations. Therefore, careful planning of the investigation is required. A phased approach is recommended, beginning with desktop studies and geophysical surveys of the over-water alignment alternatives. This will include completing a Bathymetric Survey and a Geophysical Survey. A bathymetric survey is a hydrographic or water-based survey that will map the depths and shapes of underwater terrain to illustrate the land that lies below. The Bathymetric and Geophysical surveys will include:

- Side Scan Sonar;
- Magnetometer Survey;
- Multichannel Analysis of Surface Waves (MASW) on Mainland;
- MASW on Georgina Island ;

- Marine MASW; and,
- Bedrock mapping.

As for the on-lad investigations, it is recommended that a Coastal Engineering report to be completed, which will include:

- Hydrodynamic Model;
- Wave Climate Analysis;
- Scour Analysis at Foundation Piers;
- Causeway Wave Runup and Overtopping Analysis; and,
- Ice Jam Analysis.

At commencement of the EA Study, a Contractor will conduct a survey (topographic & bathymetric survey) to document site conditions. Following EA Study approval and Detailed Design, intermediate surveys will be conducted for progress measurements. A final survey will be conducted to demonstrate that all parts of the structure meet the required elevations and dimensions as per design.

In summary, additional topographic surveys and desktop analysis will be required and using a Phased approach. The detailed permits and approvals likely required during the EA Study through to Detailed Design are documented in **Appendix G.**

4.8 Environmental Site Assessment – Contaminated Soil Investigation

The Technical Team documented gaps and identified a number of studies with respect to the detailed study of properties that may be required for the Fixed Link and their level of contamination (**Appendix H**). It was found that a Phase 1 and 2 Environmental Site Assessment was completed (Neegan Burnside report (1998 and 2000) and identified three (3) inactive landfills on the island. This poses the greatest risk to the Fixed Link project and the environment; however, the report was not available for review. A copy of the Neegan Burnside Phase 1 and 2 Environmental Site Assessment Report is needed to confirm if any of the inactive landfills are within and/or in close proximity to the study area. Additional detailed analysis is required. Landfills are generally always considered as a high risk from a regulatory and mitigation perspective and may cause significant constraints if the GIFN move forward with investigation a Fixed link through an EA Study.

4.9 Archaeology and Cultural Heritage

A review of the Ontario Archaeological Sites Database indicates there are no recorded archaeological sites within or up to 1 km from the study area. A review of the Ontario Public Register of Archaeological Reports indicates no archaeological assessments have been completed for the study area. However, the York Region Archaeological Management Plan shows much of the study area on the mainland to hold archaeological potential.

Resources and gaps that have been identified with respect to archaeological resources are provided in **Appendix I** and cultural heritage resources are provided in **Appendix J**.

In summary, the Fixed Link Project will require at minimum a Stage 1 Archaeological Investigation and possible Stage 2 including consideration for Marine Archaeological resources for areas where the Lakebed of Lake Simcoe and shorelines may be disturbed. In some studies, under marine conditions, underground artifacts (shipwrecks etc.) are considered as part of the investigation. Stage 1 Archaeological Assessment will identify the archaeological potential of the study area and recommend appropriate mitigation strategies. Consideration for underwater archaeological potential must be encapsulated within the Stage 1 Archaeological Assessment report.

4.10 Air and Noise

There are no specific background studies that were conducted for air quality, greenhouse gas, and/ or noise for a Fixed link. **Appendix K** documents the major constraints associated with air and noise impacts for the Fixed Link Study and during construction. In summary an Air and Noise Study will be required as part of the Fixed Link EA. Under the *Environmental Protections Act* in Ontario, the regulation states that air and noise emission discharged from construction activities must be controlled to avoid causing an adverse effect using “every step necessary to control the emissions”.

During the EA Study the project team should evaluate for air and noise impacts and select the alternative option that minimizes air impacts and results in fewer emissions.

During design and construction, a Construction Contractor shall provide and implement recommended best management practices that are industry standard in Ontario to minimize air emissions from construction activities including best management practices for Dust, Noise, and approvals for mobile construction equipment.

5 POTENTIAL ENVIRONMENTAL CONSTRAINTS OF A FIXED LINK

Potential environmental effects, including to the social and natural environment, of the alternatives for a fixed link will have to be identified and examined as part of the Environmental Planning Process. While the nature of the effects will depend on the design of the proposed 'Fixed link' (and mitigation opportunities).

Table 1 provides a preliminary listing of the types of constraints effects that could occur for the project.

Table 1 Georgina Island Fixed Link - Listing of Constraints

SUBJECT AREA	CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
Archaeology	Medium	Study area holds archaeological potential.	• Avoid where possible. • Assess the archaeological potential to determine appropriate mitigation strategies (e.g. Stage 2 Archaeological Assessment).
		New Ministry of Heritage, Sport, Tourism and Culture Industries direction includes the consideration for underwater archaeological potential.	• Avoid where possible. • Note consideration for underwater archaeological potential must be included in the Stage 1 Archaeological Assessment. • Potential future work to survey and visually confirm underwater archaeological features by a licensed marine archaeologist.
Cultural Heritage	Low	Potential culturally significant views may be obscured by a fixed link.	• Identify any significant views through a Cultural Heritage Resource Assessment. • Recommendations to preserve significant views should be considered when choosing a location for the fixed link.
	Medium	Listed, Designated, or potential cultural heritage resources	• Avoid where possible.

SUBJECT AREA	CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
		location and status to be determined.	• Location of cultural heritage resources to be determined through completion of a Cultural Heritage Resource Assessment.
		Official Plan indicates that Renewable Energy projects may require a Visual Impact Study. Though this is not a Renewable Energy project, there may be a call to provide a similar study or have the Cultural Heritage Resource Assessment account for impacts to views.	• Recommendations to preserve significant views should be considered when choosing a location for the fixed link.
		Serviced and Unserviced Lakeshore Residential Areas (*Official Plan*, Section D) stipulates a requirement to "conserve and enhance the cultural heritage and lake-oriented character that is unique to the lakeshore residential areas."	• Ensure special planning areas are considered in the Cultural Heritage Resource Assessment.
	High	If listed or designated properties are within or adjacent to the study area, they could be a barrier to development within the area.	• Ensure a Cultural Heritage Resource Assessment is completed at the early stages of the project to provide detailed information on the location of potential and existing cultural heritage resources and provide appropriate mitigation recommendations.
Contamination	Low	Overall, most of the potential for site contamination within the study area is low as most of the area is residential.	• None.

SUBJECT AREA	CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
	Medium	The presence of the Marina and Business Centre at the ferry docks on the mainland, and the buildings/storage yard on the ferry docks on Georgina Island represent a medium concern due to the potential for fuel spills and leaks from fuel storage tanks and fuel dispensing equipment, vehicle/equipment and waste materials storage.	• Complete Phase 1 and 2 Environmental Site Assessments of the lands to confirm the presence or absence of soil and groundwater contamination.
	High	A previous Phase 1 and 2 Environmental Site Assessment for Georgina Island was identified in the Neegan Burnside report (1998 and 2000) noted above in the Background Information Review. The report alluded to the fact that there are three (3) inactive landfills on the island. However, this report was not available for review. Landfills are generally always considered as a high risk from a regulatory and mitigation perspective.	• Obtain a copy of the Neegan Burnside Phase 1 and 2 Environmental Site Assessment Report to confirm if any of the inactive landfills are within and/or in close proximity to the study area.
Hydrogeology	Medium	Detailed information on wetlands is not available.	• Discuss completion of studies focused on wetlands with ecologists on the project.
	Medium	Water well survey forms, groundwater level details and servicing plans are not available.	• Complete water well surveys at Preliminary Design to confirm presence of private wells and evaluate impacts of the project to well owners (can be Preliminary or Detail Design task).

SUBJECT AREA	CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
	High	Detailed engineering design drawings for construction of Fixed Link are not available.	• Complete dewatering analysis once design drawings are available (Detail Design task).
Ecology	High	**Provincially Significant Wetlands** Provincially Significant Wetlands are present at the southwest tip of Georgina Island. Permitting and/or compensation may be required per MNDMNRF and/or LSRCA policies.	• Avoid where possible. • Early consultation with MECP, ECCC, MNDMNRF and LSRCA to determine permitting, mitigation and/or compensation requirements resulting from potential direct and indirect impacts.
	High	**Fish Habitat / Sensitive Fish Habitat** Fish and aquatic habitat within the study area includes: Lake Simcoe, three warmwater tributaries of Lake Simcoe (on the mainland), and one tributary on the island. There is also Muskellunge and Northern Pike spawning habitat and nursery areas found in Lake Simcoe along the south shoreline of Georgina Island. Construction of the Fixed Link will require review and approval by DFO under the Fisheries Act.	• Avoid sensitive areas for fish where possible (e.g., spawning and nursery areas). • Additional fish and aquatic habitat assessment studies should be completed along the proposed alignments, to identify type of fish habitat present and any sensitive areas that may require protection and/or mitigation (e.g., spawning areas). • Consult with DFO early in the process.
	High	**Species at Risk (confirmed habitat)** SAR are known to be present within the wetlands at the	• Avoid where possible. • Complete additional SAR habitat assessment and ecological surveys within the

SUBJECT AREA	CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
		southwest tip of Georgina Island. Additional SAR and SAR habitat may be confirmed during future ecological studies to address data gaps. May require ESA and/or SARA approvals.	study area according to accepted seasonal timing windows and protocols. • Consult with MECP, DFO, ECCC, and LSRCA early in the process.
	Medium	**Species at Risk (potential habitat)** Potential habitat for additional SAR has been identified based on a review of background information. May require ESA and/or SARA approvals.	• Avoid where possible. • Additional studies and a SAR habitat screening required to refine the assessment of potential habitat. • May require targeted surveys to confirm species presence/absence. • Consult with MECP early in the process.
	Medium	**Significant Wildlife Habitat** Deer Wintering Area (stratum 2) is mapped on the mainland within the study area. Additional SWH may be identified during future ecological studies. SWH is protected under the Provincial Policy Statement (PPS).	• Avoid where possible. • Determine policy implications under the PPS for GIFN. • Additional ecological studies recommended to fully assess SWH potential in the study area.
	Medium	**Regional Greenlands System** Regional Greenlands are present on the mainland. May require review and approval by York Region.	• Avoid where possible. • Consult with York Region to determine regional policy implications for GIFN.
	Medium	**Key Natural Heritage Features (KNHF) and Key Hydrologic Features (KHF)**	• Avoid where possible. • Ecological field studies (e.g., Ecological Land Classification, botanical

SUBJECT AREA	CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
		A preliminary list of KNHF and KHF relevant to the study area, include: significant habitat of endangered and threatened species, fish habitat, wetlands, significant woodlands, significant wildlife habitat, lakes and their littoral zones, permanent and intermittent streams, seepage areas and springs deemed vulnerable or sensitive, surface water features, and Lake Simcoe shoreline. May require review and approval by York Region.	inventory, breeding bird surveys, SWH and SAR assessment, aquatic habitat assessment) to determine designation as a KNHF or KHF should be completed at future study phases. • Consult with York Region to determine regional policy implications for GIFN.
	Medium	**Woodlands / Significant Woodlands** Woodlands are present on the mainland and on the island. Significant Woodlands, as identified in the Regional OP, are considered key natural heritage features and in general, receive protection from development and/or site alteration. May require review and approval by York Region.	• Avoid where possible. • Ecological field studies (e.g., Ecological Land Classification, botanical inventory, breeding bird surveys, SWH and SAR assessment) to determine woodland significance should be completed at future study phases. • Consult with York Region to determine regional policy implications for GIFN.
	Medium	**Wetlands (non-PSW)** Wetlands (non-PSW) are present on the mainland. Wetlands are regulated by the LSRCA. Development and/or site alteration within a wetland or its proximity requires	• Avoid where possible. • Consult with LSRCA to determine policy implications for GIFN.

SUBJECT AREA	CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
		approval from LSRCA. Compensation to address impacts may be required.	
	Low	**Greenbelt Plan Area** Protected Countryside is present on the mainland.	• Consult with the Government of Ontario to determine policy implications for GIFN.
Air and Noise	Low	Air quality is already impacted (i.e. potential adverse effects from cumulative air quality impacts).	• Demonstrate the obligations set out in the *Environmental Protection Act* will be met.
	Medium	Noise impacts on sensitive receptors.	• Design to minimize impacts of noise emissions from the link (i.e. barriers, incorporation of noise guidelines in the design). • Demonstrate the obligations set out in the *Environmental Protection Act* will be met.
Environmental Planning	Hight	Federal IAA potentially triggered by causeway length. This process may take 4+ years per the most recent guidance from the Canadian Impact Assessment Agency.	• Review project parameters to determine if the causeway can be reduced to less than 400 m in length for any continuous section. • Determine which federal authorities may be involved in terms of permits, authorization or funding. • Consultation with federal authorities to determine the screening requirements or IAA requirements.
	Medium	Potentially overlapping jurisdictions.	• Key agencies may include, MECP, MNDMNRF, York Region and Town of Georgina.
	High	Individual EA Considerations.	• A voluntary Scoped IEA could provide an avenue to

SUBJECT AREA	CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
			complete a comprehensive study that would potentially satisfy all federal, provincial and GIFN defined processes.
Drainage	Medium	Increase in impervious area.	• Water quality and quantity control. As per LSRCA and MNDMNRF Guidelines.
	Medium	Sedimentation and erosion controls during construction.	• Apply best management practices to provide ESC.
	High	Proposed link will go through significant wetland areas at the Georgina Island side	• Water quality and quantity control in addition to LID measures to be applied as per LSRCA and MNDMNRF Guidelines.
	High	Negative impact on channel navigation and marine activities	• Further studies and 3D modeling to be completed including lake water levels, wave action, wind impact and ice forces.
Traffic	Low	Data is missing to complete the Transportation Study and will require coordination with municipal, regional and provincial agencies. Due to Covid-19 traffic patterns are not typical and collecting current traffic data may not represent typical baseline conditions.	• Submit the Terms of Reference for completing a Transportation Study to key agencies, including Town of Georgina, York Region, MTO, YRT and YRDSB. • Obtain historical traffic data that is available.
Geotechnical	Low	**Geology** The general geological setting is known.	• There is sufficient geological information publicly available. Desktop study is recommended to collect sufficient information for a site-specific geological description.
	Low	**Seismic Hazard**	• The seismic hazard is relatively low at the project

SUBJECT AREA	CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
		Earthquakes can result in damage of the fixed-link and could also be a safety hazard for any person on the fixed-link during an earthquake event.	location; however, it is advised to take the appropriate seismic load into account during the design of the fixed link.
	Medium	Ground and lakebed elevations. The exact levels at the potential alignments of the fixed link is critical, for example for: • Design such as connection to existing infrastructure, • Geotechnical aspects such as stability and settlement of embankments, • quantities of material required to construct the project, • Total project costs.	• Use accurate ground and lakebed levels in the design and provide tenderers with accurate data for them to price the project.
	Medium	**Ice load** The bay freezes over (partly) during the winter. Ice can provide an additional load on bridge piers and other parts of the fixed link which could damage the structure if it is not designed for. There is insufficient data available to determine the ice load on the fixed-link structures.	• It is recommended to carry out a study to identify what the ice loads are which would need to be taken into account for this project.
	High	**Geotechnical conditions** Accurate geotechnical information is of utmost important for the design of the fixed link. It will assist in determining the most suitable foundation methods, slope	• The design must be based on accurate geotechnical information obtained from geotechnical and geophysical investigations.

SUBJECT AREA	CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
		angles of embankments, and any potential ground improvement requirements. A large part of the project risk will be related to ground conditions.	
	High	**Specific features along alignment** The presence of utilities such as submerged cables must be known during planning stage to assess any potential impact on the alignment or design of the fixed link. Presence of debris, sunken vessels etc., is of importance as well. Mostly this will not impact the design but can affect the construction cost in case it needs to be removed prior to construction.	• Request for the locates of any utilities around the project area. • Carry out an investigation to identify the presence of any utilities and other manmade features such as debris.

6 ALTERNATIVES TO BE CONSIDERED FOR A FIXED LINK

This section covers the evaluation of alternative options already completed to date. It is a summary of previous work to select a preferred fixed link option.

In the EA, both alternative solutions and alternative designs will be developed and evaluated.

Alternative solutions (also known as 'alternatives to' under the *Ontario EA Act*) are the functionally different ways of solving the problem and/or taking advantage of an opportunity. For road infrastructure projects, "alternatives to" could include different forms of transportation modes such as: transit (local and regional), road improvements, active forms (walking and cycling), and transportation demand management measures.

The alternative solutions will be subject to evaluation and a preferred solution will be carried forward. The preferred solution will form the basis of the alternative designs (also known as "alternative methods" under the Ontario EA Act). At the conclusion of the EA process, a preferred alternative design will be recommended.

The alternative solutions and designs to be considered in the EA will be limited to "land based" travel modes and to those physically located in the study area. They will be developed to accommodate a transportation planning horizon year of 2031.

The following describes the approach to be followed in the EA to develop both the alternative solutions and alternative designs.

6.1 Alternatives to the Undertaking

Alternatives for a fixed link were studies through preliminary analysis with GIFN in a report (2008) prepared by Neegan Burnside. These alternatives were presented to the community and can be re-evaluated for the purposes of documenting the full story of the EA planning process. The GIFN may already identify the preferred alternative to the undertaking (i.e. a bridge and causeway combination) but for the purposes of meeting planning and regulatory requirements.

The alternatives are:

1. Do Nothing
2. Improve Existing Ferry and Ice Road Operations
3. A Bridge
4. A Combination of a Bridge and Causeway

The alternatives above (1-4) represent the range of alternatives available to GIFN to address the problem of needing safe and reliable access between Georgina Island and the mainland. Regulatory agencies may request that the GIFN document and prepare evidence that demonstrates all possible solutions were explored through the planning process, including options for improving current conditions. Despite the fact that the GIFN completed several studies in 2000 and again in 2008 for a Fixed Link, more than 10 years have passed since the Study was completed will require that the GIFN commence a new EA Study based on current available information and data.

Alternative Solutions will be further explored and defined in the EA Study and will follow specific elements that meet the Community's Vision for a Fixed Link. Specific elements that would be used to describe the fix link alternative solution will include Community Vision objectives such as:

- A combination of a bridge and causeway;
- A two-lane cross-section with one lane in each direction;
- A multi-use path for cyclists and pedestrians;
- Enhanced security and controlled access with ideally an attendant positioned at a guard booth; and,
- Opportunity to generate revenue for GIFN by charging a toll to visitors to the island.

For each of the proposed alternatives, there could be a variation in the nature of impacts and benefits. The nature of these impacts is to be documented throughout the planning process. The EA Study will have to document a detailed approach for dealing with the variety of variations between alternatives. GIFN leadership will be in a position to demonstrate the evaluation that has led to the selection of a preferred solution.

6.2 Alternative Designs (Methods to Undertake A Fixed Link)

The GIFN Leadership and Community have already identified a preferred alternative solution – a combination of a bridge or causeway. Once the solution is documented under the planning process, the next step will be to develop alternative designs.

The WSP technical team has worked with GIFN to draft feasible alternative designs that can be used in the EA and have done so for early scoping, understanding and identification of feasible funding options.

The development of alternative designs will require additional studies listed in **Section 4** of this report. The range of alternative designs are based on preferred routes or alignments of a Fixed Link. For each alternative route, designs would be created by a Technical Engineering Team to illustrate in detail various components and their location as well as how the designs will be implemented.

Three Alternative Designs identified in the Visioning Report are:

Option #1 – A Bridge and Causeway via Duclos Point on the mainland side**;**

Option #2 – A Bridge and Causeway envisages the Link on the shoreline between Bayvista Lane and Lee Farm Lane on the mainline side connected to the island via the Sand Islands with a connection to Chief Joseph Snake Road – possibly at the existing intersection of Chief Joseph Snake Road and Bear Road; ~3,100 m in length, originates from the Bayvista Property and terminates at Georgina Island; and,

Option #3 – A Bridge and Causeway via the existing ferry route between Virginia Beach Marina and Aazhaawe Simcoe Ferry Landing. ~2,830m in length, originates from an alternate Georgina Fist Nations property (to the West of Bayvista) and terminates at Georgina Island.

It is understood that Alternative Design Option #2 was selected by the GIFN community due to issues associated with Option #1 (high residential density at Duclos Point) and Option #3 (high water levels).

7 EVALUATION PROCESS

Before 2019, GIFN retained the consulting services of Neegan Burnside to complete an alternative assessment for a Fixed Link. As part of this study (completed in 2008) various agencies were engaged and issues pertaining to mitigation of environmental impacts were raised, see **Appendix L**. The results of engagement during this 2008 study identified the need for GIFN to retain and conduct a detailed project plan for the Fixed Link.

This section describes the proposed process to be followed to evaluate both alternative solutions ('alternatives to') and alternative designs ('alternative methods'). The alternatives will be evaluated in terms of their ability to address transportation considerations, and establish a set of criteria with GIFN, agencies and the Community through the EA Study.

Criteria used to evaluate alternative solutions are generally within the following areas:

- **Technical** (Cost, Constructability, Land Space, Safety);
- **Environment** (Ecology, Hydrogeology, Air and Noise, etc.);
- **Cultural** (Traditional Knowledge, Traditional Land and Resource Use, Country Foods, etc.);
- **Social** (Impact to adjacent landowners, children, businesses, tourism, culture); and,
- **Economic** (Operational Costs, Monitoring Costs etc.).

The GIFN may wish to establish their own set of Criteria with the Community through the EA Planning Process. Additional criteria can include such things as: traditional knowledge, climate change, local economic opportunity; security. Each criterion will be defined in more detail during the EA Study.

7.1 An Approach for Evaluating Alternatives

The approach to the EA study process was previously presented in **Section 3** of this Report. The Evaluation of alternatives provide the basis from which alternatives are developed, assessed and evaluated. Two assessment and evaluation phases are envisioned for a Fixed Link (if not subject to Federal process) during Phase 2 and 3 of the EA process The GIFN leadership and community have already come to a determination of their preferred Fixed Link Routes and Alternative Designs however, for the purpose of the EA, documentation of the evaluation process is required.

Each of the two evaluation phases will follow three steps:

- Develop evaluation criteria;
- Assess potential effects and benefits; and,
- Evaluate alternatives and select the preferred alternative.

An Example of an evaluation tabled is provided below in **Table 2.**

Table 2 Example of An Evaluation Table Using Objectives-Based Criteria

Study Objective	Criteria	Definition	Example
Safety and Health	Social Health and Recreation	There is potential for a fixed link to enable more opportunities for GIFN members to reduce vehicular use and use transit or bicycles.	Compare alternatives that have multi-use path to those that do not when completing evaluation. Compare the ability of different route alternatives to having a school bus.
Increase infrastructure Capacity	Operations	Focuses on issues related to construction and maintenance of a new road and potential impacts on existing utilities, watermains, m fibre optics.	Compare level of construction complexity across all alternatives.

The final outcome of the evaluation will identify a preferred route that is based on a comprehensive understanding of the GIFN needs and all criteria for meeting planning process requirements.

8 COMMITMENTS AND MONITORING

The GIFN Leadership will be required to develop commitments as part of the EA planning process for how the project will be monitored and scheduled. Commitments in an EA are measures that the Fixed Link Study are evaluated upon by agencies and includes – mitigation (managing impacts) a monitoring plan, regular consultation timing and meetings, and how the study will be documented.

It is recommended that a monitoring plan be generated with or by GIFN during the EA planning process. Mitigation measures are recommended to ensure that any disturbances during the Study and during construction are managed by the development of an overview schedule, which will be prepared as part of the Design Phase of work.

9 PROJECT SCHEDULE

The Fixed Link Project Schedule is established based on the Impact Assessment Agency of Canada (IAAC) Process described in **Section 3.2.1.1.** See **Figure 2** for a general overview of the specific phases included in the impact assessment process.

In summary:

- Phase 1 (Planning Phase), of the Impact Assessment Agency of Canada (IAAC) process had begun in late June 2021 and the Notice of Commencement will complete Phase 1 in early February 2022;
- Phase 2 (Impact Statement/Studies) of the IAAC process is expected to commence in late February 2022 with the IAAC projected to post the Impact Statement Notice in February 2025;
- Phase 3 (Impact Assessment) of the IAAC process is expected to begin in late February 2025 and commence with submission of the Impact Assessment Report and Conditions to the Minister in December 2025;
- Phase 4 (Decision-Making) of the IAAC process is expected to commence in late December 2025 with the Impact Assessment Report projected to receive Minister approval in January 2026; and,
- Construction commencement is anticipated in early February 2026 with construction commencement and project completion scheduled for late 2027. No timelines for expected federal, provincial, and municipal authorizations or permits and approvals is available at this time.

The Project Schedule assumes that the full Impact Assessment Process will be required for the Project. However, as early as possible in Phase 1, IAAC will make a decision regarding the need of an impact assessment. IAAC may determine that no impact assessment is required. A “no impact assessment” decision would allow the Project to proceed with permitting and approvals, and ultimately construction.

In making the decision, IAAC considers the following factors:

- The Initial Project Description, the proponent's Response to the Summary of Issues provided by IAAC and the Detailed Project Description;

- The possible adverse effects of the project that are within federal jurisdiction or the adverse effects that are directly linked or necessarily incidental to the exercise of federal power, duty or function;
- Any adverse impact the project may have on the rights of Indigenous peoples of Canada;
- Any comments received from the public, any jurisdiction or Indigenous communities;
- Any relevant regional or strategic assessment;
- Any study that is conducted or plan that is prepared by a provincial, territorial and Indigenous jurisdiction (in respect of a region in which the project is located) and that has been provided to IAAC; and,
- Any other factor that IAAC considers relevant.

Table 3 provides a quick snapshot of the Project Schedule. See **Appendix O** for the detailed Project Schedule.

Table 3 Fixed Link Project Schedule Summary

Phase	Start	End
Phase 1: Planning	June 2021	February 2022
Phase 2: Impact Statement	February 2022	February 2025
Phase 2: Impact Assessment	February 2025	December 2025
Phase 4: Decision Making	December 2025	January 2026

10 DEVELOPING AN ENGAGEMENT PLAN

This section summarizes how community members were engaged in the Project Plan and identifies recommendations for Community and Stakeholder Engagement during the Project Planning process.

At the outset of the project planning process, an Engagement Plan was recommended to act as a guide for how community members, non-members (public) and government agency consultations will proceed during the study. The Fixed Link Engagement Plan (FLEP) (see **Appendix N**) was completed in September 2021 and is an initial guide to engagement used to inform on-going stakeholder engagement through the various stages of Project development, construction, and operation. The FLEP is considered a working document that will evolve over all stages of the Fixed Link project. The FLEP seeks to define a technically and culturally appropriate approach to engagements.

Consultation with the public, government agencies and ministries, and other interested persons is a requirement for all EA processes. Documentation of all key consultation activities during the preparation of the Project is required.

A detailed summary of the consultation undertaken, and a summary of the comments received, is provided in the next sub-section; the Community Vision Summary Report is provided in **Appendix A**.

Additional consultation as part of the Fixed Link EA Study and during future implementation of a Fixed Link is recommended. Furthermore, because the Fixed Link is a major undertaking for GIFN, additional Communications, marketing and branding is also recommended to manage media relations and issues as they arise.

10.1 Community Engagement

A pop-up booth for the project was set up at the Island's annual Community Holiday Bazaar, which took place on December 3, 2019, in order to enhance outreach with members and supplement the other engagement activities taking place. Present at the booth were representatives from the Project Team (WSP's technical team and Cambium Indigenous Professional Services (CIPS)) alongside members of the Georgina Island First Nation Economic Development Department. Project constraints and opportunities as well as schedule were communicated to approximately 60 attendees. Members of GIFN and cottagers present at this pop-up event were presented with a Study Area Map and feedback pertaining to project issues, concerns and opportunities were collected. This pop-up event was also used to advertise a community-wide workshop. The event resulted in the identification of key issues and concerns that the community wanted to address as part of the Fixed Link Study, including land protection, security, route selection, tax impacts and effects on species.

A Community Visioning Workshop was facilitated by the project team at the Georgina Island Community Centre on January 13, 2020. Live questions were asked using Clicker Technology during a formal presentation, after which the 31 attendees were divided into 5 facilitated focus groups and asked to discuss the benefits and constraints in greater detail. More specifically, the groups focused on discussion about the potential positives, objections, enhancements, remediation related to the project, as well as other comments and suggestions. Panels around the room were provided to describe technical aspects of

the project plan and schedule. Community members expressed a strong preference for continued communication by email and continuing to hold community meetings and events regarding the project.

A complete summary of the workshop results is attached as **Appendix A** - some of the highlights included:

- There was a strong preference for communication by email and in continuing to hold community meetings and events regarding the project;
- Nearly 80% of participants identified with the following proposed Vision Statement for the project; "*Chippewas of Georgina Island First Nation is a responsible and sustainable community that values safety and community health. A Fixed Link will offer the community with safe passage during all seasons while protecting the environmental, cultural, social and economic future of the community*."
- 73% of participants were interested in a combination of a causeway and bridge for linking to the mainland and 63% were interested in including a multi-use path or other form of pedestrian connection;
- More than half of participants (63%) saw an urgent need for a fixed link within the next year, though most understood the project will likely take from 5 to 10 years to complete;
- Participants identified water pollution, fish habitats and wildlife habitats as important environmental features to be included;
- The south-western shoreline was identified as the preferred location, consistent with previous studies; and,
- Quality of life, healthcare and job creation were cited as top socio-economic concerns.

10.2 Stakeholder Engagement

10.2.1 Federal Agencies

In Fall 2020, GIFN engaged the Canadian Infrastructure Bank (CIB) and held an introductory meeting with the Impact Assessment Agency of Canada to discuss the project and next steps. The outcome of this meeting was the identification that the Fixed Link falls under the designated project list under the Impact Assessment Agency because it is proposed to contain a contiguous causeway greater than 400 metres and crosses Lake Simcoe. The result of this meeting led to the initiation of this Initial Project Description by the GIFN. Following that initial discussion, GIFN continued to work with the CIB as a potential funding partner. In August 2021, the CIB issued a Memorandum of Understanding (MOU) for Chief and Council's consideration intended to offer 'Accelerator' project loan support for the upcoming development and study costs related to the project. This MOU for financial support is expected to be signed by Chief and Council by mid-September 2021.

10.2.2 Provincial Regulatory Agencies - Ontario

On May 12, 2021, Cambium Indigenous Professional Services (CIPS), WSP and the Impact Assessment Agency of Canada (IAAC) met with the Ministry of Environment, Conservation and Parks (MECP) to coordinate environmental assessment requirements for the Fixed Link. MECP confirmed that an Individual EA will likely not be required; however, certain Class EA processes may apply. MECP also stated that the Municipal Class EA is not applicable, however, the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) Class EA may apply. MECP committed to providing reviews of submitted information pertaining to applicable *Environmental Assessment Act* requirements and will provide comment according to their policy areas.

On May 26, 2021, WSP met with the MNDMNRF to discuss EA processes and jurisdictions including potential works on shorelands and lake bottom under MNDMNRF jurisdiction. The MNDMNRF also confirmed Resource Stewardship and Facility Development (RSFD) Class EA requirements for lakebed and shoreline areas. The MNDMNRF stated that internal discussions are to confirm the consultation process including the Duty to Consult. The MNDMNRF requested to receive a copy of the Consultation List to confirm and/or update as required. The MNDMNRF communicated that a work permit is required under public lands to allow construction on the lakebed, which can occur as a result of an easement (or long-standing operational authority) or purchase. A purchase would relieve MNDMNRF of the requirement for long-term reviews going forward. The MNDMNRF stated that there are numerous authorizations including Public Lands Act, Fish and Wildlife, Lakes and rivers improvements.

On August 11, 2021, WSP and CIPS met with the Lake Simcoe Region Conservation Authority (LSRCA) to introduce the project and provide overview on the project status to date. It was noted that the proposed project will follow the Federal IA process as the project is on the list of Designated Projects. Additionally, it was confirmed that Lake Simcoe is navigable waters which will introduce specific permitting requirements. As part of the Federal IA process, GIFN will be consulting with multiple stakeholder groups as part of the draft Initial Project Description (IPD). The LSRCA confirmed that they do not have jurisdiction for this project; however, can participate to provide technical feedback and advise as needed. The LSRCA expressed general support for the project and provided a number of recommendations to ensure impacts/risks to Lake Simcoe are minimized and/or mitigated, specifically hydromorphological impacts since Lake Simcoe has portions with hydromorphological hazards. The LSRCA communicated that a Voluntary Project Review (VPR) process may be required and noted that they will need to discuss with the Board of Directors to identify what level of support could be provided to Project. GIFN presented to the LSRCA Board on September 24, 2021 as a follow up.

10.2.3 Indigenous Communities

On July 15, 2021, Chief Donna Big Canoe met with the Williams Treaty First Nations (WTFN) Chiefs to introduce the Project and inform them of the community's formal Band Council Resolution initiating the Island's intent to construct a Fixed Link. Following up from the meeting, Chief Big Canoe reintroduced the Project on August 26, 201 requesting a Letter of Support from each community. As a result of this meeting, Georgina Island First Nation has received Letters of Support from each of the WTFN Chiefs on behalf of the following communities:

- Hiawatha First Nation (September 15, 2021);
- Chippewas of Rama First Nation (September 13, 2021);
- Mississaugas of Scugog Island First Nation (September 13, 2021);
- Alderville First Nation (September 13, 2021);
- Curve Lake First Nation (August 10, 2021); and,
- Beausoleil First Nation (September 15, 2021).

In the Letters of Support, the WTFN confirmed that they will follow an internal, agreed to process for the Consultation to ensure that indigenous consultation is occurring. GIFN informed all communities that regardless of the internal process, the IAAC will be contacting their consultation department on this process and that federal funds are available to support their consultation efforts pertaining to this Project.

On August 12, 2021, GIFN met with the Métis Nation of Ontario (MNO) to introduce the Project; to request project support; and to identify key consultation plans that may be required moving forward. The MNO expressed interest in any processes that would require archaeological studies or impacts as well as the identification of any potential socio-economic benefits that may be realized by the MNO citizens as a result of such a large infrastructure project. MNO was informed that a procurement plan is in development (completion Fall 2021) that places a priority on Indigenous participation. GIFN also reiterated their equal concern for any potential archaeological and environmental impacts. The MNO will be preparing an MOU for GIFN Council's review and negotiation in the Fall of 2021 that details the formal relationship moving forward. Of particular note was the acknowledgement by GIFN and MNO of the unique opportunity for Indigenous people to be on both the Proponent and consultation sides of this Project to show how Consultation from an indigenous lens can occur.

Throughout the summer of 2021, GIFN has initiated, via email communications, initial consultation procedures required with the Huron Wendat community. A project presentation will be scheduled for the Fall of 2021. Initial discussions have specifically focused on archaeology support and Huron Wendat participation during development. Further engagement will detail the consultation relationship moving forward.

10.2.4 Elected Officials

On August 31, 2021, Chief Donna Big Canoe (assisted by CIPS) provided a Project introduction presentation to the Member of Parliament (MP) for York Simcoe, Scott Davidson. This 30-minute presentation was provided as a courtesy to the MP to provide the required information to properly direct communications to the First Nation from constituents as the Project becomes public knowledge. During this meeting, MP Davidson expressed strong support for the Project and was supportive of the First Nation determining their own path for the future. MP Davidson has also offered to assist the GIFN leadership when requested.

Finally, GIFN have made initial contact with Caroline Mulroney's office (Member of Provincial Parliament (MPP) for Yok-Simcoe) to schedule a similar presentation as that provided to MP Davidson. This meeting is planned for October 2021 and will provide information to the MPP's office pertaining to how constituents can engage GIFN as well as to determine what the project relationship between GIFN Council and the MPP's office would be moving forward. GIFN will also enquire about the MPP's project role as the current Minister of Transportation for the province of Ontario.

10.2.5 Community Interest Groups

On April 22, 2021, CIPS introduced the project to the Rescue Lake Simcoe Coalition (RLSC) to discuss details of the project, aspects of interest, processes for engagement and next steps. RSLC suggested the project promote reconciliation and protect the environment on the whole. During this conversation it was concluded that GIFN will engage the RLSC and all parties having the same Lake Simcoe protection goals as the community. RLSC did offer to promote meetings and inform their members of any relevant engagements to assist the community. With some technical details provided during this conversation, RSLC expressed interest regarding impacts and design aspects of the project with specific interest on impacts to Lake Simcoe and the Lake Simcoe Watershed. CIPS reiterated that engagement will be ongoing with RSLC to find acceptable mitigation measures and to ensure project changes will protect the lake.

To follow up on this initial engagement with the RLSC, on July 22, 2021, Cambium Indigenous Professional Services (CIPS) met with non-for-profit (NFP) organizations with an interest in protecting Lake Simcoe using a list provided by IAAC. CIPS presented a project introduction that included the project background and understanding prior to the official IAAC process begin initiated. This meeting also served as the initial request for professional, invested eyes to join the community's lens to protect the Lake going forward. The participants expressed some concern about the impacts the Project may have to individual landowners on the Lake and how impacts may be mitigated. Generally speaking, it was acknowledged that the current diesel ferry system poses an environmental hazard to the Lake and more information about GIFN transportation options would be provided moving forward. It was noted that socio-economic benefits will be considered on both the positive and negative side. In addition, the Project Team will be hosting a session for individuals on the Lake to inform them of the Project intentions.

The following project NFP organizations were present or received access to the recorded presentation:

- Rescue Lake Simcoe Coalition;
- Friends of Strawberry Island;
- Carden Field Naturalists;
- South Lake Simcoe Naturalists;
- Ontario Water Centre;
- North Gwillimbury Forest Alliance;
- AWARE Simcoe;
- Lake Simcoe Association;
- Nature Barrie;
- Orillia Naturalists Club;
- The Ontario Headwaters Institute;
- Windfall Ecology Centre;
- Lake Simcoe Watch;
- Save the Maskinonge;
- Ontario Rivers Alliance;
- Ecojustice;
- Sail Georgina; and

- Ontario Water Centre

10.3 Consultation Under the Environmental Assessment (EA) Act

The EA process described in **Section 3** has prescribed milestones when meetings and notices about projects occur, it is recommended that GIFN engage with the Federal Government through IAA process to confirm planning process and to complete a Consultation/Engagement Strategy as an immediate next step.

The following sequence of events are to be included in a Consultation Plan:

- Notice of Study Commencement;
- Project Orientation Meetings and Stakeholder Meetings;
- Public Forum or Community Open House;
- Online Consultation using a project website;
- Notice of a Project/Community Meeting;
- A Public Open House or Workshop;
- Notice of Study Completion; and,
- Document and Reporting of Comments Tracked throughout the project.

Recommendation: As part of developing a Consultation Plan is it also recommended that GIFN use the principles of engagement created as part of the Fixed Link Visioning process and set clear objectives for engagement on the project. As indicated in Section 3, it is also recommended that committees or working groups be created as part of the project to seek input from key persons and to receive ongoing feedback and guidance over the course of the Project.

Throughout the project planning process, the GIFN leadership and Fixed Link Project Team can continue to engage the community at key stages in the planning process. Engagement can occur in-person or online and by mail, if preferred. When it comes to online engagement, The Chippewas of Georgina Island have established a website (https://www.gifixedlink.com) that can be used as a portal for accessing information on the project. There are a variety of tools that can be leveraged in order to provide a highly visible, informative, interactive, and engaging online presence, which includes everything from text-based project updates and meeting notices to providing online versions of project and meeting materials, videos, interactive mapping, online polls and surveys, and direct links to social media feeds. The project goal is to provide information in a variety of media and to provide opportunities to engage with the project team throughout the project.

In light of COVID-19, the GIFN may wish to use a mix of online and mail communication for the Fixed Link project. The following are a list of tools that can be used during the project planning process.

ONLINE AND MAIL

- Project specific website – the purpose of the website is a primary location for members to obtain updates;
- Online Poll;
- Online Survey;
- Electronic or Print Quarterly Newsletter;

- Bulletin Boards; and
- Online Video Recordings of Presentations.

IN-PERSON (IF PERMITTED)

- Talking Circles;
- Drop-in Office Hours;
- Project Office; and,
- Working Group Meetings and Workshops.

11 ESTIMATED CAPITAL COST

A rough order of magnitude was estimated based on the preferred alternative mentioned in **Section 6** of $150,000 - $180,000 per meter long of the bridge. The 1.2km bridge cost may be $180,000,000 to $220,000,000.

Additionally, the Project Team put together the following estimate, based on the Confederation Bridge, which is very similar to the proposed Fixed Link, i.e., similar concrete box girder design with arch spans and similar height. Based on $/m for the Confederation bridge, the proposed 1150m fixed link bridge span may be cost $170,000,000.

As well, an estimated cost of fill has been determined by calculating the potential fill volume using the following assumptions:

- 10m pier height at end of causeway (from water level) instead of previous 20m; and,
- 2:1 side slopes instead of previous 4:1.

Based on these assumptions the following was estimated:

- New subsurface volume based on above: 600,000 m3 (previously 2,500,000 m3);
- Cost of subsurface fill = $45,000,000 (based on coarse mined rock, $2,500 per 35 m3 trailer);
- Cost of above surface fill = $15,000,000 (assumed standard fill import, ~$10/m3); and,
- Rough total estimate based on the above assumptions: $230,000,000.

Based on the above, it is suggested that the rough order of magnitude construction costs may be between $240,000,000 and $280,000,000.

Appendix A Community Visioning Report

1 INTRODUCTION



A good part of the cultural narrative of the Chippewas of Georgina Island involves stories of the crossing between island and mainland. Here are a few such stories. There are many more. Many are tragic; there have been several deaths due to the lake conditions. A number of people have fallen through the ice or had terrible accidents relating to crossing the lake. We honour and remember... individuals from our community who have passed as a result of the lake conditions...

- John L. Stickley et. al The Chippewas of Georgina Island: A People of Stories:

This report is a summary of community engagement activities and a record of feedback received from the Georgina Island First Nation Leadership, Staff and Community Members related to the future vision of a Fixed Link (a permanent land-based access route from the mainland to the shoreline of Georgina Island). This report also includes written stories (excerpts) from the community. The community engagement activities described in this summary report are a small part of a larger project called, "The Georgina Island Fixed Link Project Plan."

1 INTRODUCTION



1.1 WHAT IS A PROJECT VISION?

In general, a Vision is a specific set of goals for the future and outlines what a community seeks to achieve with respect to a specific objective (e.g. safe transportation and access between Georgina Island and the mainland). A vision statement acts as an anchor for action and is typically short, specific and based on current context and information available. Consideration for what is attainable from a technical, cost and environmental perspective is critical. The Vision for a Fixed Link is in early stages, and will require further understanding of the technical limitations of the project.

1 INTRODUCTION

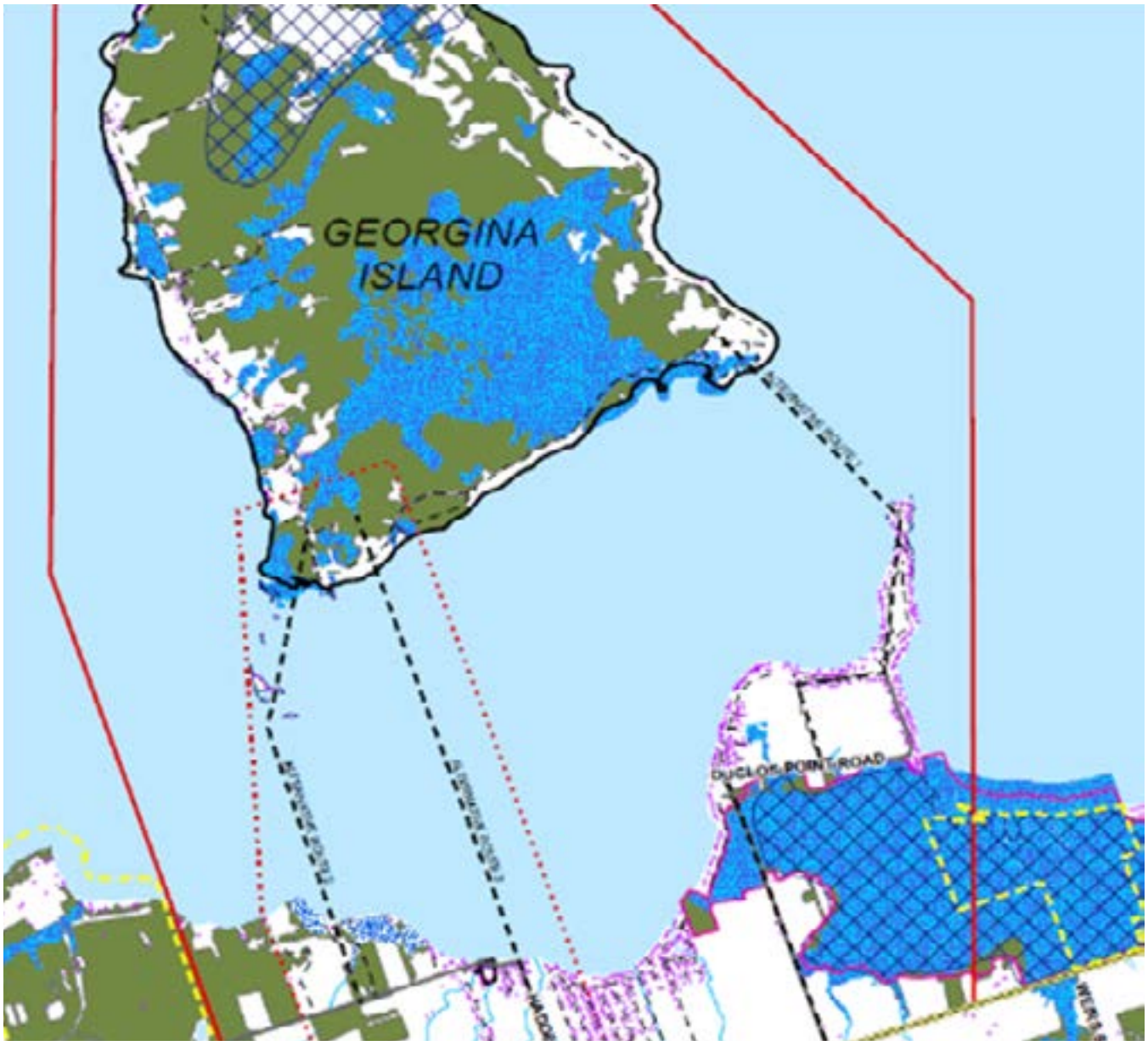


Figure 1. Fixed Link Project Plan Study Area (Source: Neegan Burnside Study)

1.2 PROJECT CONTEXT

Georgina Island First Nation (GIFN) retained Cambium Aboriginal to facilitate in the procurement of services to prepare a **Fixed Link Project Plan** and Community Visioning. WSP and Cambium Aboriginal (the Project Team) were informed that the need for a Fixed Link has existed for generations and that a Fixed Link is directly tied to the ongoing Health and Safety of community members.

1 INTRODUCTION



Following a three (3) part evaluation process, WSP Canada was retained to support the Nation and its members with documenting the necessary steps needed to scope a Fixed Link Project. A Fixed Link is defined as the construction of a permanent land-based access route from the mainland to the shoreline of Georgina Island.

Before a Fixed Link can be constructed, several detailed studies, meetings and analysis are required to ensure that environmental, cost, constructability, legal and social impacts are considered. These details are documented through a planning process the Nation has called a **Fixed Link Project Plan**.

The purpose of the **Fixed Link Project Plan** is to identify and communicate the planning process, including the various technical, social, economic and environmental studies required to analyze and later construct a Fixed Link between Georgina Island and the mainland, while minimizing impacts to the community and the environment for future generations.

Engaging members of the community every step of the way is significant to the development of a Fixed Link Project Plan. For this reason, engagement activities were completed as a first step with the goal of drafting a Community Vision Statement for a Fixed Link.

1 INTRODUCTION



1.3 COMMUNITY ENGAGEMENT OBJECTIVIES

The purpose of engaging members of GIFN is to ensure that leadership, staff and the community have a strong understanding of the scale, scope, budget and timelines that are involved in a Fixed Link Project Plan, while obtaining community opinion towards a project plan and future detailed design and construction of the Fixed Link.

On **November 4, 2019** the Project Team met with GIFN Chief and Council and Staff Members on the Engagement Team to confirm the direction and to set a path for undertaking a Community Visioning exercise with members of the Georgina Island First Nation.

1 INTRODUCTION



"Why we should build a bridge because it is better to go to stuff like hockey or to the store or a friends house."

"No need for an ice road or scoot and nobody will go in the ice."

- Elementary Writing Contest Entry

Therefore, the objectives for undertaking community engagement Visioning Workshop are:



To listen and document feedback from the community on the ideas, opportunities and constraints associated with a Fixed Link;



To understand what matters most to the community's future (safety, access, health, etc.);



To draft a "Vision Statement" for the Community;



To share knowledge about a Fixed Link and the next steps in building a fixed link; and,



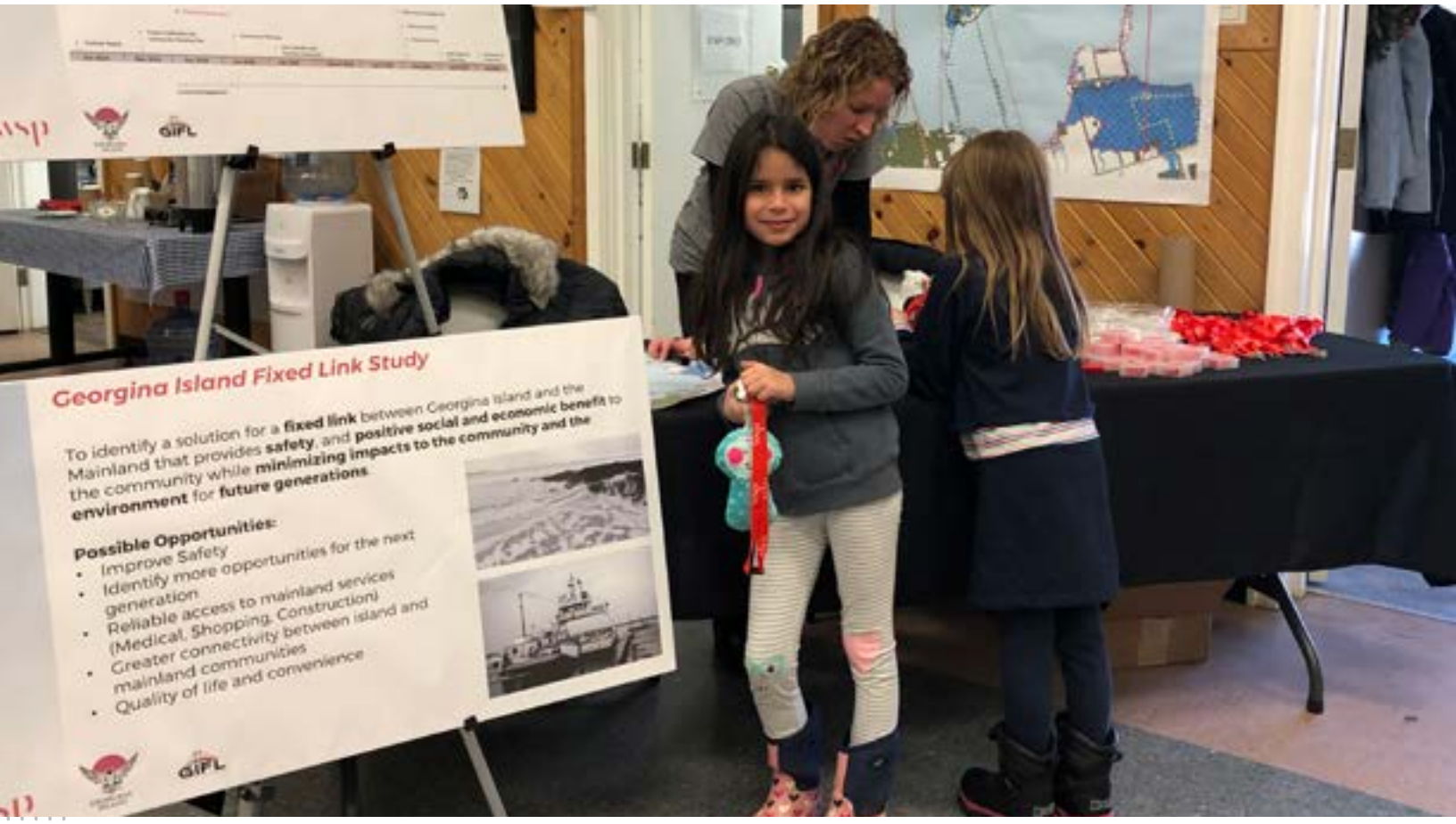
To report back on what we've heard and find opportunities to improve the way we engage the community as the project moves forward.

The summary and analysis provided in this report seeks to meet these objectives.



Section 2:
DETAILS

2 DETAILS



The Project Team facilitated three (3) meetings in total with Georgina Island First Nation (GIFN) Staff, Leadership and Community members. In addition to the three (3) meetings, a pop-up community booth with project information was presented to GIFN community members during a regularly scheduled Community Holiday Bazaar. The Community also held a writing contest with the theme "Why our First Nation Should or Should Not Have a Bridge" between March 9, 2020 and April 3, 2020. The contest received eleven (11) entries across elementary, intermediate and high school age categories. Selections from the writing contest are captured in this report.

On **November 4, 2019** the Project Team held two (2) meetings, one (1) with the GIFN Engagement Team and a second meeting with Chief Donna Big Canoe, Council and some members of Staff. During this meeting, a variety of methods and tools were presented for undertaking a community visioning workshop. A roundtable discussion was facilitated with Chief and Council on items related to the vision, project and engagement goals and objective, and next steps. These meetings resulted in a re-confirmation of project understanding and identified that Health and Safety is a significant community need associated with the Fixed Link Project Plan.

2 DETAILS



"Having to take the scoot in the wintertime is cold, noisy, and more dangerous than being on a school bus. It would also be easier to spend time with your friends after school and join school activities...because then you wouldn't always have to be thinking about the ferry schedule."

- Intermediate Writing Contest Entry

Chief and Council also communicated that there is continued, grave concern in the Community of more deaths or injuries by using the current system of transportation during freeze up and spring thaw. These meetings also resulted in an agreed upon approach to undertaking a Visioning Workshop with members of the GIFN community to better define additional community needs.

On **January 13, 2020** the Project Team facilitated a Community Visioning Workshop. The workshop was held from 1:00 to 3:00 pm at the Georgina Island Community Center, located on Chief Joseph Snake Road, Georgina, ON L0E 1L0. The workshop involved a formal presentation, open forum question and answer period, an audience live poll (using what is herein referred to as Clicker Technology), and a facilitated circle discussion. Approximately 31 community members (including staff and Council) attended the workshop.



Section 3:

NOTIFICATION

3 NOTIFICATION



On **December 3, 2019** a pop-up engagement booth was set-up during a regularly scheduled Community Holiday Bazaar to enhance outreach with members. The Georgina Island First Nation Economic Development Department, and Project Team (WSP Technical Team and Cambium Aboriginal) were present at the pop-up booth and provided community members with a map of the Fixed Link Project Plan study area. Community members were asked to identify constraints and opportunities of a Fixed Link. Approximately sixty (60) community members participated and provided the Project Team with feedback (see **Section 5** for summary of feedback received).

The Georgina Island First Nation Economic Development Department encouraged attendees to sign up for community information updates related to the Fixed Link Project Plan and other general notifications. Members provided the GIFN Engagement Team with their preferred notification method and contact information. This information is not accessible to the Consultant Team, but is used by the GIFN Staff as a resource for ongoing project communications. Contact information received at the pop-up booth were added to the GIFN internal members contact list.

3 NOTIFICATION



Cambium Aboriginal prepared a Community Engagement poster for circulation on **January 7, 2020**.

Two circulations were completed:

- Cambium circulated the Poster to the members who signed up at the Community Holiday Bazaar.
- GIFN Economic Development circulated by e-mail, or phoned where required, to the active members list.

The Poster was also uploaded to the GIFN Community Website – Members Only (password protected).

Copies of all workshop notification materials are provided in **Appendix A**.



Section 4:

WORKSHOP FORMAT

4 WORKSHOP FORMAT

"A few times we have had major house fires and even bushfires where we needed extra help from the firefighters in Sutton and Keswick but because they had to take the ferry to come over lots of damage had already been done which could have been avoided if we had a bridge."

- HIgh School Writing Contest Entry

The Visioning workshop included presentation boards, a PowerPoint presentation, live audience polling and a facilitated focus group discussion where maps and flip chart paper was provided for collecting feedback. The Project Team presented a set of informational slides during the Community Visioning Workshop in conjunction with posting a series of panels around the room describing the technical aspects of the project plan and schedule.

During the presentation, Clicker Technology was used to ask a series of specific questions about the Fixed Link. Project questions asked are noted below, with the key Clicker Technology polling results. A copy of the presentation, including the fulsome Clicker Technology polling results, can also be found in **Appendix B**.

4 WORKSHOP FORMAT

After the presentation, Workshop participants were organized into **five (5) focus** groups and were asked to discuss the benefits and constraints associated with a Fixed Link in more detail. A facilitator / notetaker was selected for each group to ask prompting questions and record feedback. The following prompting questions were used to organize discussions.

P	O	W	E	R
POSITIVES	**OBJECTIONS**	**WHAT ELSE?**	**ENHANCEMENTS**	**REMEDIATION**
(What do you like about a Fixed Link — what are its strengths, advantages...what's good about it...what could it look like... what makes a lot of sense or resonates most strongly, etc.?);	(What do you dislike about a Fixed Link — what are the weaknesses / disadvantages, things that work less well, things that don't make sense to you or that are potentially problematic, etc.?);	(What, if any, other comments, suggestions, ideas, feedback would you like to share?);	(How can the 'positives' be made even better — how can a fixed link be improved, refined and made better?); and	(How can your concerns or objections be addressed — how can perceived weaknesses / disadvantages or flaws be mitigated, reduced or eliminated?).

The following Project Team members attended the workshop:

- Michael Jacobs – Cambium Aboriginal, Facilitator;
- Sue Olguin – WSP, Project Manager;
- Majed Ibrahim – WSP, Structural Engineering;
- Andrew Roberts – WSP, Environmental Assessment;
- Christine Furtado – WSP, Consultation / Engagement; and
- Catherine Gentile – WSP, Consultation / Engagement.



Section 5:

SUMMARY OF FEEDBACK RECEIVED

5.1 Visioning Workshop Polling Questions

5.2 Focus Group Discussion Feedback

5.3 Creative Writing Contest

5 SUMMARY OF FEEDBACK RECEIVED



The Project Team received a significant amount of feedback from community members. All written and verbal comments were transcribed and analyzed and are offered herein summary. The following sub-sections highlight the feedback collected from community members as a summary of key messages and directions that shape a Vision for a Fixed Link as the Nation moves forward with detailed technical studie

A bridge is going to be helpful because it gives the community members more opportunities, it can be used for emergencies when every second counts, has less harmful impacts on the environment as well as it's a reliable and safe form of transportation all year round."

- High School Writing Contest Entry

5.1 VISIONING WORKSHOP POLLING QUESTIONS

The results of the polling questions completed by community members and staff at the Visioning Workshop are provided in Appendix B. The results indicate that more than half (63%) of the workshop participants received and preferred email notifications from Staff to hear about the meeting. Furthermore, few participants (23%) indicated that they remembered and / or participated in previous studies related to a Fixed Link.

Workshop participants were asked how the Project Team can improve outreach and communication. In response, participants preferred notification by email and used the community website. There is also interest in continuing to hold community meetings and events. Participants were least interested in using social media, text message, and direct mail, with zero participants interested in communications via the radio.

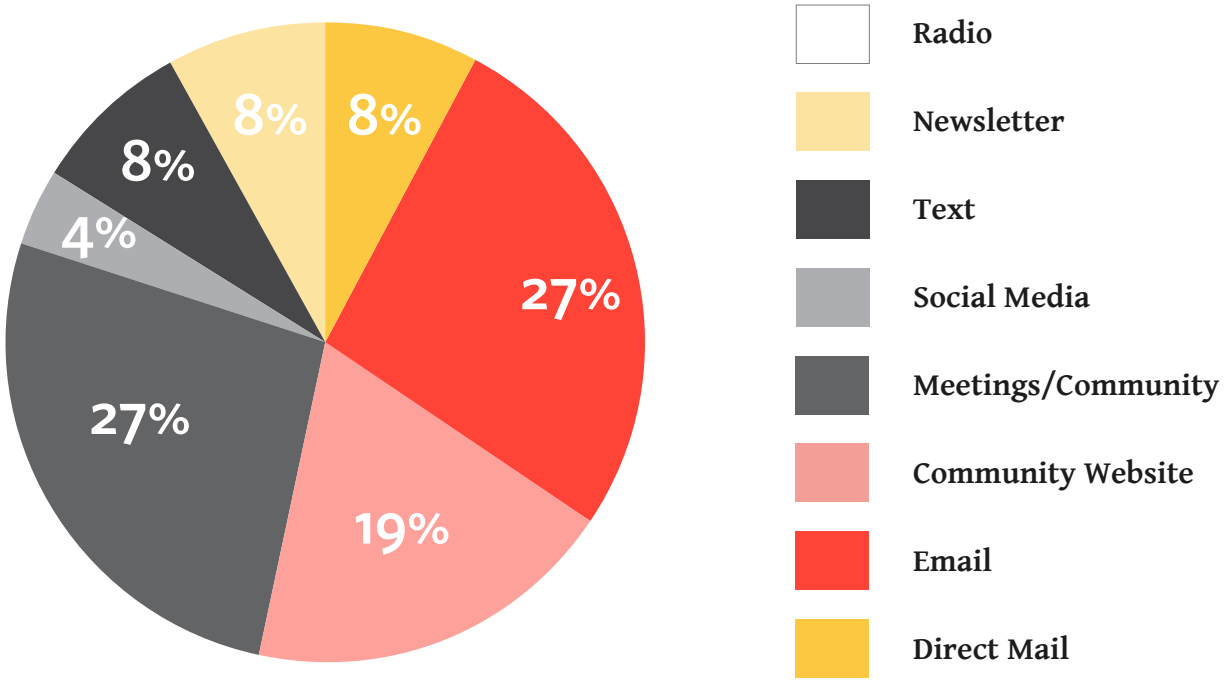


FIGURE 2. EXAMPLE POLLING QUESTION AND RESPONSE RELATED TO ENGAGEMENT

A major deliverable of the Community Visioning Workshop is development of a Vision Statement. The need for a clear vision statement to identify and guide the community to make decisions that are properly aligned with what is hoped to be achieved with the Fixed Link. Three (3) vision statements were presented to workshop participants.

79%
of participants identified with the following Vision Statement:

"Chippewas of Georgina Island First Nation is a responsible and sustainable community that values safety and community health. A Fixed Link will offer the community with safe passage during all seasons while protecting the environmental, cultural, social and economic future of the community."

5.1.1 TECHNICAL POLLING QUESTIONS

Participants of the Visioning Workshop were presented with technical information pertaining to the design of bridges, causeways, environmental considerations and the various alternative routes that have been studied previously for a Fixed Link. Most of the workshop participants (73%) were interested in having a combination of a causeway and bridge when presented with options for a Fixed Link.

When asked about the potential bridge type options and design features, 63% of participants were interested in a Multi-Use Path or some form of pedestrian connection, while 33% were most interested in the architectural features of a Fixed Link (i.e. lighting, decorative plaques). Fixed Link Project Plan graphic was presented, with discussion on the technical requirements and current study timeline. Participants of the Visioning Workshop (63%) have an urgent need for a Fixed Link within the next year. Despite the sense of urgency expressed by community members during the workshop, most participants understood the project schedule to realistically take 5 – 10 years to complete.

A series of environmental features were examined during the workshop and presented to the community. When asked about environmental priorities and impacts from construction, water pollution, fish habitat and wildlife habitat were highest priority.

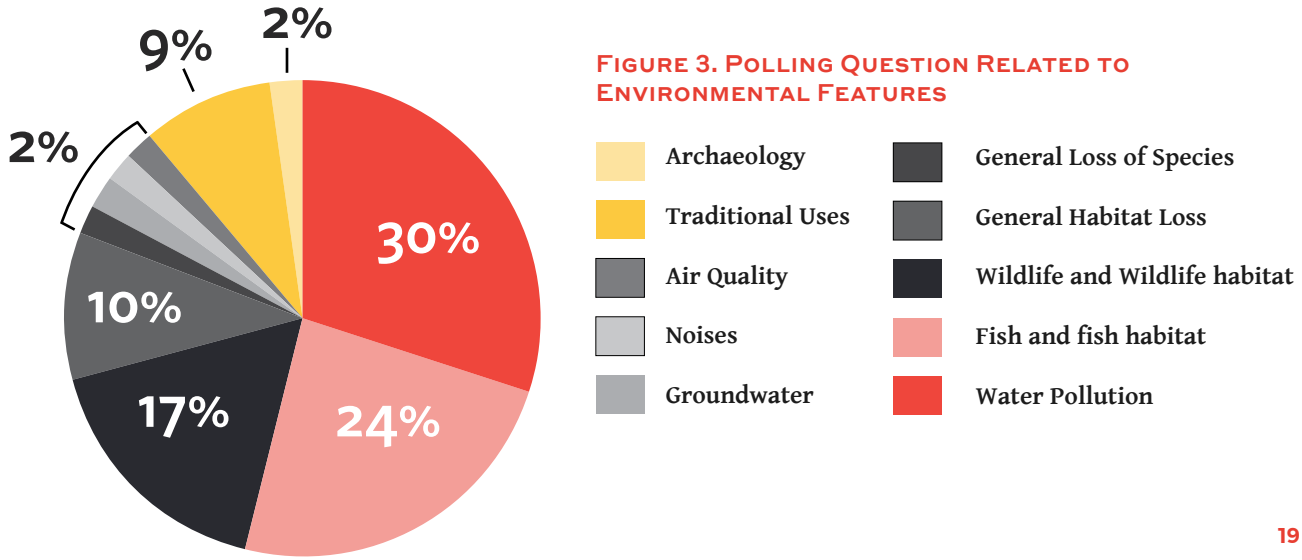


FIGURE 3. POLLING QUESTION RELATED TO ENVIRONMENTAL FEATURES

There is a clear indication that participants of the Visioning Workshop have a strong desire to preserve and protect the natural environment. Discussions included how studies were done, and various options that can be reviewed.

The alternative routes for a Fixed Link previously studied with the community were presented. Polling results indicate that a Fixed Link connection on the south-western shorelines of Georgina Island is preferred. These results are consistent with previous studies.

5.1.2 HEALTH & SAFETY

Over the course of the project, the Project Team received feedback from Chief and Council about the significant health concerns on the Island associated with access to healthcare providers, mobility of elders during all seasons, and the safety risks associated with crossing to the Island by personal vehicle during winter conditions. Therefore, Health and Safety was identified as a key concern before commencing the Visioning Workshop. During the Visioning Workshop, quality of life and healthcare were the top priorities of participants in the community.

Visioning workshop participants were also in favour of some form of access control and had a strong interest in having a guarded access point. Workshop participants were also interested in methods of generating revenue whether through tolls or other technical solutions.

In summary, the top three (3) socio-economic needs of workshop participants associated with a Fixed Link were: Quality of Life (23%) Healthcare (20%) and Job Creation (19%).

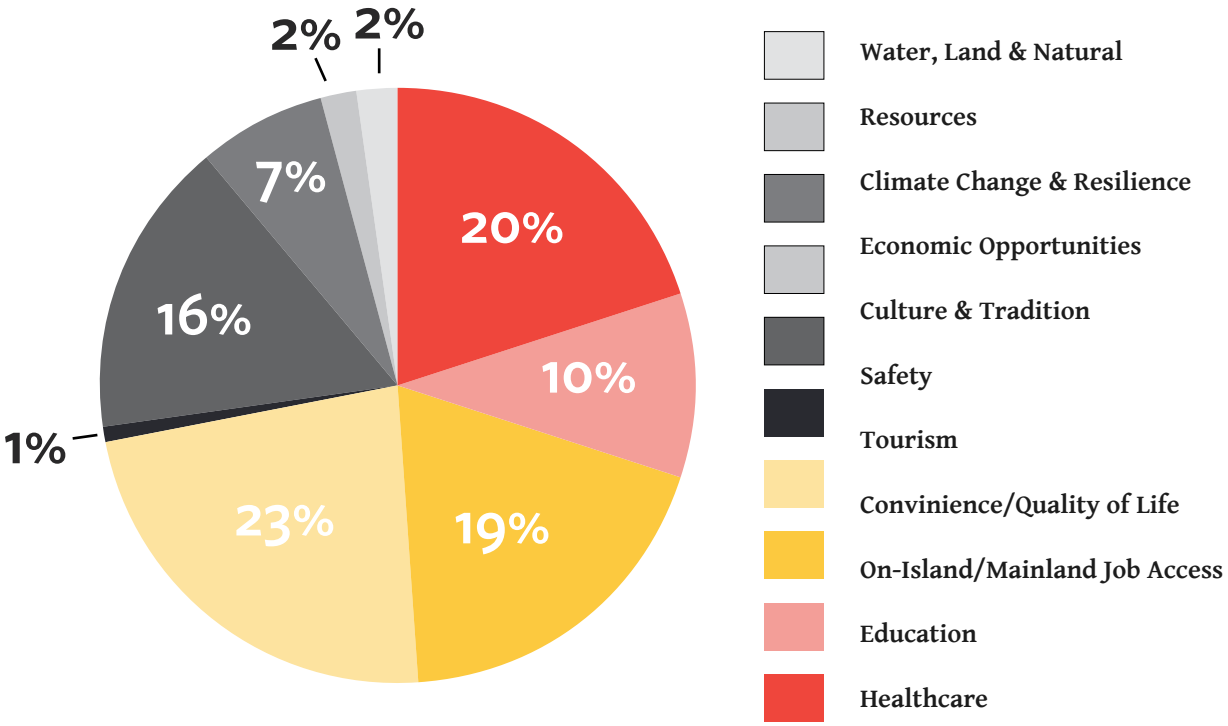


FIGURE 3. POLLING QUESTION RELATED TO SOCIO-ECONOMIC IMPACTS

During the Community Visioning Workshop presentation, community members also raised specific technical questions that the Project Team was able to answer. A summary of the questions asked, and responses is below.

Do outside companies run the Environmental Assessment (EA)?	Proponents like GIFN are responsible for the overall Project decisions. Proponents typically hire consultants to assist them with background studies, technical studies and expertise in navigating the EA process for Projects.
What would the community have to present to the agencies? (e.g. Trent Severn Waterway)	PrAs part of the EA and other potential approvals, agency engagement is required. WSP will identify all agency requirements to ensure the community understands how to proceed. Each agency has a different focus and regulatory function and will require different information. Some examples include: • Parks Canada is the federal agency responsible for the Trent Severn Waterway. Their interests will be how the Project interacts with the operation of the waterway including water levels, and navigability. • Transport Canada is the federal agency responsible for the Navigation Protection Act. Their interests will be to ensure that the fixed link be planned and constructed in accordance with their standards related to vessel navigation. • The Ontario Ministry of Environment, Conservation and Parks administers legislation including the Environmental Assessment Act, Environmental Protection Act, Endangered Species Act, and the Lake Simcoe Protection Act. • The Ontario Ministry of Natural Resources and Forestry lead the management of Ontario's Crown lands (including lake and rive bottoms) and develop and apply geographic information to help manage the province's natural resources.
What traffic would occur on a causeway? Why would two (2) lanes be needed? What is the allowable weight (or structural capacity)?	Typically, 62.5 tonnes per truck is accounted for. WSP also explained that a transportation / traffic study will also be done to assess these technical requirements.
Is illumination required?	Yes, to meet provincial safety standards and requirements and to ensure appropriate lighting for boaters / navigability.

5.2 GROUP DISCUSSION FEEDBACK

The following section summarizes the comments received during the Visioning Workshop focus group discussion. Community members provided written and verbal comments to the project team using maps and note paper. Facilitated discussions in each focus group were recorded on flip chart by a group facilitator and have been analyzed in this section collectively. Copies of all the written comments are available in Appendices C and D. **Comments were organized according to the following themes below, in order of most frequently raised concerns:**

- Land Use;
- Health and Safety;
- Environmental;
- Cultural;
- Transportation;
- Project Schedule;
- Technical;
- Economic;
- Engagement;
- Other.

5.2.1 SUMMARY OF COMMENTS BY THEME

Examples of the type of comments received by theme are summarized below.

Environmental

- Water pollution, fish and fish habitat, and wildlife and wildlife habitat are of principle concern to the community; and
- Look for opportunities to accelerate the Environmental Assessment process, to complete in a timely manner.

Technical

- A combination Bridge / Causeway is most preferred; and
- The design of the Bridge / Causeway should incorporate a multi-use path (for cyclists and pedestrians), possible architectural enhancements, and enhanced utility connections.

Transportation

- For enhanced security and controlled access, the community suggested an attendant positioned at a guard booth or alternative security measures.

Economic

- A revenue generating toll is preferred.
- Consultation and Engagement
- Email, meetings, community events and the community website are the preferred ways to keep community members informed; and
- The community most identified with the following vision statement: “Chippewas of Georgina Island First Nation is a responsible and sustainable community that values safety and community health. A Fixed Link will offer the community with safe passage during all seasons while protecting the environmental, cultural, social and economic future of the community.

The following is a summary of additional core topics that were raised during the facilitated group discussions, organized by each prompting question.

Positives

(What do you like about a Fixed Link — what are its strengths, advantages…what's good about it…what could it look like…what makes a lot of sense or resonates most strongly, etc.?)

- Safety;
- Convenience;
- Access to services;
- Economic benefit to First Nations;
- Emergency Access / Response Time;
- Job opportunities;
  - Off-island and on-island (i.e. greater self-employment opportunities).
- Time / Schedule Management;
- Social life / youth sports;
  - After school activities;
  - Sports / recrecreational access: no longer will have to worry about late night games.
- Keep our children at home during winter months;
- Jobs / education improvement;
  - More teachers; and
  - No boarding.
- Quality of life;
- Access for elders;
- Extra family time;
- Health care providers for all members;
- Fresh food all season;
- Public Transit opportunities (e.g. school bus); and
- Freedom.

Objections

(What do you dislike about a fixed link — what are the weaknesses / disadvantages, things that work less well, things that don't make sense to you or that are potentially problematic, etc.?)

- Land use plan to be ratified;
- Fishing off bridge / causeway;
- Security;
- None, if it is secure and access is managed;
- Noise increase (traffic and more construction trucks); and
- Potential for increased garbage/trash related to people using the link

What Else?

(What, if any, other comments, suggestions, ideas, feedback would you like to share?)

- Hurry up! Need now, get it done;
- Health and access;
- Gateway Park – Business;
- Suspension Bridge / Tourism draw walkway;
- Natural gas supply;
- Partial Tunnel; and
- Love the Elders.

Enhancements

(How can the 'positives' be made even better — how can a Fixed Link be improved, refined and made better?)

- Heated bridge (no plowing required, no de-icing material);
- Storage;
- Security control / safety;
- Railing height;
- Speed control (e.g. speed limit);
- Bike rental;
- Concept of member toll vs non-member for passing into community;
- "Fast Pass" card (e.g. nexus) system for members and island professionals / workers;
- Utilities improvements (Natural gas / internet);
- Adverse weather conditions impacting bridge safety (e.g. snow drift / freezing rain);
- Multi-lane;
  - Moped;
  - Bike;
  - Hike; and
  - Would have health benefits / improvements.
- Camera system for all fixed-link passengers;
- Health access (e.g. save time);
- Elders can stay on the island;
- Have Incoming employment;
- Community can come back and live in community;
- Architectural features; and
- Lights.

Remediation

(How can your concerns or objections be addressed — how can perceived weaknesses / disadvantages or flaws be mitigated, reduced or eliminated?)

- No fishing permitted from the bridge;
- Notice Board (Digital);
- Monitoring (e.g. cameras, security systems);
- Enforcement increase;
- Safety;
- Community meetings;
- Website to provide opinions and thoughts; and
- No charge ($) for members.

5.3 CREATIVE WRITING CONTEST

The following section summarizes the comments expressed in the Creative Writing contest by elementary, intermediate and high school aged Community members. Copies of the writing entries have not been included in this document for privacy reasons.

> **"...We need a bridge. I think we need a bridge for emergency reasons, say someone is about to have a baby you have to wait for a boat but if you have a bridge, you can just go across the bridge."**
>
> • Elementary Writing Contest Entry

All eleven (11) of the contest entries included positive arguments for a fixed link and underlined the concerns of Youth regarding the dangers of winter travel. The contest entries included four (4) consistent themes:

Health & Safety

- By having a fixed link, there would no longer be concerns about people going through the ice for winter travel on the ice road, or on scoots.
- Emergency Services and first responders would be able to access the Island.
- Better access to healthcare services on the mainland without having to worry about missing the ferry and delays.

School

- Better choices for students and parents for schooling. The fixed link would mean that students can reduce their commute time and wait time before school opens significantly.
- Students will longer have to be concerned about weather making them late for school.

Family & Activities

- Better access to friends who live on the mainland.
- Better and more frequent visits with family who live on the mainland.
- Better access to after school activities and sports without having to rush to the ferry.
- Better access to full time jobs and reduced commute times for their parents.

Convinience & Quality of Life

- Access to amenities such as sports, music lessons, restaurants when convenient without worrying about the ferry schedule, or wasting time sitting in line for the ferry.

While overwhelmingly positive there were a few negative concerns associated with a fixed link:

- This may open up our island to strangers and we want to keep our Community safe.
- Unknown factors including the cost the community, and environmental impacts to fish.
- Ferry drivers may lose their jobs.

"No more chances of getting hurt by getting over the ice road or scoot crashing down - you can always still be safe.

I could see my brother... more. He doesn't have to wait an hour to come across on the ferry boat to see us."

- Elementary Writing Contest Entry



Section 6:

CONCLUSIONS

6 CONCLUSIONS



After careful review of all core topics presented by Chief and Council, Staff and Community members, the following conclusions will inform the future community vision of a Fixed Link. The conclusions presented are for community, Chief and Council consideration when finalizing the Fixed Link Project Plan vision and moving forward on developing a technical project plan.

Community Health and Safety Considerations

As expressed during conversations and meetings with Council and the Community, there is true concern regarding the risks associated with travel across the lake particularly during the freeze-up and spring thaw periods. Almost everyone WSP spoke with could relate a story about a friend or a loved one going through the ice, or having difficulty with accessing emergency health care, with tragic results.

6 CONCLUSIONS

It is understood that a Fixed Link will provide safe travel for members and visitors, improve convenient access to fresh food and have a significant benefit to community health by giving educators, school workers and Emergency Services / healthcare providers more reliable access to the island.

Furthermore, the community quality of life may have a positive impact because of improved travel times resulting in members being able to spend more time on social activities and with family and children, with the potential to access a greater diversity of job options.

Safety is a significant area discussed with the community as it relates to access to the Island. The concept of a security gate, camera system, or mainland toll with physical gate tenant was raised as a consideration. Comments received indicate that the Fixed Link Project Plan will require a plan to manage security and access.



Economic Considerations

Access to jobs, diversification of jobs and the ability to explore greater opportunities for self-employment is enhanced with a Fixed Link. Comments received indicate that the Fixed Link itself can support local job growth through the construction process and management of the Fixed Link. An innovative idea included the concept of a gateway park located at the land-based side of the Fixed Link to increase local business opportunities such as food service facilities and other tourism related services. Furthermore, implementation of a fee for service type of Fixed Link in addition to the fees that already exist with Ferry Transportation (i.e. toll bridge or transponder) provides an economic opportunity for the community. It is suggested that additional engagement and communications take place regarding community members fee for use. Based on comments received, it was not clear whether community members should or should not be charged for the use of the Fixed Link.

One (1) group discussed the idea of the potential for members living off the island to return. It is encouraged that members who are currently living outside of the community are engaged in the Fixed Link project plan to better understand this consideration.

6 CONCLUSIONS

Technical and Transportation Considerations

Several technical considerations were raised during the workshop with most in favour of a bridge and causeway combination with a requirement to have multi-modal (pedestrian, cycling and vehicular) all season access to the island. Technical design considerations and architectural features are also significant items raised, including the ability for utility improvements, waste transfer improvements, lighting, bike parking, school bus and even public transit options for the future. The concept of a suspension bridge was raised by one (1) focus group, who suggested this feature may attract tourism.

Snow melt, Ice build-up and additional improvements to the existing docks located at alternatives two (2) and three (3) presented in previous studies were important considerations raised by the community members at the workshop. The topic of speed limits and congestion associated with summer cottage travellers is an important concern for implementing the Fixed Link.

Environmental and Land Use Considerations

It was evident from the polling questions that water quality, wildlife and natural areas are of most significance to participants. The ratification of a land use plan was raised. Concerns related to the perceived additional development pressure that might result from the fixed link, and that the Community would not be prepared, as the Land Use Plan has not been ratified. Other environmental concerns associated with saline freshwater, natural gas supply constraints, where and when to fish.

General Project and Engagement Considerations

In closing, it is evident that there is an urgent need to construct a Fixed Link and that members of the community who participated in the visioning workshop feel that the project could take as long as five (5) to 10 years to be implemented. With respect to engaging the community on the Fixed Link Project Plan, community meetings, emails, a project website and a digital notice board were all encouraged to better engage members who were not able to attend the visioning workshop.



Section 7:

IMPLICATIONS AND NEXT STEPS

7 IMPLICATIONS AND NEXT STEPS



The conclusions from the Community Visioning provide the Project Team with direction on the needs and wants of the Community as summarized in **Section 6**. The next phase of the Project Plan is to complete a Technical Assessment of the Fixed Link based on the following technical considerations.

Following the initial consultation with GIFN, leadership and staff members, WSP's interpretation of the Community's vision for the Fixed Link is:

- A structure that will serve the community by providing a year-round, safe and reliable fixed link between Georgina Island and the mainland;
- A structure that is a combination of a bridge and a causeway;
- A structure that will connect to the island in the south west, with a connection intersection perpendicular to Joseph Snake Road;
- A structure that will connect to the mainland to a location west of the existing ferry terminal to connect to Black River Road;
- A structure with a two-lane cross-section with one lane in each direction;
- A structure that incorporates a multi-use path for cyclists and pedestrians;
- A structure that has enhanced security and controlled access with ideally an attendant positioned at a guard booth;
- A structure that should be planned and constructed in an environmentally responsible manner.
- A structure that can be completed in the shortest amount of time possible.

7 IMPLICATIONS AND NEXT STEPS

WSP will endeavour to develop a plan that will provide the community with the vision they dream of. As with all infrastructure projects there will be limitations to achieving the dream, both technical and budgetary. The next stage our of work will begin to test the assumptions above, against data-based realities. WSP will use the community-based assumptions to guide our technical reviews and as the imagined vision is altered by technical and environmental realities, WSP will provide data-based reasoning for any evolutions that this project may require. Our effort will support the community's educational evolution and overall understanding of the scale, scope and reasoning behind is project and will ensure the Fixed Link Project Plan serves to delivery the maximum 'dream' elements relative to all technical and budgetary considerations.

Based on this, WSP will identify the technical implications and underlying studies that will be required to fulfill the community vision. Stepwise this will consist of:

- Early Development of an overall Table of Contents (ToC) for review and comment by GIFN. The ToC will outline the report, which will be produced in a tabular format that identifies the required technical studies, data needs and other informational inputs required to complete a Technical Assessment for the Project Plan;
- Thorough review and analysis of the existing information available for the study area. Where data is deficient or out of date, this will be flagged, and an action plan developed to address the gap;
- Overview and assessment of the key technical challenges and opportunities, environmental constraints, transportation considerations and other key items deemed important to the decision-making process. This will include answering the question about whether the development of the Project is technically possible, how much it will cost and when it can be completed. This will also include the identification of a comprehensive list of potential permits, licences and approvals for the Project, and the responsible authorities.
- Timeline. Develop and update a timeline for the Fixed Link project to communicate the context and status of the project to the community of Georgina Island. See **Appendix E**.

Appendix A:

NOTIFICATION MATERIAL

Community Meeting January 13th

Sent to **GIFN Engagement Register** on **January 07, 2020 at 10:31 AM**

67	5	0
TOTAL SENT	BOUNCES	COMPLAINTS

31 (50.0%)	**0** (0%)	**$0** (0%)	**0** (0%)	**0** (0%)	
OPENS	CLICKS	SALES	WEB HITS	UNSUBSCRIBES	DOMAINS

Opens over 2 weeks: ● 56 Total Opens ● 30 Unique Opens

14 days after send



Opens

Make segments based on who opened your messages.

Opened | Unopened

31 people opened this message

Create a Segment of these Subscribers

PRIZES TO BE WON!

GIFL

A Project For Seven Generations

FIXED LINK COMMUNITY MEETING

WE NEED YOUR INPUT!

When you close your eyes and picture a fixed link, what do you see?

WSP, the technical team developing the Fixed Link Project Plan, will be conducting a community information session and workshop to help us figure out what type of structure the First Nation members might like to see or may be expecting.

MONDAY JAN 13th

1pm—3pm

Community Centre

Light lunch provided to attendees

Staff are encouraged to attend

GEORGINA ISLAND

WE LOOK FORWARD TO SEEING YOU THERE!

FUN TO BE HAD!

Olguin, Sue

From: Michael Jacobs <M.Jacobs@cambiumaboriginal.com>
Sent: Friday, February 07, 2020 1:49 PM
To: Olguin, Sue
Subject: FW: Broadcast Sent - Your QuickStats Summary

Here is the confirmation email for records of the email sent confirmation.

From: AWeber Communications, Inc. [mailto:help=aweber.com@send.aweber.com] **On Behalf Of** AWeber Communications, Inc.
Sent: January-07-20 11:32 AM
To: Spirit
Subject: Broadcast Sent - Your QuickStats Summary

Keep track of your broadcast's performance with QuickStats

AWeber COMMUNICATIONS

Your message, Community Meeting January 13th, was sent at 10:31AM - January 07, 2020 to the list GIFN Engagement Register.

Total Sent	67

Track opens, clicks, web hits, and sales when your subscribers read your message.

In fact, your message already has:

Opens Log in to view the latest stats	9 (13.4%)

View your QuickStats results



Download our free mobile app.

View your stats anytime on your Android or iOS device.

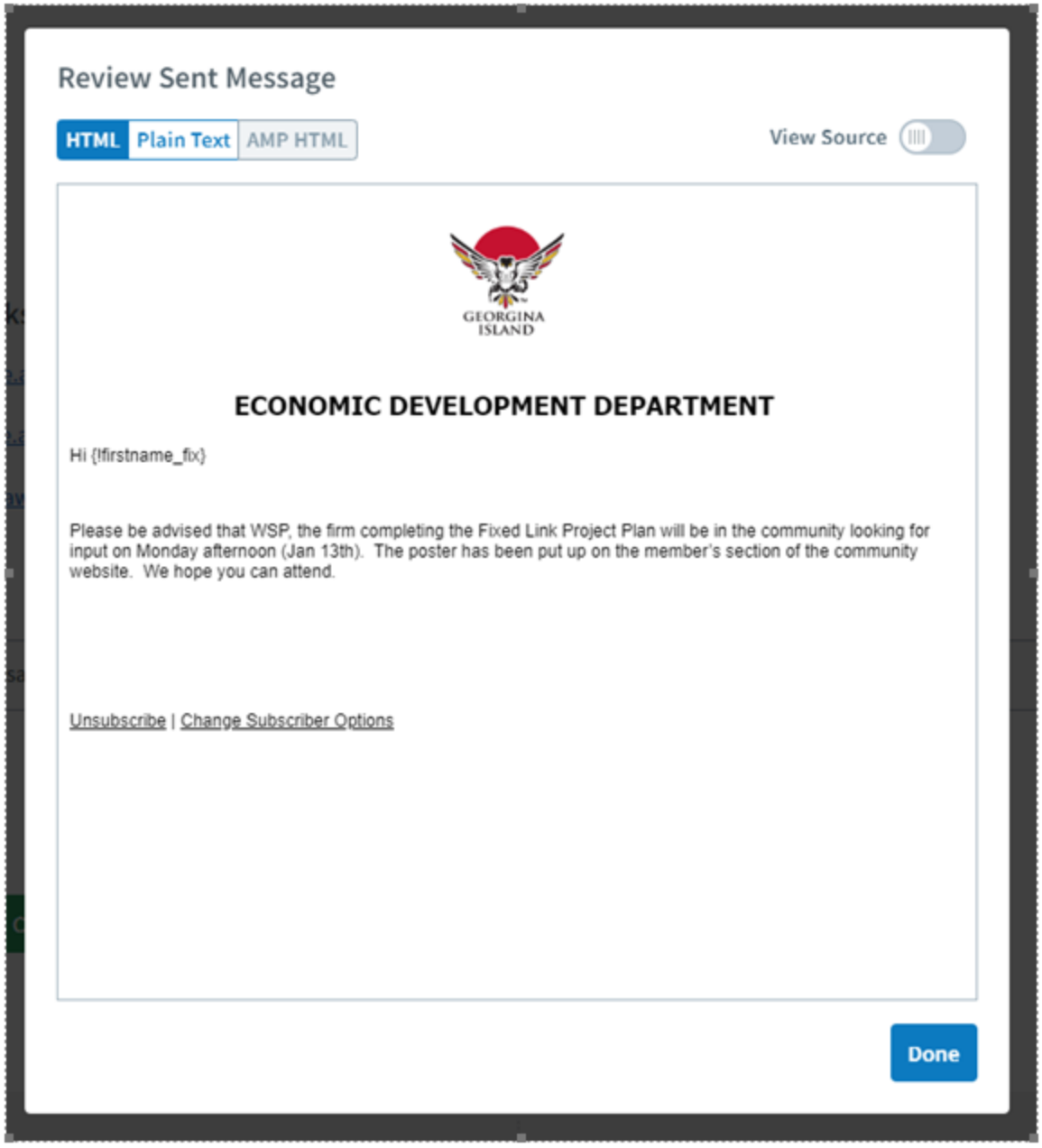
Don't want to get these notifications anymore? Click here to see how.

1100 Manor Drive
Chalfont, PA 18914, USA
1 877-AWeber-1

Connect with us

Live Phone Support
8AM-8PM ET Mon-Fri

Email / Live Chat Support
Available 24/7


Review Sent Message
HTML
Plain Text
AMP HTML
View Source
GEORGINA ISLAND
ECONOMIC DEVELOPMENT DEPARTMENT
Hi {!firstname_fix}
Please be advised that WSP, the firm completing the Fixed Link Project Plan will be in the community looking for input on Monday afternoon (Jan 13th). The poster has been put up on the member's section of the community website. We hope you can attend.
Unsubscribe | Change Subscriber Options
Done

Appendix B:

WORKSHOP PRESENTATION, WITH POLLING RESULTS

Ahneen, Biindigen!
Hello, Welcome

Community Visioning Workshop

Georgina Island Fixed Link Study

January 2020



Welcome!



Chippewas of Georgina Island First Nation

Community Visioning

Thank you for coming!

This is an open forum – please ask questions and get involved!

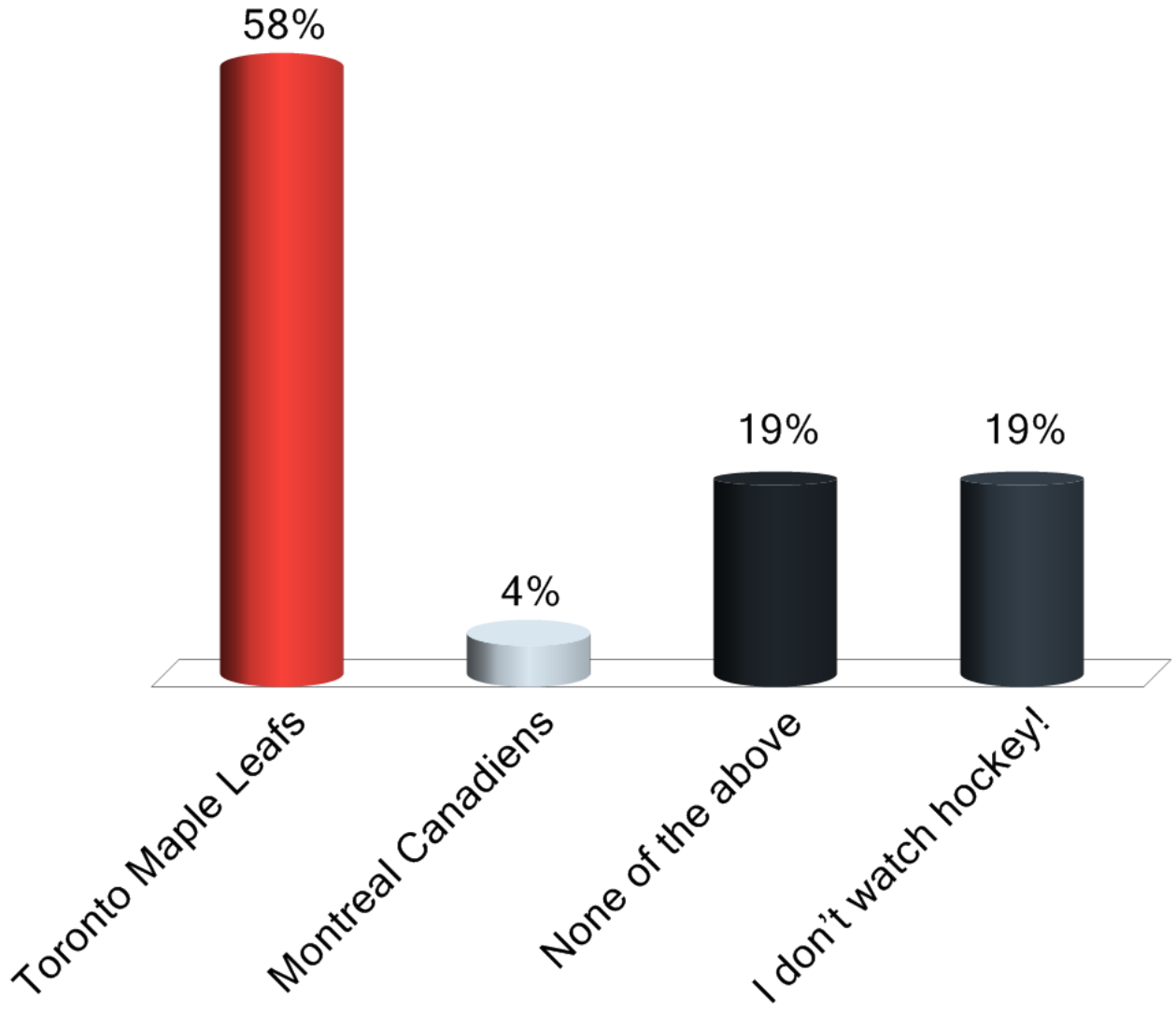
A **questionnaire** is a very convenient way of collecting information from a large number of people within a period of time and ensures accurate data is collected. Within this information session, we will ask questions which can be answered using Clicker Technology.

Before we begin, record you clicker number for easy access and to win a prize!

Let's test it out…

What is your favorite NHL hockey team?

1. Toronto Maple Leafs
2. Montreal Canadiens
3. None of the above
4. I don't watch hockey!



Prize To Lucky 7th Responder!!!

Seconds	Participant	Seconds	Participant
2.495	69EDBF		
2.569	6A7476		
2.807	6A745A		
3.404	6A742B		
3.991	6A7459		
4.041	6A7426		
4.177	69ED79		

VISIONING PROGRAM

- Welcome Panels and Opening Remarks
- Introduce the Project Team
- Visioning Objectives
- What is a Fixed Link?
- Understanding Project History and Project Purpose
- Sharing Knowledge about a Fixed Link
  - Creating a Community Vision Statement
  - Community Objectives for a Fixed Link
  - Community Q&A Using Clicker Technology
- Group Discussion
  - Map Constraints and Opportunities
  - Other Considerations
- Next Steps

Chippewas of Georgina Island First Nation

Community Visioning

WSP Project Team

Who is WSP?

William Sale Partnership (WSP) Canada Group Limited has been providing an array of consulting services to public and private sector clients across Canada since 1959. With over 150 offices and more than 8,000 employees across Canada, WSP has over 48,000 employees worldwide. **The Fixed Link Study team includes members from Thornhill, Oakville and Thunder Bay.**

WSP was engaged in August 2019 by the GIFN council in a two round competition. To date, we have met with Chief and Council and had coordination with Cambium Aboriginal (Michael Jacobs). December 3, 2019 we met members of the community by way of an information table at the Christmas Bazaar.

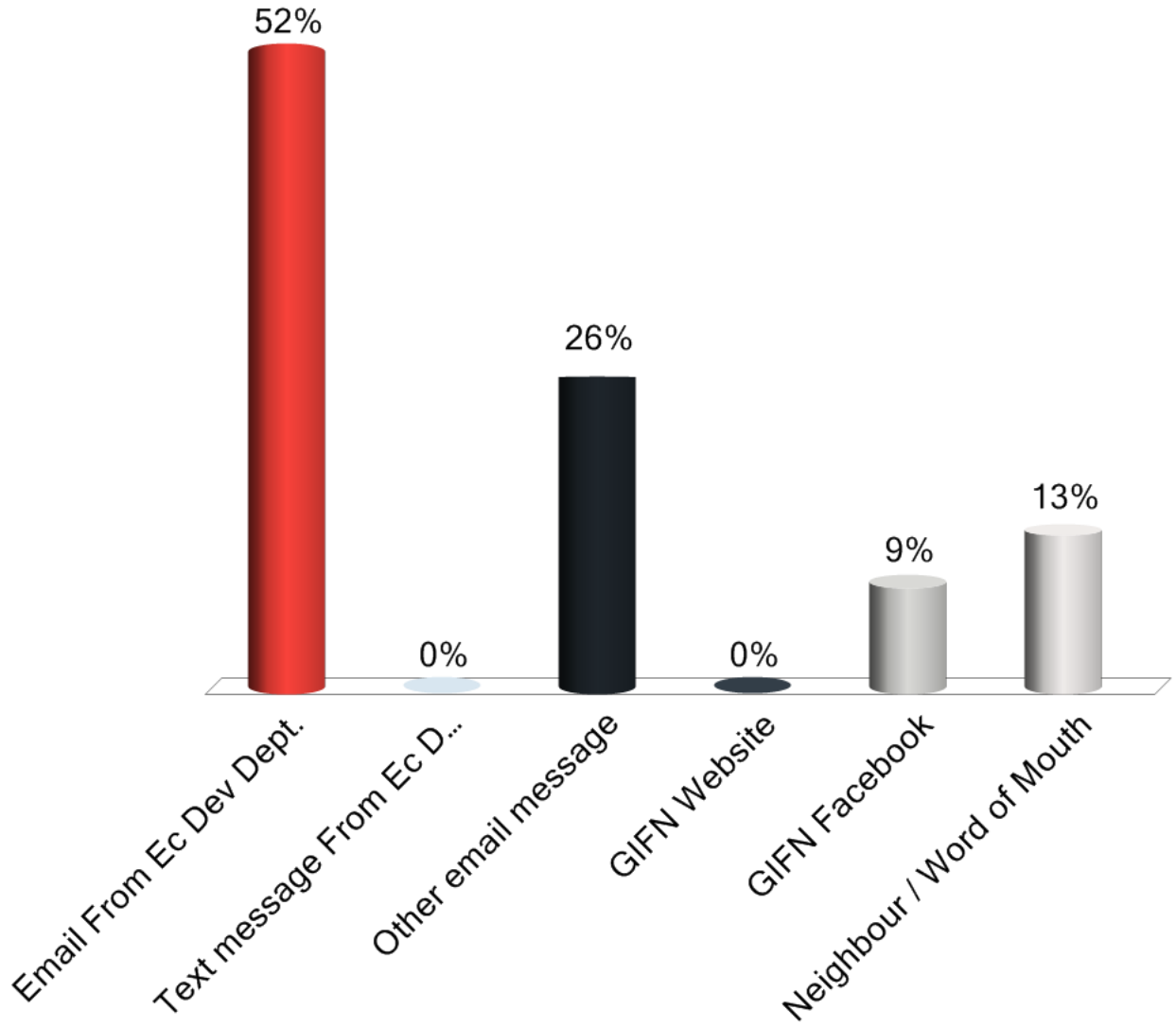
Visioning Objectives

Why are we here?

- To **listen and document feedback** from the community on the ideas, opportunities and constraints associated with a fixed link;
- To **understand what matters most** to the community's future (safety, access, health, etc.);
- To draft a **"Vision Statement"** for the Community;
- To **share knowledge** about a fixed link and the next steps in building a fixed link; and,
- To **report back on what we've heard and find opportunities to improve the way we engage the community** as the project moves forward.

How did you 1st hear about today's meeting?

1. Email From Ec Dev Dept.
2. Text message From Ec Dev
3. Other email message
4. GIFN Website
5. GIFN Facebook
6. Neighbour / Word of Mouth



Project Purpose

To identify a potential solution for a **fixed link** between Georgina Island and the Mainland that provides **safety**, and **positive social and economic benefit** to the community while **minimizing impacts to the community and the environment** for **future generations**.





Chippewas of Georgina Island First Nation

Community Visioning

What is a Fixed Link?

Chippewas of Georgina Island First Nation

Community Visioning

A permanent land-based connection between the mainland and Georgina Island with a life span of 75-100 years.

Examples:

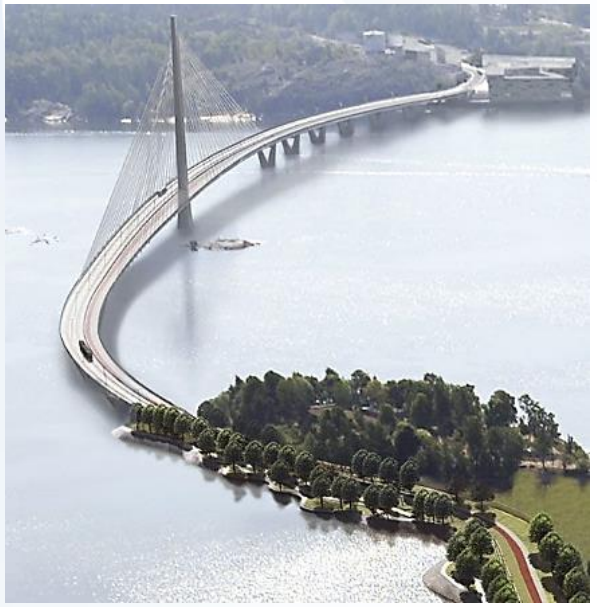
- **A Bridge** (segmental, long-span cable bridge)

OR

- **A Causeway** (rock-filled shallow areas with large boulders, sheet piles with culverts to allow the flow of water)

OR

- **A Combination** of Causeway and Bridge





What is a Fixed Link?

Chippewas of Georgina Island First Nation

Community Visioning

Design Considerations

- **Architectural designs and community plaque** (e.g. community logo, archways and various building materials can be selected based on height and span of the bridge)
- **Lighting and Speed**
- **Terrain and Width** - Multi-use path for all season access or a walkway
- **Utilities, Services and Maintenance** bridges transfer water, electricity, cable, data, and other critical services across rivers, lakes, bays, valleys, and highways

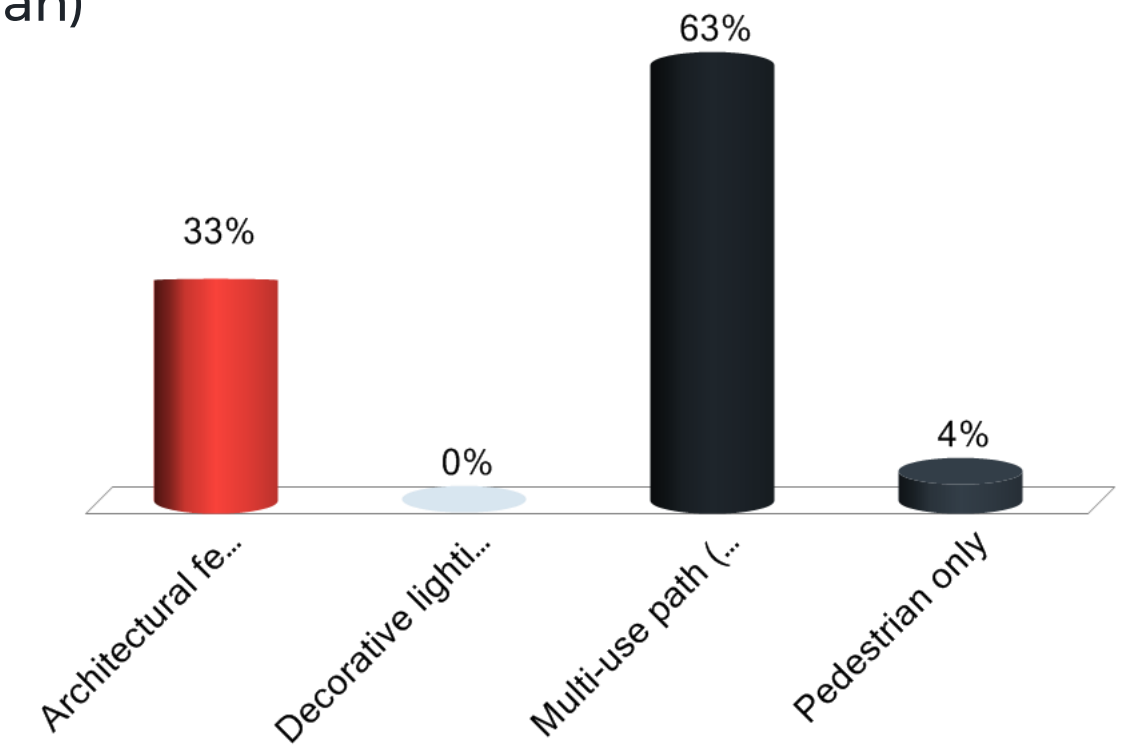


E.g. Bronze art installation on the Keith Bridge in Newmarket by sculptor Carolyn Butts.



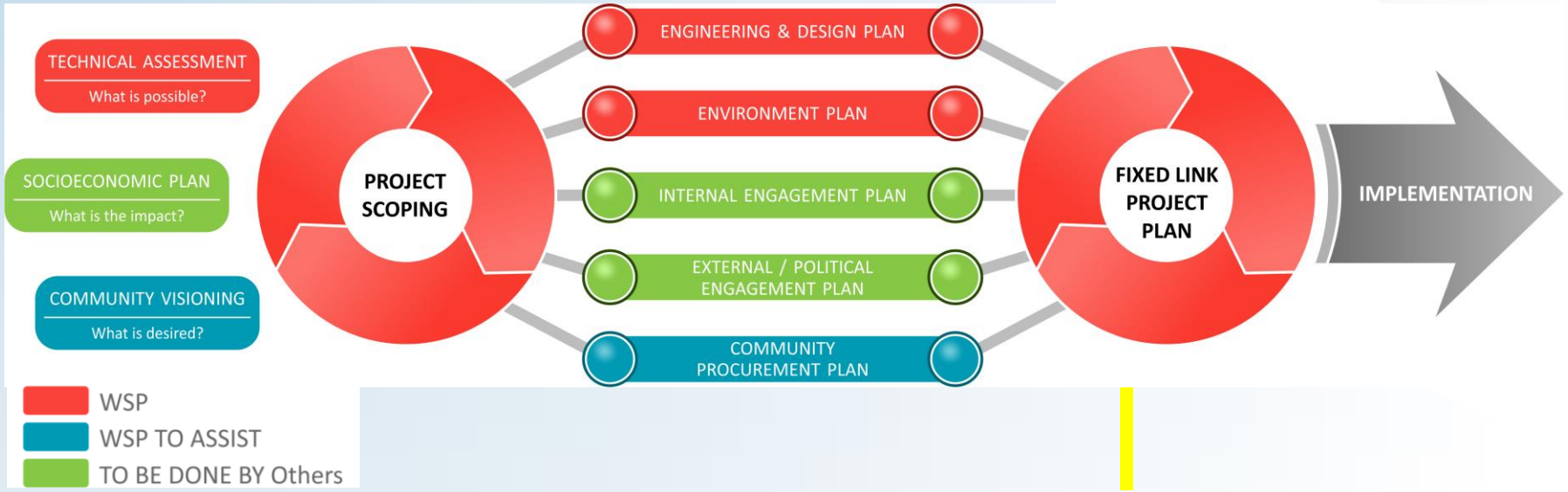
What aesthetic / design enhancement would you most like to see on the Fixed Link?

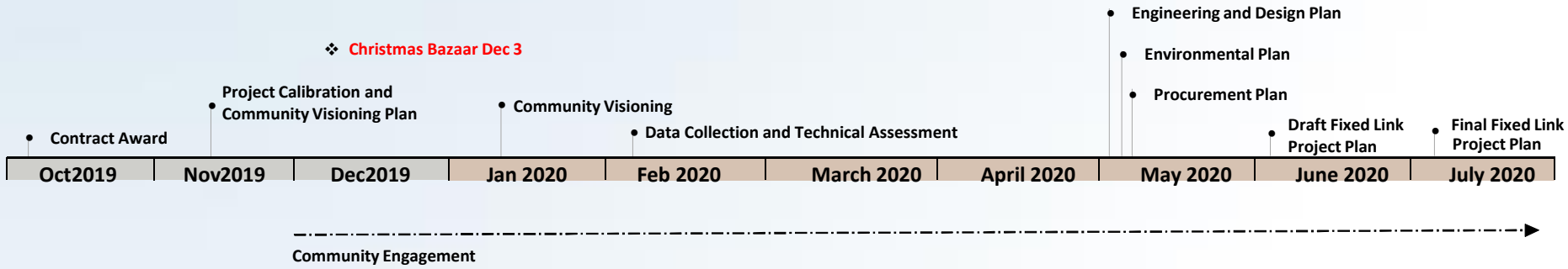
1. Architectural features (such as imprinted community logo)
2. Decorative lighting
3. Multi-use path (bike + pedestrian)
4. Pedestrian only



What is required to Build a Fixed Link?

A Community Vision, a Project Plan or Road Map and a Series of Technical Studies.



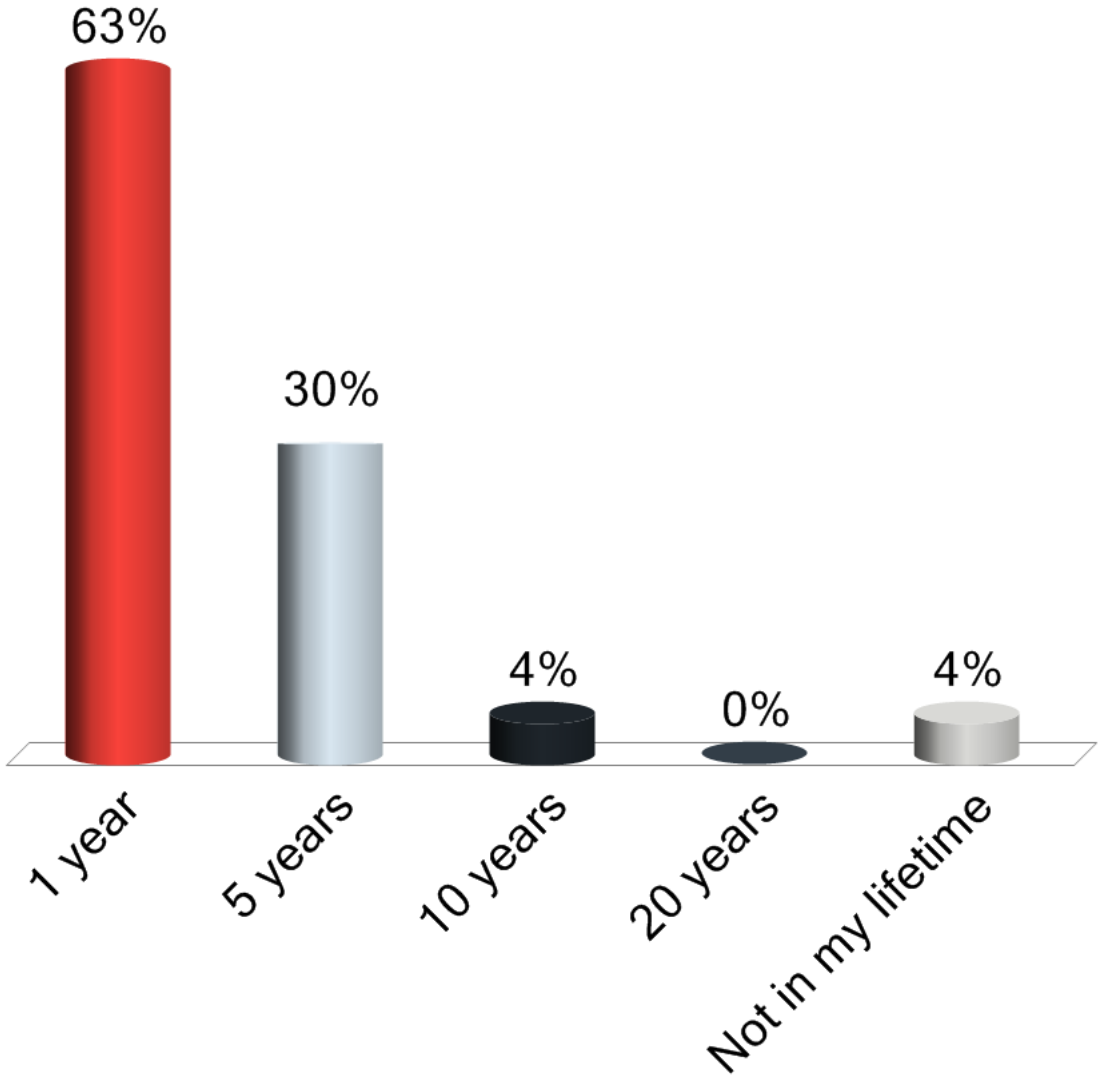


Chippewas of Georgina Island First Nation

Community Visioning

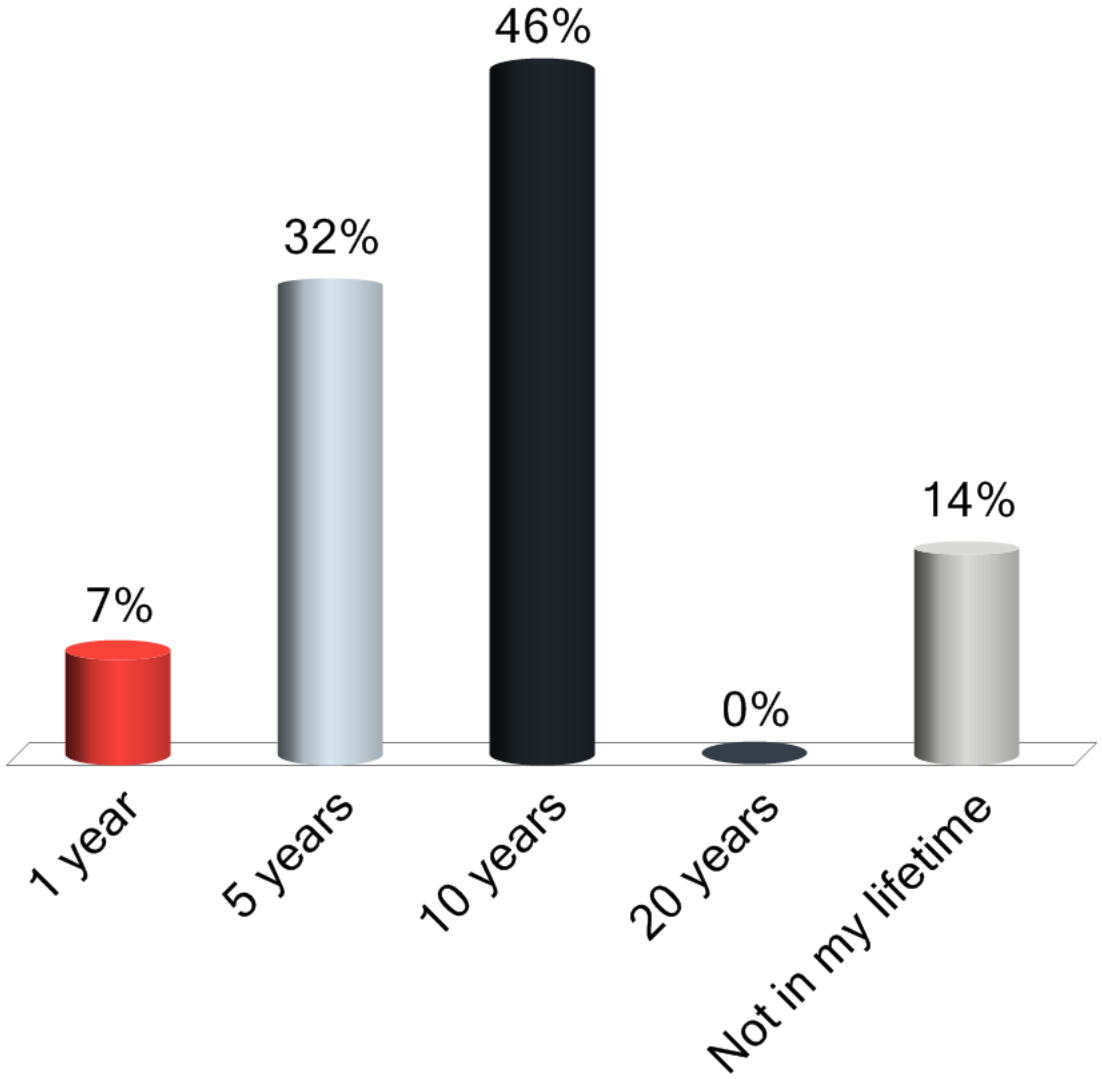
How much time do *wish* it will take to obtain approvals to build a fixed link?

1. 1 year
2. 5 years
3. 10 years
4. 20 years
5. Not in my lifetime



How much time do you *believe* it might take to obtain approvals to build a fixed link?

1. 1 year
2. 5 years
3. 10 years
4. 20 years
5. Not in my lifetime



3rd Most Honest Person Here Is a Winner!!!

Seconds	Participant	Seconds	Participant
9.756	69ED82		
16.391	6A73E2		
19.657	6A748B		

What is required to Build a Fixed Link?

Chippewas of Georgina Island First Nation

Community Visioning

Environmental Assessment

- A study process which assesses the potential environmental effects (positive or negative) of a project;
- Promotes good environmental planning before decisions are made about proceeding with a project;
- Requires a series of technical analysis of options or **alternatives** for building a Fixed Link that meets the communities needs; and,
- Includes many opportunities to engage with the Community and various interested parties who may - or may not - have an impact on the study.

Environmental Assessment



Chippewas of Georgina Island First Nation

Community Visioning

In Ontario, an EA Study is:

- Defined and finds its authority in the *Environmental Assessment Act* (EA Act).
- Includes consultation with government agencies, the public and the community;
- Includes an evaluation of alternatives (different options to solve a problem or opportunity); and,
- Includes a series of studies that are used to better understand and manage the potential environmental effects of a proposal.

"Environment" is defined as: Air, land or water, plant and animal life, including human life, social, economic and any direct and indirect human impacts.

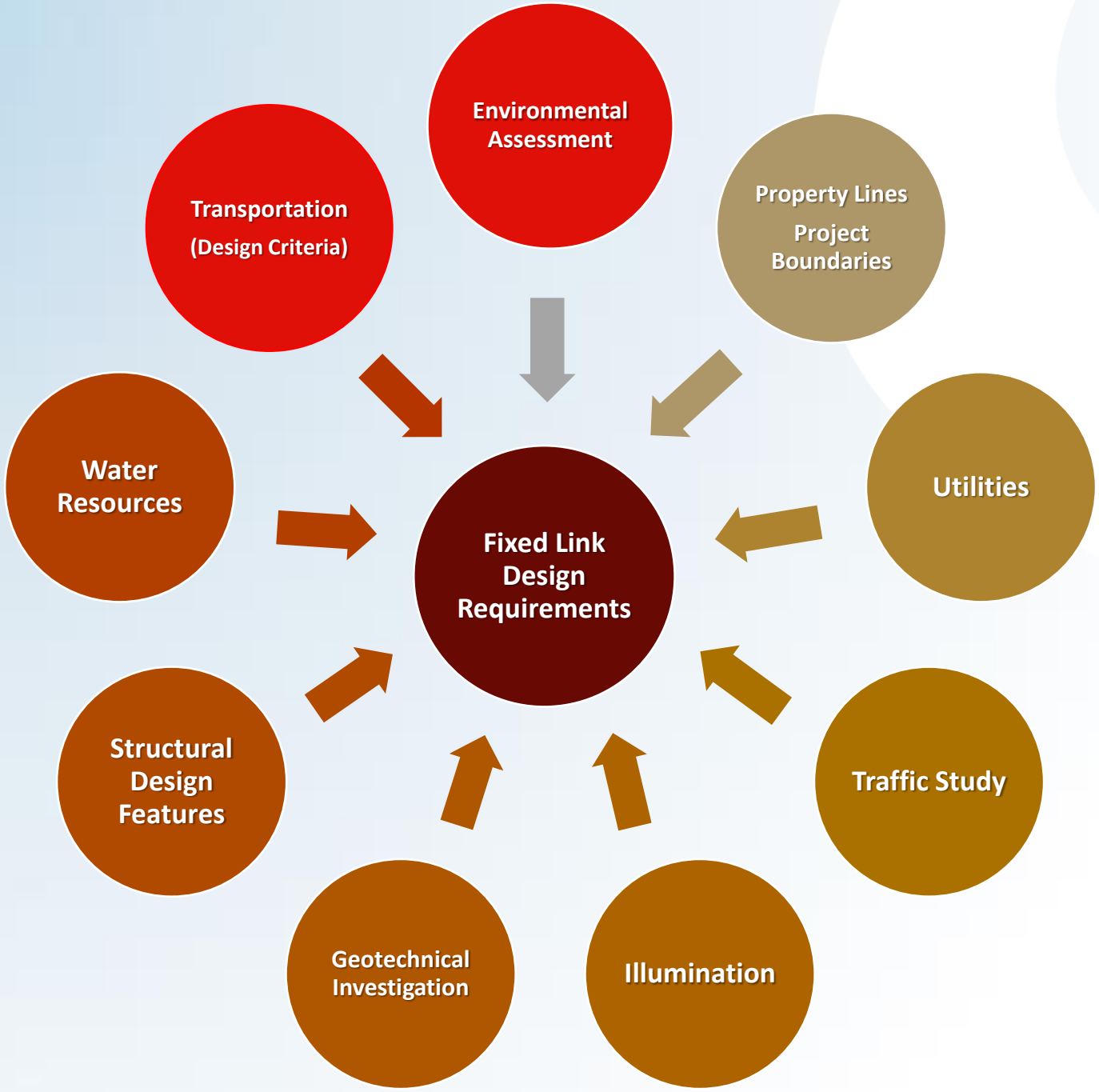
Examples of future studies, which would support an Environmental Assessment:

Bathymetry and Hydrology	Contamination
Ecology	Noise
Terrestrial	Air Quality
Fish and Fish Habitat	Climate Change
Species at Risk Surveys	Archaeology and Heritage
Land Use	Human Health

Environmental Assessment

Technical Studies

Multiple technical studies will be required to confirm a fixed link option.



Chippewas of Georgina Island First Nation

Community Visioning

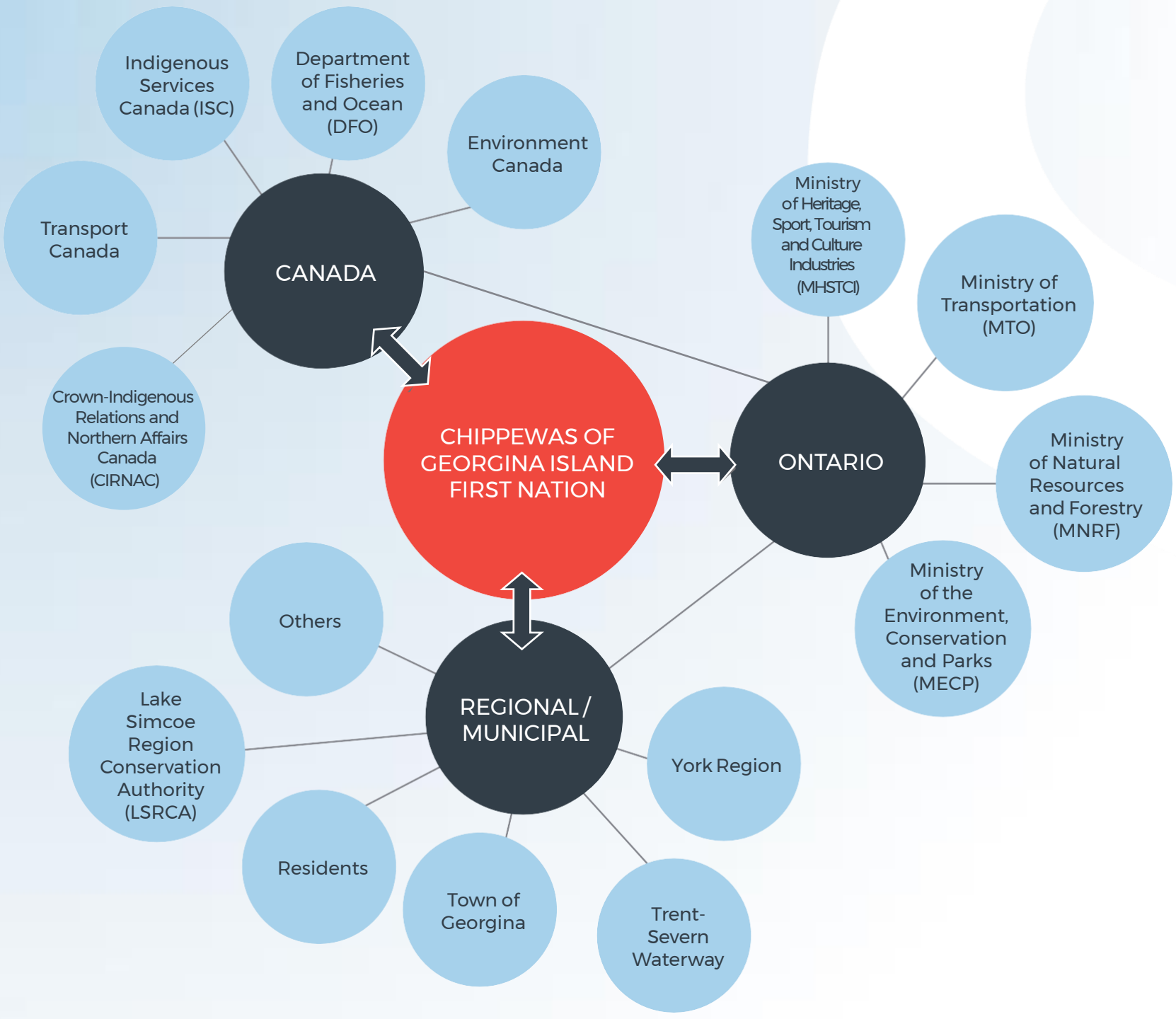
Environmental Assessment

Agency Engagement

Engagement and approvals are required to facilitate selection of a preferred fixed link option.

Chippewas of Georgina Island First Nation

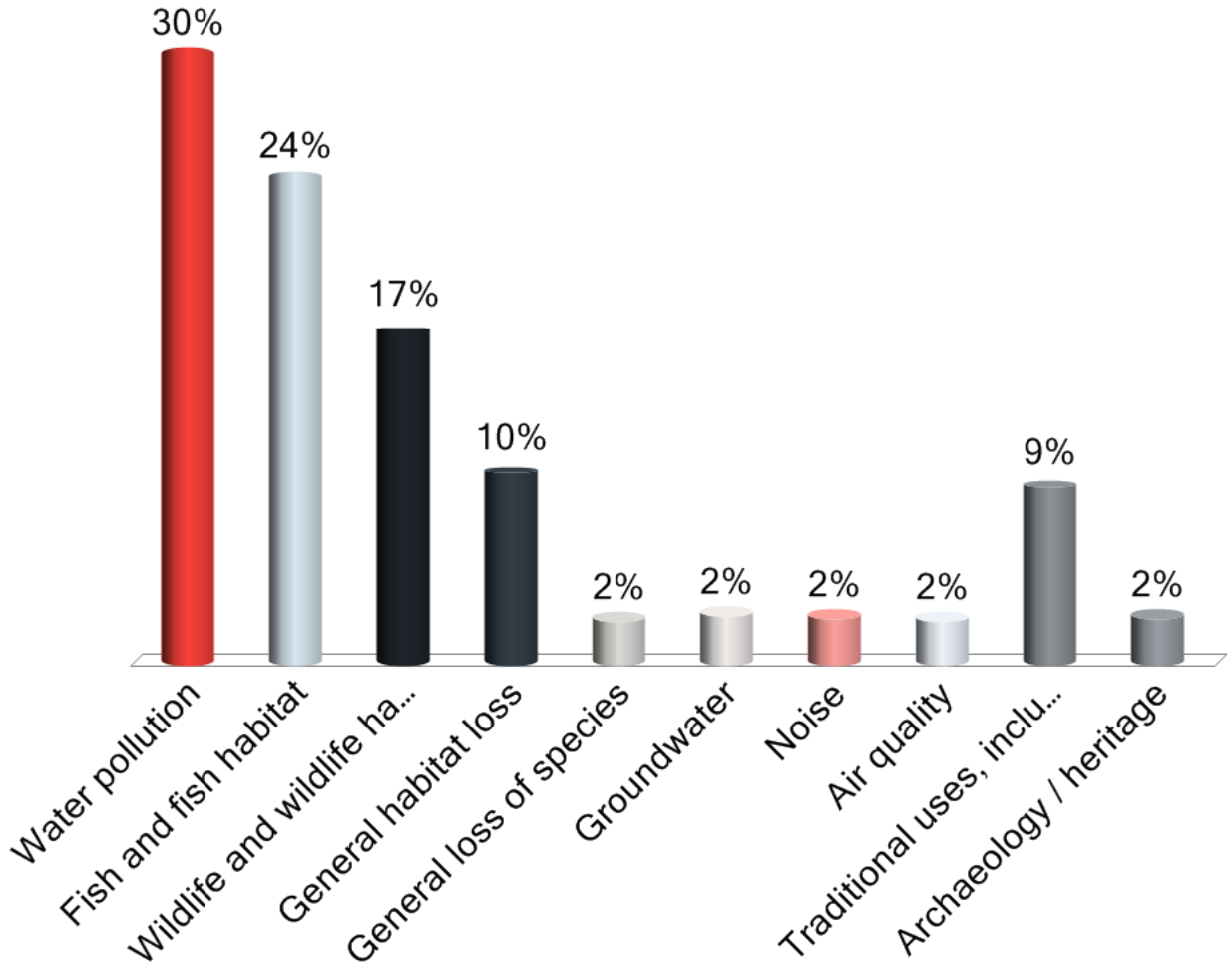
Community Visioning



What is your most important environmental concern relating to a Fixed Link?

From the list below, click which is the 1st, 2nd, and 3rd most important to you?

1. **Water pollution**
2. **Fish and fish habitat**
3. **Wildlife and wildlife habitat**
4. **General habitat loss**
5. **General loss of species**
6. **Groundwater**
7. **Noise**
8. **Air quality**
9. **Traditional uses, including plants / medicines**
10. **Archaeology / heritage**



Fixed Link Project History

2008

- **2008 -** the community retained Neegan Burnside to complete a **Fixed Link Study**.
- A **Community Survey** identified that a fixed link was one of the top priorities.
- An **off-Reserve questionnaire** was completed showing that the majority of respondents would consider returning to the community if a Fixed Link existed.
- **Options ("Alternatives") reviewed**:
  - Improve existing ferry and ice road operations
  - Ferry and/or Hovercraft
  - Ferry and/or Helicopter
  - Ferry and Cable Car
  - Tunnel
  - Bridge and/or Causeway

.....continued

Fixed Link Project History

2008

Chippewas of Georgina Island First Nation

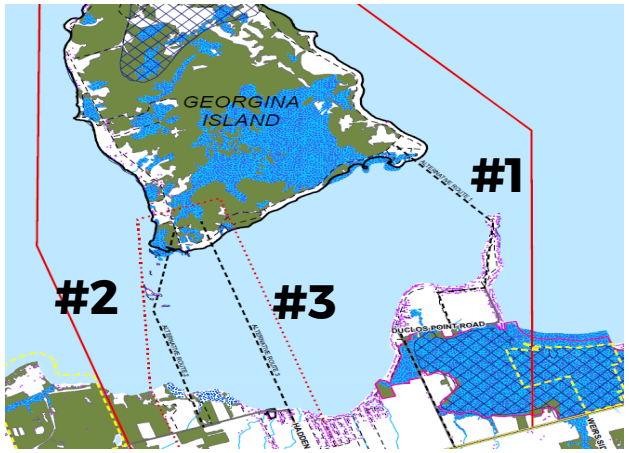
Community Visioning

Alternatives Evaluation:

1. Do nothing
   - Does not address need
2. Improve Ferry & Ice Road Operations
   - Ice Conditions remain a problem
3. Ferry and/or Hovercraft/Helicopter/Cable Car
   - Limited passenger and vehicle capacity
   - Hovercraft not technically or financially feasible
4. Tunnel
   - Not financially feasible
5. Bridge and/or Causeway Combination
   - **Preferred Alternative**
   - Community's preference
   - Addresses all needs of the Community
   - Financially and technically feasible

Fixed Link Project History

2008



Chippewas of Georgina Island First Nation

Community Visioning

Routes reviewed:

1. **South east Georgina Island to Duclos Point**
   Shortest route, develop roads

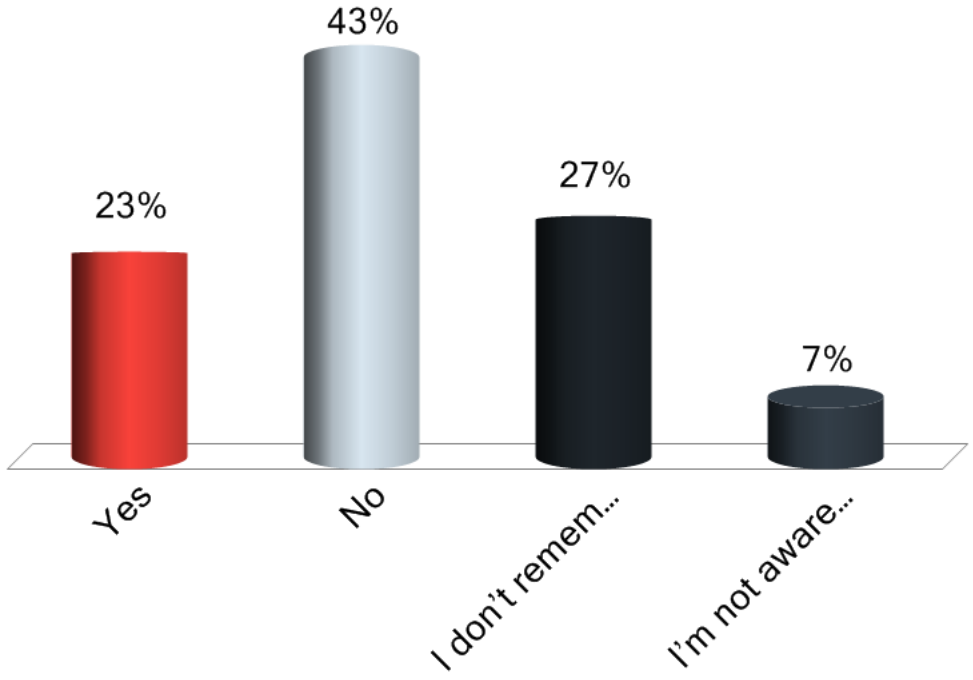
2. **South west Georgina Island to Black River/Virginia**
   Shallow water, mainland connection

3. **South west Georgina Island to Virginia Beach (existing ferry route)**
   Existing GIFN lands, disturbed environment

The 2008 Study Questionnaire to the Community identified a Fixed Link was a top priority and #2 as the preferred route.

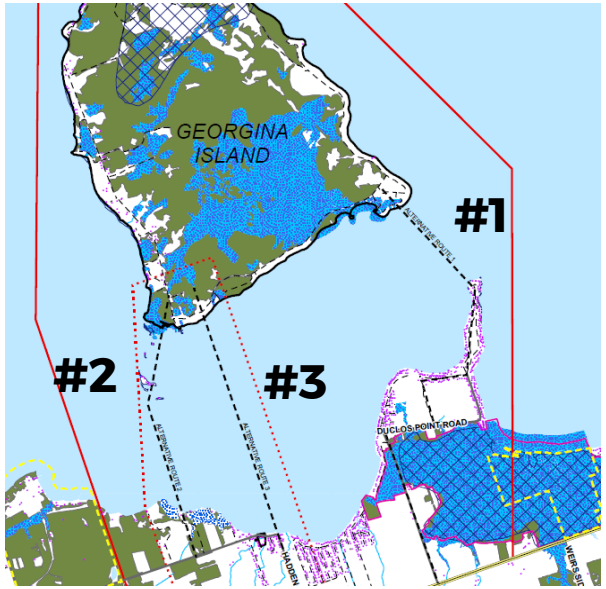
Did you participate in the Neegan Burnside study?

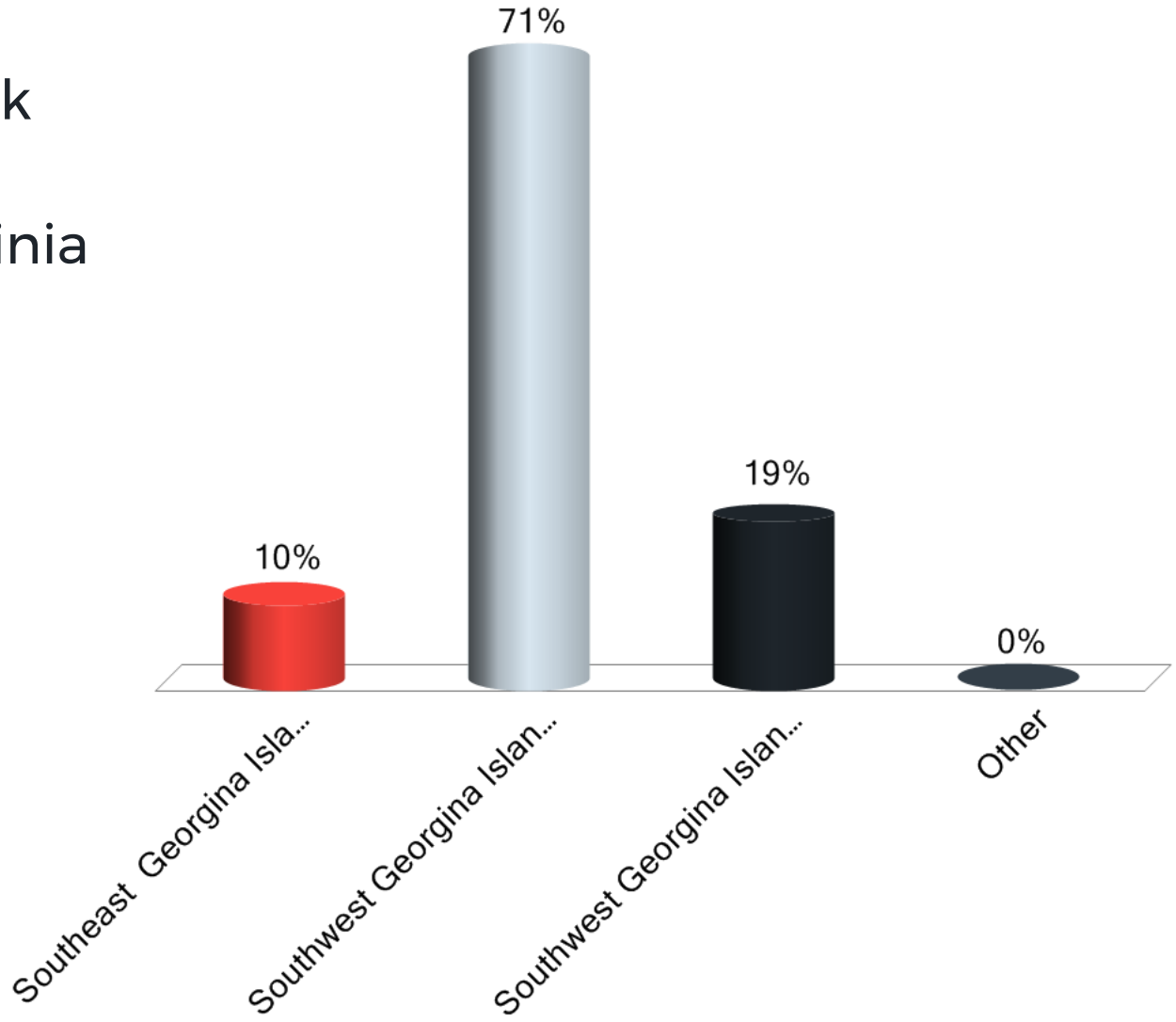
1. Yes
2. No
3. I don't remember doing the survey back then
4. I'm not aware of the this study



Which route/corridor alternative do you prefer?

1. Southeast Georgina Island to Duclos Point
2. Southwest Georgina Island to Black River/Virginia
3. Southwest Georgina Island to Virginia Beach (existing ferry route)
4. Other





Access and Security

Access and Security

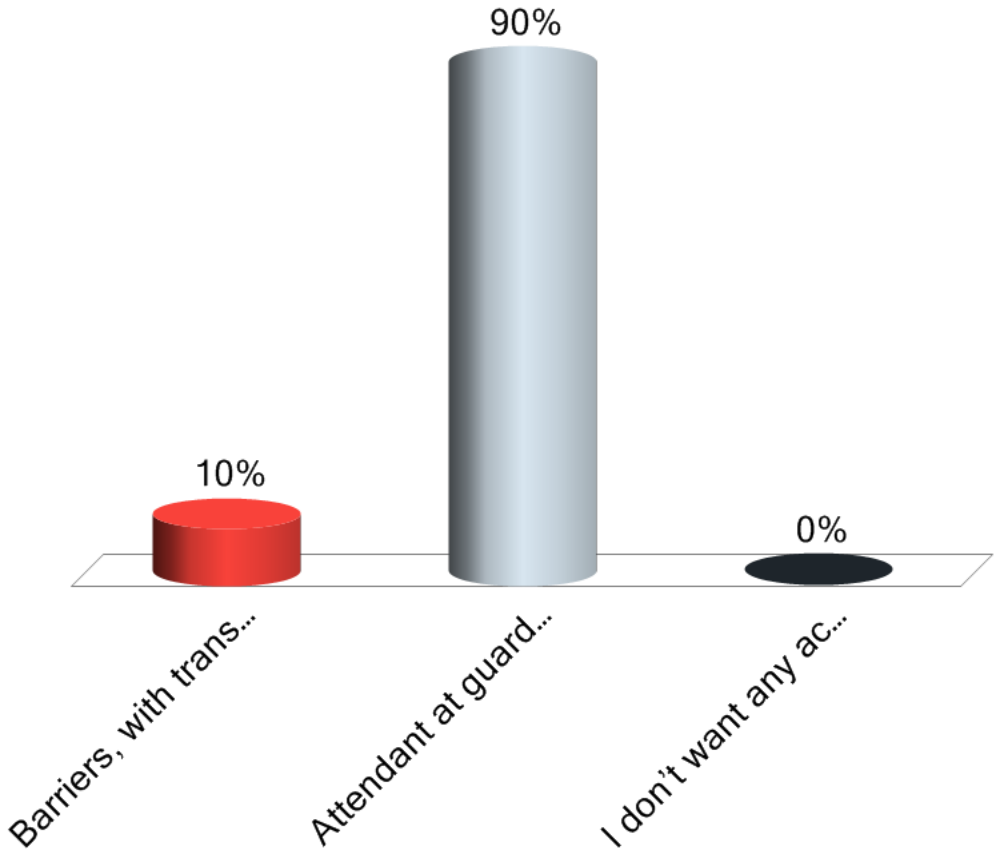
We have listened to the community's concerns regarding open public access to the island.

Community members have suggested a few types of security, limits that may be placed on the mainland such as:

1. Barriers, with transponders (valid cards)
2. Attendant at guard booth to provide access control
3. Tolls

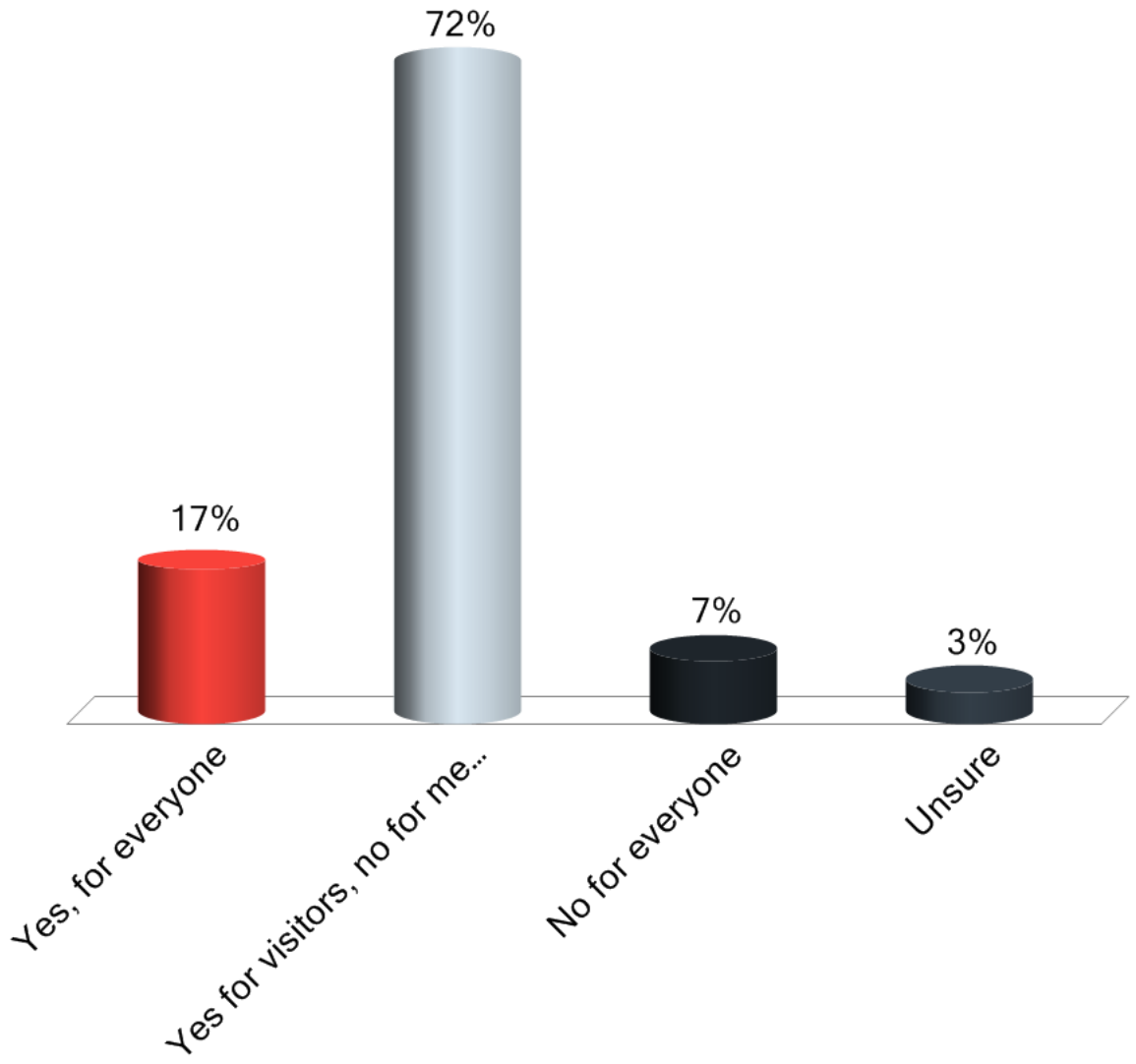
Choose the access option you would most prefer:

1. Barriers, with transponders (valid cards)
2. Attendant at guard booth to provide access control
3. I don’t want any access control



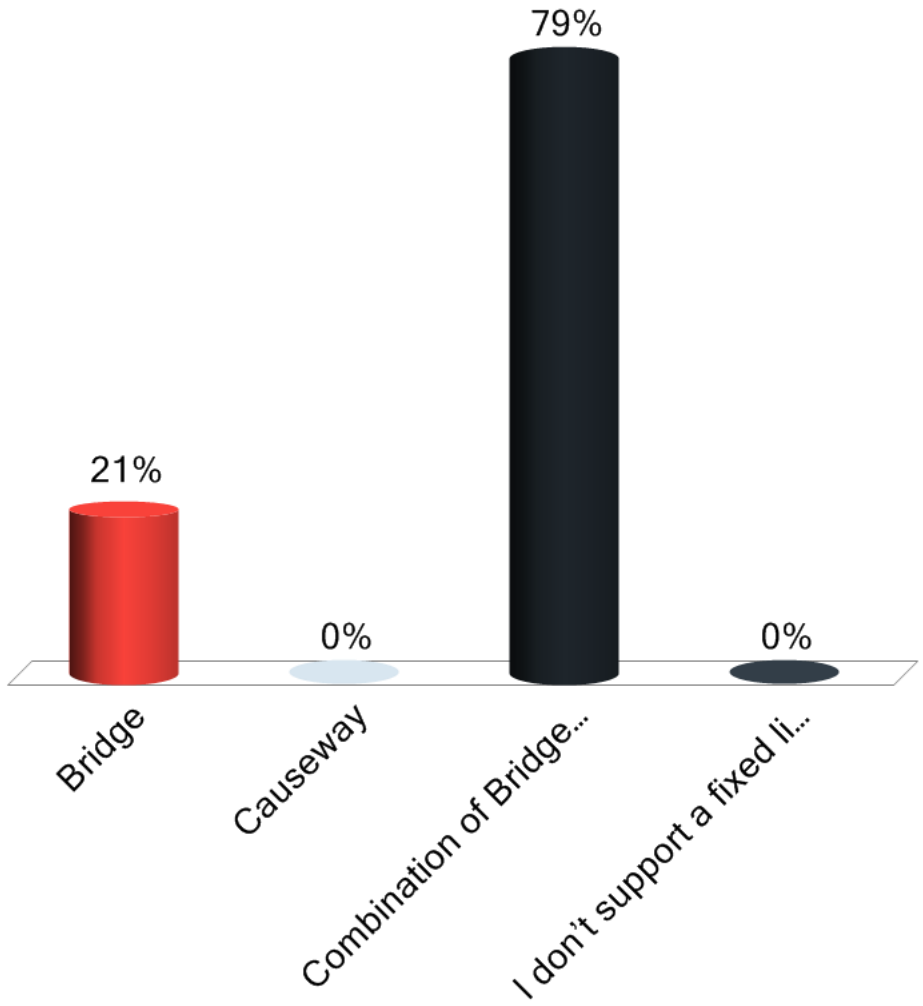
Should this be a revenue generating toll bridge?

1. Yes, for everyone
2. Yes for visitors, no for members
3. No for everyone
4. Unsure



What do you think is the best option for the project:

1. Bridge
2. Causeway
3. Combination of Bridge and Causeway
4. I don’t support a fixed link



Fastest Responder Wanting To Charge Everyone!

Seconds	Participant	Seconds	Participant
3.45	6A745A		

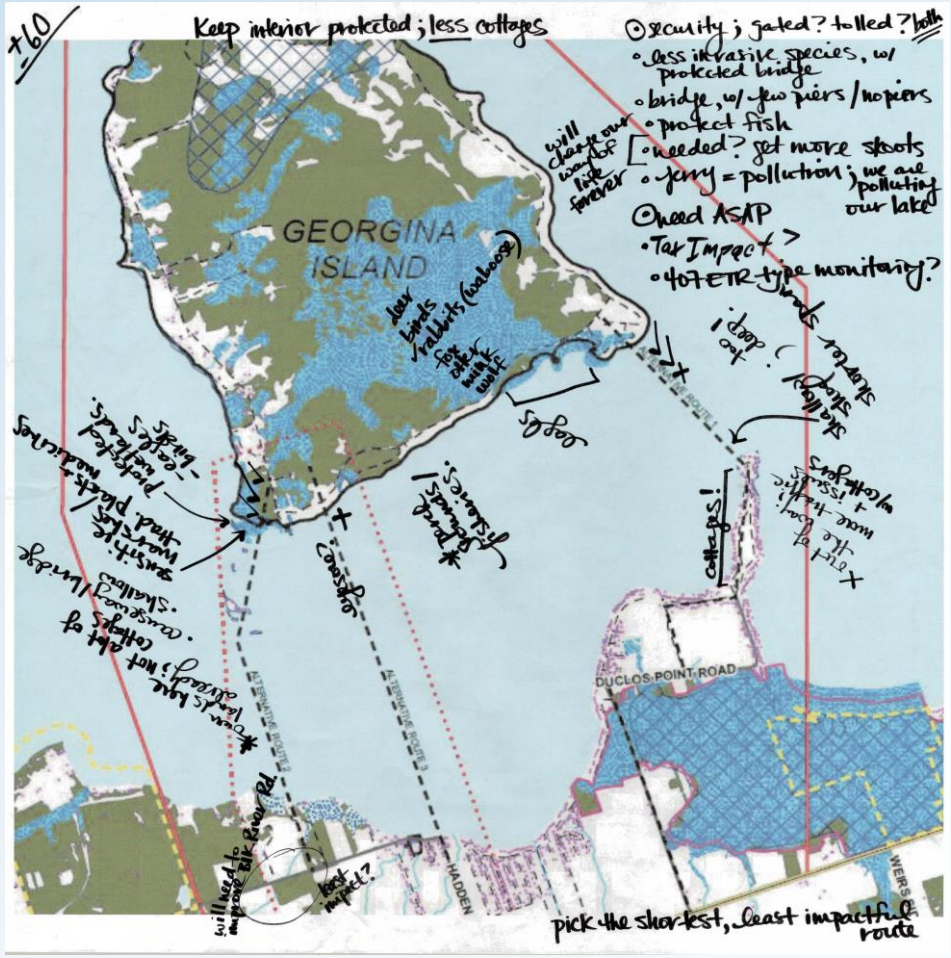
Fixed Link

2019 Study by WSP

Understanding the Community's Vision

On December 3, 2019 WSP and Cambium Aboriginal put up information tables at the Christmas Bazaar.

WSP discussed and reviewed a map of the study area, and the constraints/ opportunities of a fixed link with +/- 60 attendees







Fixed Link

2019 Study by WSP

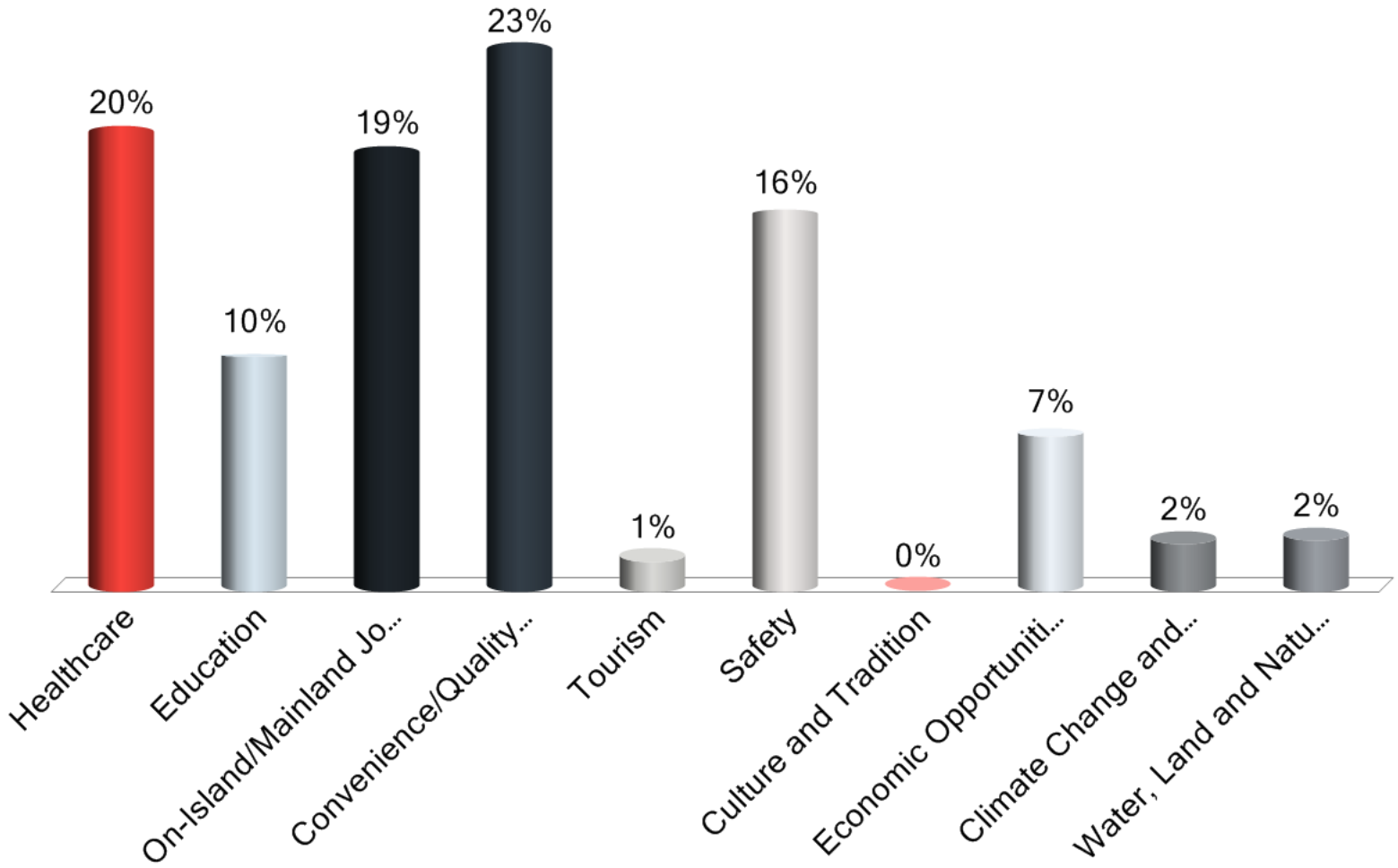
Understanding the Community's Vision

What we heard in December 2019:

- Security is of prime importance.
- Consideration should be given to tolling or gating the fixed link.
- The presence of perch grounds, eagles, deer, rabbit, fox, otter, mink and wolf were noted by many. Concerns for endangered species unique to the island
- Fish habitat, Perch grounds/fisheries, grasslands and protected wetlands were a concern by many.
- A fixed link is needed ASAP
- A fixed link will change our way of life forever
- Is a fixed link needed – buy more airboats?
- The ferry should continue to run on a less regular basis for tourism and as a backup to the bridge.
- Any bridge should have no/limited piers in the water to minimize environmental impacts
- Alternative 1 is out of the way and would result in large property impacts
- Alternative 2 is in a shallow area where there are sensitive wetlands, traditional plants and medicines.
- Alternative 3 would be an eyesore
- The shortest, least impactful route should be chosen

Below is a list of community needs that could improve with a Fixed Link. From the list below, which is the 1st, 2nd, and 3rd most important to you?

1. **Healthcare**
2. **Education**
3. **On-Island/Mainland Job Access**
4. **Convenience/Quality of Life**
5. **Tourism**
6. **Safety**
7. **Culture and Tradition**
8. **Economic Opportunities**
9. **Climate Change and Resilience**
10. **Water, Land and Natural Resources**



Fixed Link

2019 Study by WSP

Understanding the Community's Vision

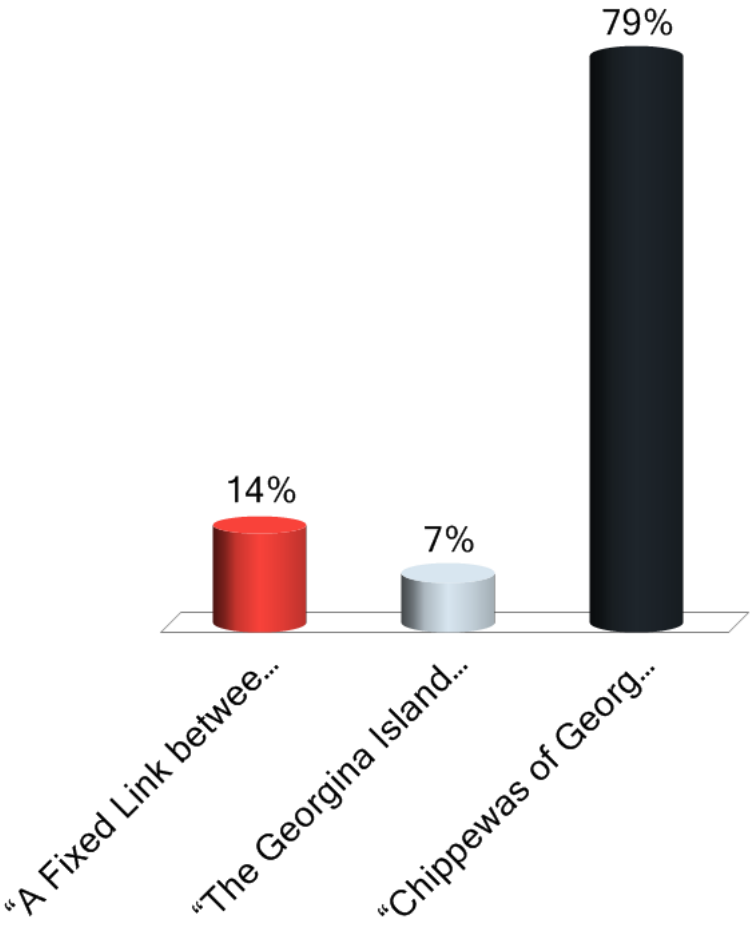
Using community input, the following set of objectives can be used to help build a Vision Statement:

Sample project objectives:

1. To support the **physical and mental health** of our residents
2. To provide **safe passage** of vehicles and pedestrians during all seasons
3. To **reduce travel time** between the mainland and the island
4. To **reduce impacts to the environment**
5. To provide **more opportunities for future generations**

Which vision statement do you identify with the most?

1. “A Fixed Link between Georgina Island and the Mainland will improve safety and result in a positive social and economic benefit to the community, while minimizing impacts to the community and the environment for future generations.”
2. “The Georgina Island of the future will be safe and resilient, by offering a fixed connection to the mainland for future community members. This will ensure a healthy, safe and peaceful way of life.”
3. “Chippewas of Georgina Island First Nation is a responsible and sustainable community that values safety and community health. A fixed link will offer the community with safe passage during all seasons while protecting the environmental, cultural, social and economic future of the community.”



Facilitated Group Discussion

A facilitator is available to guide you through the **POWER exercise** and take notes at your table.

Chippewas of Georgina Island First Nation

Community Visioning

Share your study area knowledge and "test" the Community Vision!



How to share knowledge?

1. Comment on a Post-it note and place your note on the Map
2. Write directly on the Map
3. Provide verbal feedback to your note-taker
4. Hand-in a Comment Card to the Project Team by the end of the meeting

"The Community Vision for a Fixed Link will guide future generations and can have an impact on access, safety, health, environment, economy, land uses. When thinking about the future, what are some:

- **P**ositives
- **E**nhancements
- **O**bjections
- **R**emedies
- **W**hat else?

Group Discussion – Report Back

Report back on what we heard.

"The Community Vision for a Fixed Link will guide future generations and can have an impact on access, safety, health, environment, economy, land uses. When thinking about the future, what are some:

- Positives
- Enhancements
- Objections
- Remedies
- What else?

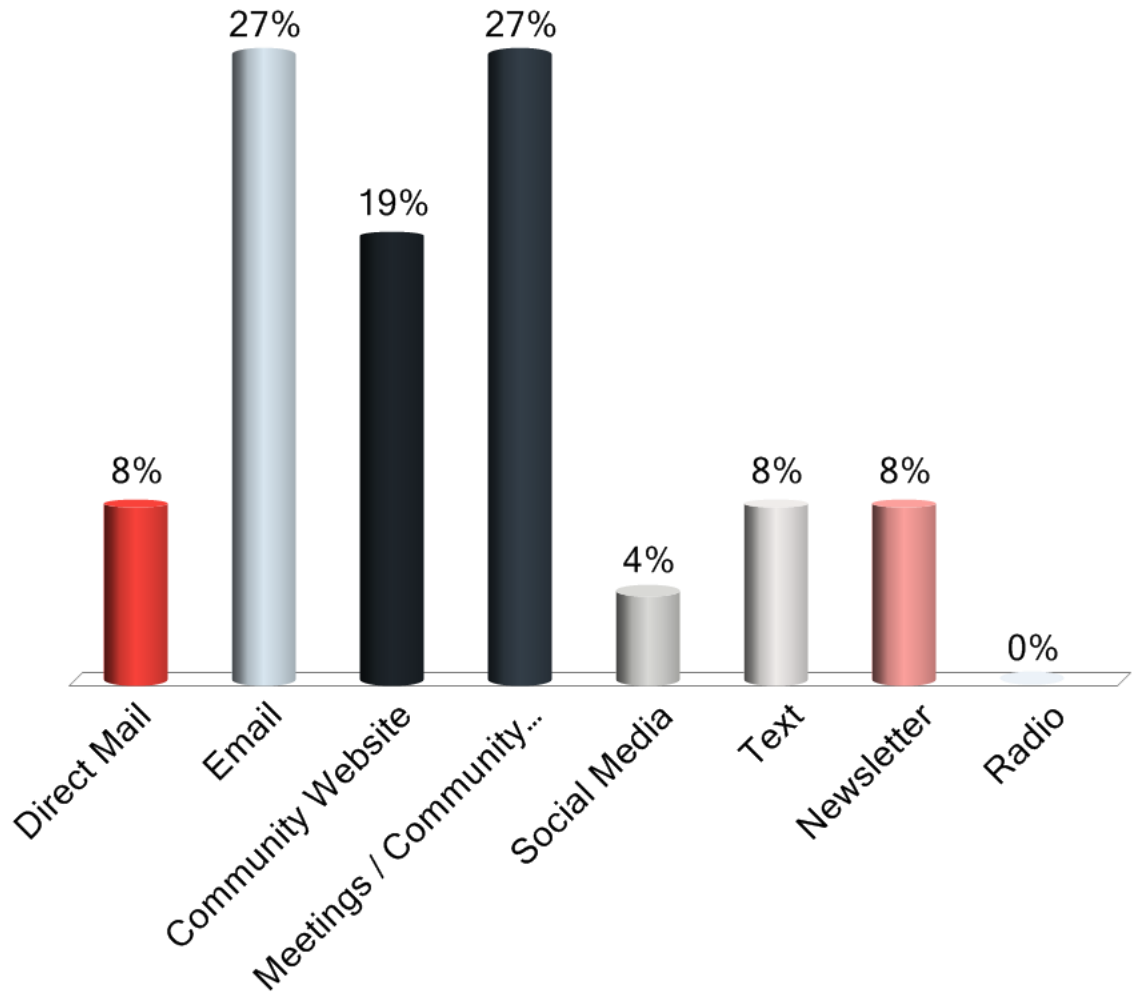
Next Steps

- Data Collection and Technical Assessment
- Socio-Economic Plan
- Formalize the Engagement Plan



How can you be best engaged and kept informed, moving forward?

1. Direct Mail
2. Email
3. Community Website
4. Meetings / Community Events
5. Social Media
6. Text
7. Newsletter
8. Radio



13th on 13th!!! Response #13 for Grand Prize!

Seconds	Participant	Seconds	Participant
5.798	6A7459	22.953	6A7382
5.879	69ED58	22.988	6A7426
7.077	6A7386	23.576	6A7439
7.467	6A742E		
11.529	6A7438		
12.691	6A7476		
14.88	6A7389		
18.887	6A73AB		
20.342	6A739C		
21.449	69ED79		

Miigwetch!
Thank you !

Chippewas of Georgina Island First Nation

Community Visioning

Appendix C:

MAP AND COMMENTS RECEIVED

GEORGINA ISLAND

DUCLOS POINT ROAD

WEST ST

HARBOUR

- heated deck => no icing
- lots of room for bikes so they don't interfere with traffic tourists on bikes

Palti's House

no cyclist access (hamper) in boat (Peri's class?)

ramp for boat launching

Change of direction possible.

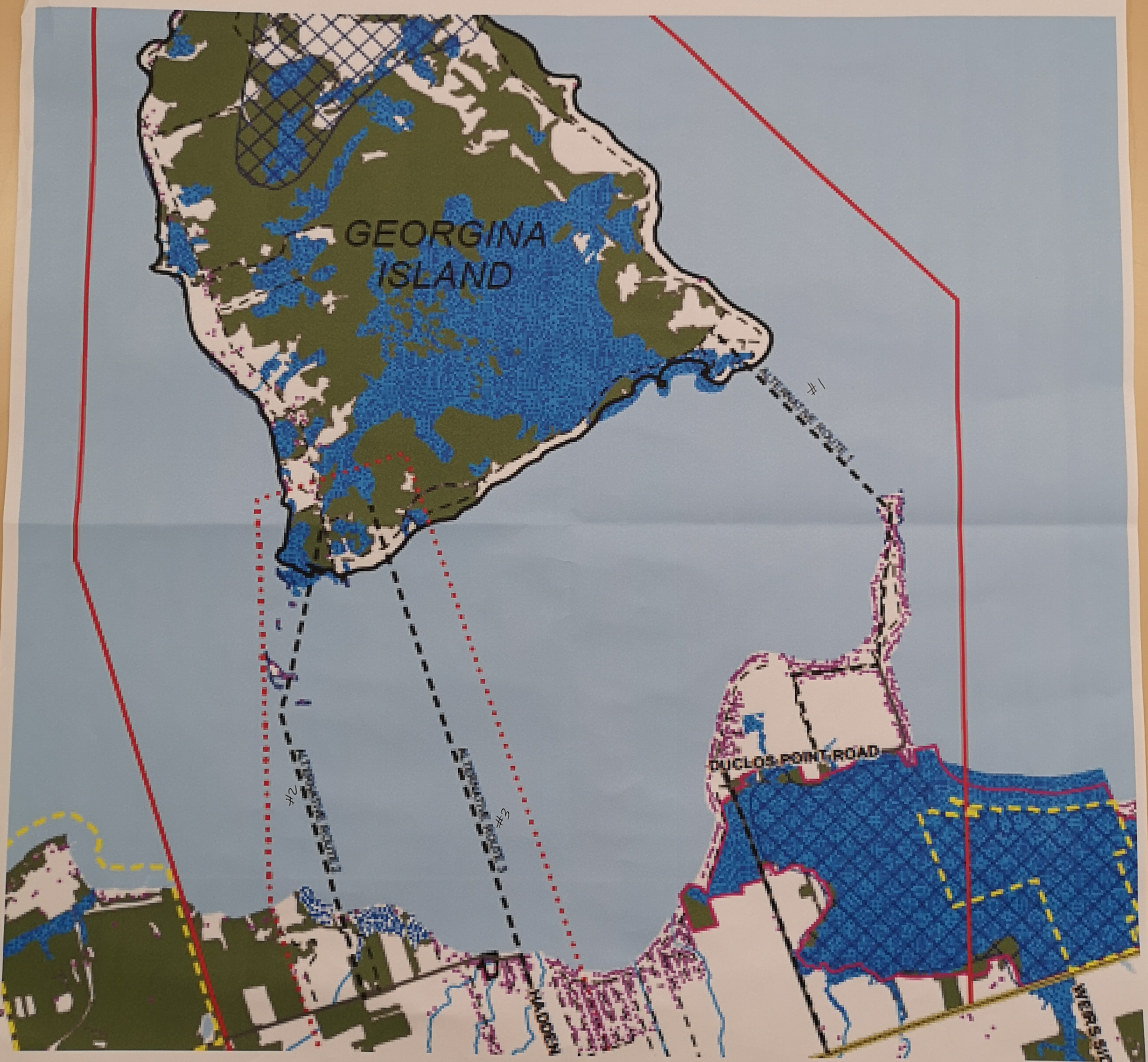
Separate gate for amber alerts

toll booth on mainland or member express lane to further lanes to prevent backups.

Connect to where docks are now

Don't need lot of bridge

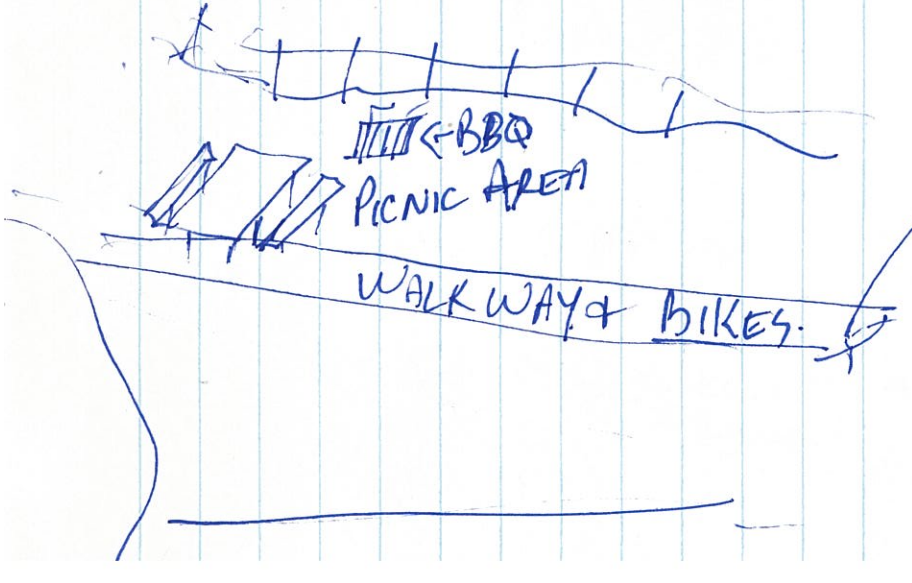
WBC parking? Old bigger location to build skate park


GEORGINA
ISLAND
#1
#2
#3
DUCLOS POINT ROAD
HADDEN
WORSLEY

- walking / bicycling lane.
- boat traffic
- environmental concerns.
- ~~toll~~
- 24/7 care/clearing of road.
- accident blocking travel
- lighting
- sand into water from bridge in winter.
- where would land on both sides be
- how long is study?
- " " to build?

Don't use abbreviations - not everyone knows what you mean - ie RFP. etc.

POSSIBILITIES



POSSIBLE VIEWING TUNNEL UNDER WATER SAY 14ft x 4' WIDE AGAIN - TOURIST DRAW

CAUSEWAY
MORE PARK AREA
WALKWAY

Appendix D:

POWER EXERCISE COMMENTS

ristmas Bazaar Feedback	environmental impacts.		Environmental
ristmas Bazaar Feedback	Is a fixed link needed - buy more scoots?	N/A	Transportation
ristmas Bazaar Feedback	A fixed link will change our way of life forever.	N/A	Cultural
ristmas Bazaar Feedback	A fixed link is needed ASAP.	N/A	Project/Schedule
ristmas Bazaar Feedback	Alternative 1 is out of the way and would result in large property impacts.	N/A	Access
ristmas Bazaar Feedback	Alternative 2 is in a shallow area where there are sensitive wetlands, traditional plants and medicines.	N/A	Environmental
ristmas Bazaar Feedback	The presence of perch grounds, eagles, deer, rabbit, fox otter, mink and wolf were noted.	N/A	Environmental
ristmas Bazaar Feedback	The shortest, least impactful route should be chosen.	N/A	Environmental
ristmas Bazaar Feedback	Keep interior protected; less cottages	N/A	Land Use
ristmas Bazaar Feedback	Ferry = pollution; we are polluting our lake	N/A	Environmental
ristmas Bazaar Feedback	Tax impact?	N/A	Economic
ristmas Bazaar Feedback	407 ETR type monitoring?	N/A	Access
ristmas Bazaar Feedback	Alternative 1 has cottages along this access point	N/A	Access
ristmas Bazaar Feedback	Alternative 1 is out of the way; more traffic and issues with cottages	N/A	Access
ristmas Bazaar Feedback	Alternative 3 could be a potential eyesore	N/A	Other
ristmas Bazaar Feedback	Alternative 2 could have the least impact	N/A	Environmental
ristmas Bazaar Feedback	If Alternative 2 is used, Black River Rd will need to be improved.	N/A	Transportation
ristmas Bazaar Feedback	Alternative 2 - Our land's here already; not a lot of cottages	N/A	Access
ap from Community Visioni	Set as similar to a gated community where non-members are asked where they will be going and record addresses and license plates.	N/A	Access
ap from Community Visioni	No fishing in boat access channel (add plexiglass?)	N/A	Environmental
ap from Community Visioni	Toll booth on mainland for member express lane; another lane to prevent backups	N/A	Access
ap from Community Visioni	South gate on mainland for Amber Alerts	N/A	Health and Safety
ap from Community Visioni	Connect Alternative 2 with existing docks	N/A	Technical
ap from Community Visioni	Don’t need IVBC parking lot with bridge – build bigger fuel station	N/A	Technical
ap from Community Visioni	Heated deck to prevent icing	N/A	Technical
ap from Community Visioni	Ensure there's lots of room for bikes (tourists on bikes) so they don't interfere with traffic	N/A	Transportation
ap from Community Visioni	Build new docks on GI with Alternative 3	N/A	Technical
ap from Community Visioni	There's a sand island located along Alternative 2.	N/A	Environmental
OWER Activity Feedback	Safety	P	Health and Safety
OWER Activity Feedback	Access to Services	P	Access
OWER Activity Feedback	Emergency Access	P	Health and Safety
OWER Activity Feedback	Children at Home	P	Cultural
OWER Activity Feedback	Time/Schedule	P	Project/Schedule
OWER Activity Feedback	Heated - Ice and Snow	E	Technical
OWER Activity Feedback	Bicycle Access	E	Transportation
OWER Activity Feedback	Security Control & Safety	E	Health and Safety
OWER Activity Feedback	"Fast Pass" and storage	E	Access
OWER Activity Feedback	Land-use plan to be ratified	O	Land Use
OWER Activity Feedback	Fishing off bridge / causeway	O	Environmental
OWER Activity Feedback	Security	O	Health and Safety
OWER Activity Feedback	No fishing	R	Environmental

OWER Activity Feedback	School bus access	E	Transportation
OWER Activity Feedback	Employment opportunities with building new infrastructure	E	Economic
OWER Activity Feedback	Potential for people to retun to live in the community	E	Cultural
OWER Activity Feedback	Emergency services	E	Health and Safety
OWER Activity Feedback	Speed limit	E	Transportation
OWER Activity Feedback	Railing height	E	Technical
OWER Activity Feedback	Snow drift	E	Technical
OWER Activity Feedback	Utilitiy improvements	E	Technical
OWER Activity Feedback	Heated bridge; no plowing required	E	Technical
OWER Activity Feedback	Ensure secutity and access is managed	O	Access
OWER Activity Feedback	Salt impacts to water	O	Environmental
OWER Activity Feedback	Safety	P	Health and Safety
OWER Activity Feedback	Convenience	P	Access
OWER Activity Feedback	Children can stay home during the winter months	P	Cultural
OWER Activity Feedback	Emergency access and response	P	Health and Safety
OWER Activity Feedback	Economic benefit for First Nation	P	Economic
OWER Activity Feedback	Job opportunities	P	Economic
OWER Activity Feedback	Social life and youth sports	P	Cultural
OWER Activity Feedback	Build this ASAP - we need it now	W	Project/Schedule
OWER Activity Feedback	Convenience	P	Access
OWER Activity Feedback	Emergency response times will improve	P	Health and Safety
OWER Activity Feedback	Jobs and education improvement (more teachers, no boarding, after school activities)	P	Cultural
OWER Activity Feedback	Safe winter travel	P	Health and Safety
OWER Activity Feedback	Sports and recreational access - no longer have to worry about late night games	P	Cultural
OWER Activity Feedback	Summer cottage traffic	P	Transportation
OWER Activity Feedback	Quality of Life	P	Health and Safety
OWER Activity Feedback	Extra family time	P	Cultural
OWER Activity Feedback	Access to social activities (i.e. movies)	P	Cultural
OWER Activity Feedback	Greater access to jobs off-island	P	Economic
OWER Activity Feedback	Greater self-employment opportunities	P	Economic
OWER Activity Feedback	Access for elders	P	Access
OWER Activity Feedback	Access to healthcare providers for all members	P	Health and Safety
OWER Activity Feedback	Fresh food in all seasons	P	Health and Safety
OWER Activity Feedback	Concept of member toll vs. non-member toll for passing into community	E	Access
OWER Activity Feedback	Card system (i.e. Nexus) for members and island professionals/workers	E	Access
OWER Activity Feedback	Multi-lane (moped, bike, pedestrian)	E	Transportation
OWER Activity Feedback	Bike rental and multi-use path	E	Transportation
OWER Activity Feedback	Speed control considered	E	Transportation
OWER Activity Feedback	Camera system for all fixed-link passengers	E	Access
OWER Activity Feedback	Noise increase due to traffic and construction vehicles	O	Health and Safety
OWER Activity Feedback	Increased garbage	O	Health and Safety
OWER Activity Feedback	Monitoring	R	Health and Safety
OWER Activity Feedback	Increase enforcement	R	Health and Safety
OWER Activity Feedback	Freedom	P	Access
OWER Activity Feedback	Health care	P	Health and Safety
OWER Activity Feedback	Employment	P	Economic
OWER Activity Feedback	Easy travel	P	Access
OWER Activity Feedback	Safety	P	Health and Safety
OWER Activity Feedback	Time management	P	Access
OWER Activity Feedback	Multi-use path	E	Transportation

ther Feedback	Convenience	N/A	Access	
ther Feedback	Children activities	N/A	Cultural	
ther Feedback	Walking / bicycle lane	N/A	Transportation	
ther Feedback	Boat traffic	N/A	Transportation	
ther Feedback	Environmental concerns	N/A	Environmental	
ther Feedback	Toll	N/A	Access	
ther Feedback	Accident blocking travel	N/A	Transportation	
ther Feedback	Lighting	N/A	Technical	
ther Feedback	Salt into water from bridge during the winter	N/A	Environmental	
ther Feedback	Where would land on both sides be?	N/A	Technical	
ther Feedback	Do not use abbreviations - not everyone know what you mean (i.e. RFP)	N/A	Engagement	
ther Feedback	Possibility to have a BBQ and picnic area, walkway for bikes	N/A	Other	
ther Feedback	Possibility to have a viewing tunnel under water (14ft x 4" wide) as a tourist attraction	N/A	Other	
ther Feedback	Possibility to include more park area and walkway along the causeway	N/A	Other	

th and Saftey	
er	used if theme is distinct and not relevant to the project - other design considerations
gement	
nical	Topics relatedto the design, cost and engineering of a fixed link (bridge)
ronmental	Terrestrial, Environmental, Air, Climate Change, etc
ect/Schedule	
l Use	
ural	Heritage, Histroy, tradition etc
sportation	Multi-modal uses, transit options, speed of driving,
nomic	

GIFN Fixed Link Project Visioning - Summary Report
Comment Summary Table

	Where did the comment come from?	*Please transcribe the comment*	*This column is specific to the POWER question (see Tab #2 in excel)*	**Determined theme by WSP Staff;**	**Example of Themes applied to a comment:**	**Example**
No.	**Context**	**Comment Received**	**Power Activity Area**	**Theme**		
1	Christmas Bazaar Feedback	Security should be of prime importance. Consideration should be given to tolling or gating the fixed link.	N/A	Access	**Access**	toll, gated community etc…
2	Christmas Bazaar Feedback	Any bridge should have no/limited piers in the water, to minimize environmental impacts.	N/A	Environmental	**Health and Saftey**	
3	Christmas Bazaar Feedback	Is a fixed link needed - buy more scoots?	N/A	Transportation	**Other**	used if theme is distinct and not relevant to the project - other design considerations
4	Christmas Bazaar Feedback	A fixed link will change our way of life forever.	N/A	Cultural	**Engagement**	
5	Christmas Bazaar Feedback	A fixed link is needed ASAP.	N/A	Project/Schedule	**Technical**	Topics relatedto the design, cost and engineering of a fixed link (bridge)
6	Christmas Bazaar Feedback	Alternative 1 is out of the way and would result in large property impacts.	N/A	Access	**Environmental**	Terrestrial, Environmental, Air, Climate Change, etc
7	Christmas Bazaar Feedback	Alternative 2 is in a shallow area where there are sensitive wetlands, traditional plants and medicines.	N/A	Environmental	**Project/Schedule**	
8	Christmas Bazaar Feedback	The presence of perch grounds, eagles, deer, rabbit, fox otter, mink and wolf were noted.	N/A	Environmental	**Land Use**	
9	Christmas Bazaar Feedback	The shortest, least impactful route should be chosen.	N/A	Environmental	**Cultural**	Heritage, Histroy, tradition etc
10	Christmas Bazaar Feedback	Keep interior protected; less cottages	N/A	Land Use	**Transportation**	Multi-modal uses, transit options, speed of driving,
11	Christmas Bazaar Feedback	Ferry = pollution; we are polluting our lake	N/A	Environmental	**Economic**	
12	Christmas Bazaar Feedback	Tax impact?	N/A	Economic		
13	Christmas Bazaar Feedback	407 ETR type monitoring?	N/A	Access		
14	Christmas Bazaar Feedback	Alternative 1 has cottages along this access point	N/A	Access		
15	Christmas Bazaar Feedback	Alternative 1 is out of the way; more traffic and issues with cottages	N/A	Access		
16	Christmas Bazaar Feedback	Alternative 3 could be a potential eyesore	N/A	Other		
17	Christmas Bazaar Feedback	Alternative 2 could have the least impact	N/A	Environmental		
18	Christmas Bazaar Feedback	If Alternative 2 is used, Black River Rd will need to be improved.	N/A	Transportation		
19	Christmas Bazaar Feedback	Alternative 2 - Our land's here already; not a lot of cottages	N/A	Access		
20	Map from Community Vision	Set as similar to a gated community where non-members are asked where they will be going and record addresses and license plates.	N/A	Access		
21	Map from Community Vision	No fishing in boat access channel (add plexiglass?)	N/A	Environmental		
22	Map from Community Vision	Toll booth on mainland for member express lane; another lane to prevent backups	N/A	Access		
23	Map from Community Vision	South gate on mainland for Amber Alerts	N/A	Health and Safety		
24	Map from Community Vision	Connect Alternative 2 with existing docks	N/A	Technical		
25	Map from Community Vision	Don’t need IVBC parking lot with bridge – build bigger fuel station	N/A	Technical		
26	Map from Community Vision	Heated deck to prevent icing	N/A	Technical		
27	Map from Community Vision	Ensure there's lots of room for bikes (tourists on bikes) so they don't interfere with traffic	N/A	Transportation		
28	Map from Community Vision	Build new docks on GI with Alternative 3	N/A	Technical		
29	Map from Community Vision	There's a sand island located along Alternative 2.	N/A	Environmental		
33	POWER Activity Feedback	Safety	P	Health and Safety		
34	POWER Activity Feedback	Access to Services	P	Access		
35	POWER Activity Feedback	Emergency Access	P	Health and Safety		
36	POWER Activity Feedback	Children at Home	P	Cultural		
37	POWER Activity Feedback	Time/Schedule	P	Project/Schedule		
38	POWER Activity Feedback	Heated - Ice and Snow	E	Technical		
39	POWER Activity Feedback	Bicycle Access	E	Transportation		
40	POWER Activity Feedback	Security Control & Safety	E	Health and Safety		
41	POWER Activity Feedback	"Fast Pass" and storage	E	Access		
42	POWER Activity Feedback	Land-use plan to be ratified	O	Land Use		
43	POWER Activity Feedback	Fishing off bridge / causeway	O	Environmental		
44	POWER Activity Feedback	Security	O	Health and Safety		
45	POWER Activity Feedback	No fishing	R	Environmental		
46	POWER Activity Feedback	Digital notice board	R	Engagement		
47	POWER Activity Feedback	Cameras	R	Health and Safety		
48	POWER Activity Feedback	Security system	R	Health and Safety		
49	POWER Activity Feedback	Gateway park for businesses	W	Economic		
50	POWER Activity Feedback	Suspension bridge for walking to attract tourism	W	Technical		
51	POWER Activity Feedback	Natural gas supply	W	Environmental		
52	POWER Activity Feedback	Partial tunnel	W	Technical		
53	POWER Activity Feedback	More people coming, security needed	O	Health and Safety		
54	POWER Activity Feedback	Ensure there are environmental mitigations	O	Environmental		
55	POWER Activity Feedback	Security - Gated community, mainland toll	R	Access		
56	POWER Activity Feedback	Gated community - Provide employment for ferry workers	R	Economic		
57	POWER Activity Feedback	Gated community - To be aware of all visitors	R	Health and Safety		
58	POWER Activity Feedback	Timeline for end of 2020	W	Project/Schedule		
59	POWER Activity Feedback	Remove waste from Island - Transfer Station	W	OTHER		
60	POWER Activity Feedback	Time saving	P	Access		
61	POWER Activity Feedback	Safety	P	Health and Safety		
62	POWER Activity Feedback	Ease of access	P	Access		
63	POWER Activity Feedback	Public transit opportunities	P	Transportation		
64	POWER Activity Feedback	Opportunities to better access children's sport and education	P	Cultural		
65	POWER Activity Feedback	Elders are able to stay on the island	E	Health and Safety		
66	POWER Activity Feedback	School bus access	E	Transportation		
67	POWER Activity Feedback	Employment opportunities with building new infrastructure	E	Economic		
68	POWER Activity Feedback	Potential for people to retun to live in the community	E	Cultural		
69	POWER Activity Feedback	Emergency services	E	Health and Safety		
70	POWER Activity Feedback	Speed limit	E	Transportation		
71	POWER Activity Feedback	Railing height	E	Technical		
72	POWER Activity Feedback	Snow drift	E	Technical		
73	POWER Activity Feedback	Utilitiy improvements	E	Technical		
74	POWER Activity Feedback	Heated bridge; no plowing required	E	Technical		
75	POWER Activity Feedback	Ensure secutity and access is managed	O	Access		
76	POWER Activity Feedback	Salt impacts to water	O	Environmental		
77	POWER Activity Feedback	Safety	P	Health and Safety		
78	POWER Activity Feedback	Convenience	P	Access		
79	POWER Activity Feedback	Children can stay home during the winter months	P	Cultural		
80	POWER Activity Feedback	Emergency access and response	P	Health and Safety		
81	POWER Activity Feedback	Economic benefit for First Nation	P	Economic		
82	POWER Activity Feedback	Job opportunities	P	Economic		
83	POWER Activity Feedback	Social life and youth sports	P	Cultural		
84	POWER Activity Feedback	Build this ASAP - we need it now	W	Project/Schedule		
85	POWER Activity Feedback	Convenience	P	Access		
86	POWER Activity Feedback	Emergency response times will improve	P	Health and Safety		
87	POWER Activity Feedback	Jobs and education improvement (more teachers, no boarding, after school activities)	P	Cultural		
88	POWER Activity Feedback	Safe winter travel	P	Health and Safety		
89	POWER Activity Feedback	Sports and recreational access - no longer have to worry about late night games	P	Cultural		
90	POWER Activity Feedback	Summer cottage traffic	P	Transportation		
91	POWER Activity Feedback	Quality of Life	P	Health and Safety		
92	POWER Activity Feedback	Extra family time	P	Cultural		
93	POWER Activity Feedback	Access to social activities (i.e. movies)	P	Cultural		
94	POWER Activity Feedback	Greater access to jobs off-island	P	Economic		

GIFN Fixed Link Project Visioning - Summary Report
Comment Summary Table

	Where did the comment come from?	*Please transcribe the comment*	*This column is specific to the POWER question (see Tab #2 in excel)*	**Determined theme by WSP Staff;**	**Example of Themes applied to a comment:**	**Example**
95	POWER Activity Feedback	Greater self-employment opportunities	P	Economic		
96	POWER Activity Feedback	Access for elders	P	Access		
97	POWER Activity Feedback	Access to healthcare providers for all members	P	Health and Safety		
98	POWER Activity Feedback	Fresh food in all seasons	P	Health and Safety		
99	POWER Activity Feedback	Concept of member toll vs. non-member toll for passing into community	E	Access		
100	POWER Activity Feedback	Card system (i.e. Nexus) for members and island professionals/workers	E	Access		
101	POWER Activity Feedback	Multi-lane (moped, bike, pedestrian)	E	Transportation		
102	POWER Activity Feedback	Bike rental and multi-use path	E	Transportation		
103	POWER Activity Feedback	Speed control considered	E	Transportation		
104	POWER Activity Feedback	Camera system for all fixed-link passengers	E	Access		
105	POWER Activity Feedback	Noise increase due to traffic and construction vehicles	O	Health and Safety		
106	POWER Activity Feedback	Increased garbage	O	Health and Safety		
107	POWER Activity Feedback	Monitoring	R	Health and Safety		
108	POWER Activity Feedback	Increase enforcement	R	Health and Safety		
109	POWER Activity Feedback	Freedom	P	Access		
110	POWER Activity Feedback	Health care	P	Health and Safety		
111	POWER Activity Feedback	Employment	P	Economic		
112	POWER Activity Feedback	Easy travel	P	Access		
113	POWER Activity Feedback	Safety	P	Health and Safety		
114	POWER Activity Feedback	Time management	P	Access		
115	POWER Activity Feedback	Multi-use path	E	Transportation		
116	POWER Activity Feedback	Architectural features and lights	E	Technical		
117	POWER Activity Feedback	Heated roadway (no de-icing material)	E	Technical		
118	POWER Activity Feedback	Community meetings	R	Engagement		
119	POWER Activity Feedback	Website to provide opinions and thoughts	R	Engagement		
120	POWER Activity Feedback	No charge for Members	R	Access		
121	POWER Activity Feedback	Get the project done	W	Project/Schedule		
122	POWER Activity Feedback	Love the Elders	W	Cultural		
123	Other Feedback	Black River Rd houses - get buy-in from these stakeholders	N/A	Engagement		
124	Other Feedback	Will the assessment include post-assessment? (i.e. testing, mitigating the impacts after the bridge is built)	N/A	Project/Schedule		
125	Other Feedback	Will the EA or bridge be done first?	N/A	Project/Schedule		
126	Other Feedback	How long does an EA study take?	N/A	Project/Schedule		
127	Other Feedback	Do outside companies run the EA?	N/A	Other		
128	Other Feedback	What is illumination?	N/A	Technical		
129	Other Feedback	Would the Community have to present to the governments? (i.e. Trent Severn Waterway)	N/A	Other		
130	Other Feedback	How long will the fixed link take to be built?	N/A	Project/Schedule		
131	Other Feedback	What traffic would occur on a causeway? Why would two lanes be needed? What is the allowable weight?	N/A	Technical		
132	Other Feedback	Convenience	N/A	Access		
133	Other Feedback	Children activities	N/A	Cultural		
134	Other Feedback	Walking / bicycle lane	N/A	Transportation		
135	Other Feedback	Boat traffic	N/A	Transportation		
136	Other Feedback	Environmental concerns	N/A	Environmental		
137	Other Feedback	Toll	N/A	Access		
138	Other Feedback	Accident blocking travel	N/A	Transportation		
139	Other Feedback	Lighting	N/A	Technical		
140	Other Feedback	Salt into water from bridge during the winter	N/A	Environmental		
141	Other Feedback	Where would land on both sides be?	N/A	Technical		
142	Other Feedback	Do not use abbreviations - not everyone know what you mean (i.e. RFP)	N/A	Engagement		
143	Other Feedback	Possibility to have a BBQ and picnic area, walkway for bikes	N/A	Other		
144	Other Feedback	Possibility to have a viewing tunnel under water (14ft x 4" wide) as a tourist attraction	N/A	Other		
145	Other Feedback	Possibility to include more park area and walkway along the causeway	N/A	Other		

andrew

P — SAFETY
— ACCESS TO SERVICES
— EMERGENCY ACCESS
— CHILDREN AT HOME
— TIME / SCHEDULE

E — HEATED / ICE & SNOW
— ~~BICYCLE~~ BICYCLE ACCESS | MUP
— SECURITY CONTROL | SAFETY
— "FAST PASS" & STORAGE

O - LAND USE PLAN to be RATIFIED

- FISHING OFF BRIDGE/CAUSEWAY

- SECURITY -

R - NO FISHING!

- NOTICE BOARD - DIGITAL.

- CAMERAS

- SECURITY SYSTEM

W — GATEWAY PARK — BUSINESS
— SUSPENSION BRIDGE/ — TOURISTY DRAW
WALKWAY

— NATURAL GAS SUPPLY

— PARTIAL TUNNEL

Enhancements

- speed limit
- railing height
- snow drift
- heated bridge; no plowing req'd.
- utilities improvements (natural gas / internet)

Objections

- none, if secure & access is managed.
- salt impacts to water

Positives
- Safety
- convenience
- keep our children home during winter months
- emergency access/response
- economic benefit for first Nation or members
- job opportunities
- social life/youth sports
-

what else

health + access

hurry up! need now

christine.

(P)

- convienence
- emergency response times will improve
- Jobs/education improvement
  - → more teachers
  - → no boarding
  - → after school activities
  - → sports/rec access no longer have to worry about late night game
- Safe winter travel.
- Summer cottage traffic
- quality of life
- Extra family time
- Access to social activities (movies etc.).
- greater access to jobs off-island
- " jobs on island
  - → greater self-employment opportunities
- access for ELDERS
- healthcare providers for all members ↑

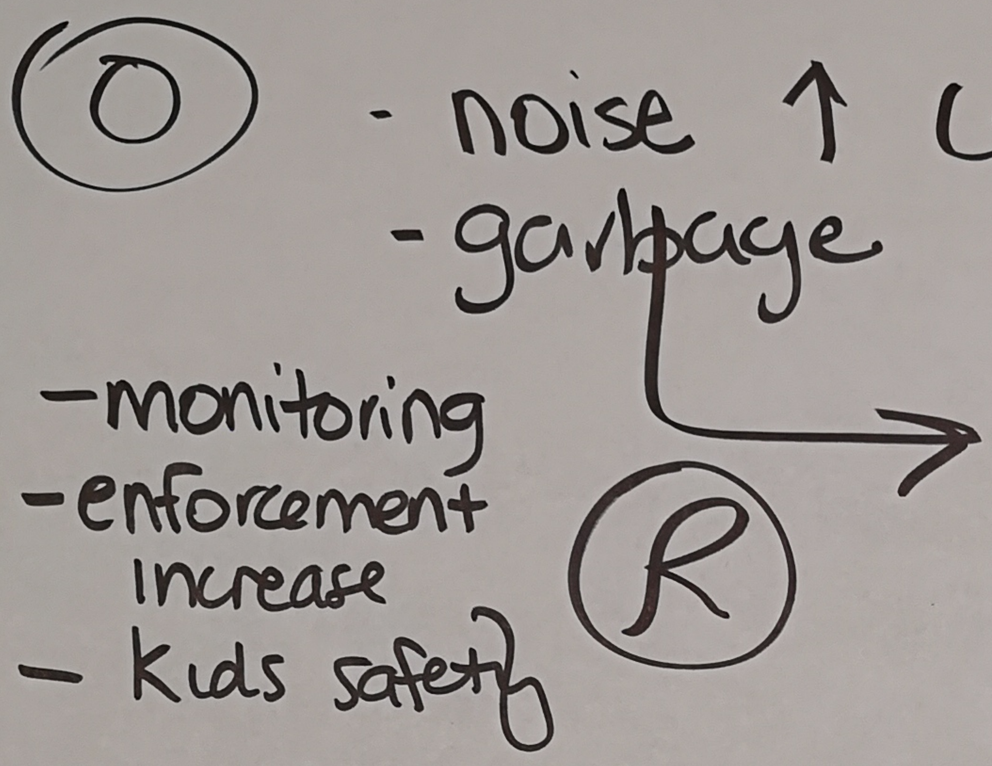
(E)

- fresh food in all season
- concept of member toll vs. non-member for passing into community

(E) cont'...

- card (eg. nexus) system for members and island professionals/workers.
- Multi-lane * - moped
  - bike
  - hike.

  } health improvement
- bike rental
- speed ~~saf~~ control considered
- camera system for all fixed-link passengers.


O
- noise ↑ (traffic and more construction trucks).
- garbage
- monitoring
- enforcement increase
- kids safety
R

Positives

1. Freedom
2. Healthcare
3. Employment
4. Easy travel
5. Safety
6. Time management
7.

maged.

Enhancements

1- MUP

2- Architectural features
Lights,

3- Heated Roadway
No deicing materal

Objections

1. No

Remedies

1- Community meetings

2. Web site to provide opinions and thoughts

3- No charge for members

What else

get it done

Love the elders

Sue

- Time Saving.
- Safety
- Ease of Access
- Opportunities — Employment
  — Childres Sport
  — Tranist — Public.
- Health — Elders
  — Emergancy
  — Appoinths
  (time)
  Children → Education Access
- Elders stay on island (Health)
- School Bus
- Build Infracture & have employment incomes
- Came back & live in community

Objections

- More people coming - need Security
- Environment → ensure mitigations.

Remedies

- Security - Manned Toll
  - Gated Community
  - Gated Community ÷ Employment for Ferry Workers
    Aware of all visitors

What Else?

Timeline by end of 2020

Get er dun

Waste off Island. Transfer Station

Appendix E:

TIMELINE

GEORGINA ISLAND FIXED LINK STUDY

TIMELINE

- WSP Awarded Study
- Community Engagement
- Community Visioning Presentation
- Community Visioning Report
- Community Visioning Presentation to GIFN
- Technical Visioning- Approval to proceed
- Vision of access Roads and Bridge - Draft
- Plans, Permits and Studies Required
- Technical Visioning Report to GIFN
- Specifications for Tender
- Tender award for GIFL EA and Preliminary Design
- EA and Preliminary Design Complete
- Detailed Design, Permits and Approvals
- GIFL Design Complete
- Tender and Award for Construction Phase

CONSTRUCTION START

CONSTRUCTION PERIOD

2008 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | BRIDGE

Jan | Feb | Mar | April | May | June | July | Aug | Sept | Oct | Nov | Dec

Historical Review:
2008–Neegan Burnside Study
-Community Survey
-Off Reserve Questionnaire
-Options (Alternatives) Review
Result: Bridge and or Causeway

October:
WSP Awarded Study
December:
Community Engagement

Community Visioning – confirm and expand on reasoning and requirements for a Fixed Link

Assessment of Technical Requirements (Studies, Permits, Approvals) in Engineering, Environmental, Water, Transportation - Municipal, Federal and various stakeholders.

Specification documents are a comprehensive description of all the objectives for a project and contains all goals, functionalities and details required for a contractor to fulfill the of the Design details for the GIFL project.

Design, plans and specifications are refined and cost estimates are created. Consultations/ Engagements with Community and Stakeholders throughout the design process.

Permits and approvals are prepared and submitted. Approvals received.

Note: Background image is not the GIFL design. Image will be updated with the GIFL as design progresses. Dates are approximate and will be updated as the project progresses.

Appendix B Environmental Planning Technical Memorandum

MEMO

TO: The Chippewas of Georgina Island First Nation

FROM: Andrew Roberts

SUBJECT: **Environmental Planning Screening Memo**

DATE: **May 29, 2020**

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1. BACKGROUND SCREENING - TECHNICAL MEMO ENVIRONMENTAL PLANNING

BACKGROUND INFORMATION REVIEW

- List of documents/data sources reviewed:
    - Administrative Guide Lakes and Rivers Improvement Act, Ministry of Natural Resources and Forestry, 2017;
    - *Canadian Navigable Waters Act,* R.S.C., 1985, c. N-22;
    - Companion Guide for the Municipal Class Environmental Assessment Manual (rev 02), Municipal Engineers Association, 2018;
    - Guide to the Parks Canada Environmental Impact Analysis Process, Parks Canada, 2015;
    - *Impact Assessment Act* (S.C. 2019, c. 28, s. 1);
    - Making a determination under Section 67 of the Canadian Environmental Assessment Act*,* 2012, Canadian Environmental Assessment Agency, 2014;
    - Municipal Class Environmental Assessment, Municipal Engineers Association, 2015;
    - Proponent's Guide to Aboriginal and Northern Development Canada's Environmental Review Process;
    - Proposed Fixed Link Study – Preliminary Evaluation of Engineering and Environmental Alternatives, Neegan Burnside, 2008;
    - Public Work Class Environmental Assessment, Ministry of Infrastructure, 2012.

REGULATORY FRAMEWORK

Multiple permits, licences and authorizations will be required to facilitate the development of the Fixed Link. The ultimate applicability will be determined as the Project Plan develops and will depend on the design of the fixed link. Permits and approvals are also dependent upon the ownership of lands for the Project, as well as funding sources. Environmental assessment requirements are potentially based on the ownership and status of off-Reserve lands, including the lake bed.

GEORGINA ISLAND FIRST NATION

It is understood that GIFN has the broad authority to protect and manage its Reserve lands. The authority comes from the *First Nations Land Management Act*, with a formal Land Code that came in to force on January 1, 2000. Based on WSP's interpretation of the Community Vison for the Fixed Link, a key principle will be to promote the avoidance or mitigation of adverse environmental effects.

Any environmental assessment must be acceptable to GIFN before it decides to engage in the Fixed Link project. It is assumed that GIFN could develop their own guidance for environmental assessment activities and associated permits and approvals for on-Reserve portions of the Fixed Link. An overall EA process could be developed that could be similar to or encompass the principles of federal and provincial EA processes. This approach has been taken by other First Nations, including the Henvey Inlet First Nation in developing the Henvey Inlet Wind Energy Centre.

FEDERAL

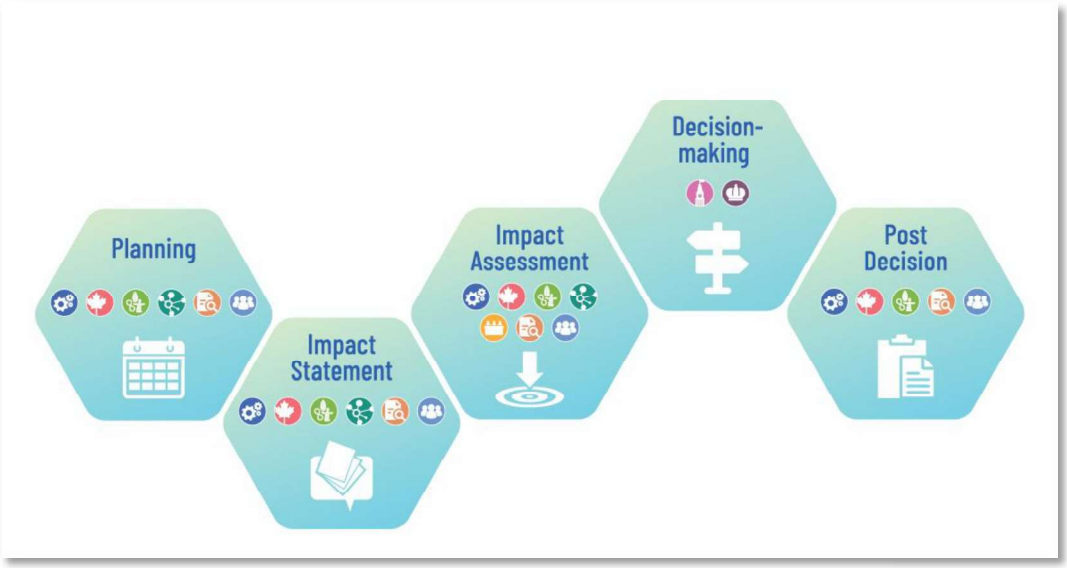
The Project is proposed to be constructed partially on Reserve Lands, which are under federal jurisdiction. Therefore, the Project, or parts of the Project may be subject to the requirements of applicable federal laws, standards and permits. Projects defined in the *Impact Assessment Act, 2019* (IAA)*, Regulations Designating Physical Activities* require the full federal impact assessment process. The *Regulations* note that causeways that have a continuous section of 400 m or greater in a navigable water are a Designated Project. WSP understands that on a preliminary basis, the causeway portion of the Fixed Link from the Island may be up to 1100m long. Lake Simcoe is listed navigable water in the *Canadian Navigable Water Act.* Based on the assumed causeway length, the IAA process would apply to the Fixed Link Project.

The IAA process consists of 5 steps as described below and shown in **Figure 1**:

- **Planning**. Projects go through a planning phase where the public and Indigenous peoples are invited to provide information on the Project Description and contribute to planning the assessment.
- **Impact Statement.** The proponent is provided by the with clear requirements for the information and studies required to complete an Impact Statement (i.e. Terms of Reference from the federal Agency). Sound science and Indigenous knowledge inform the Impact Statement.

- **Impact Assessment.** The assessment considers potential environmental, health, social and economic impacts of proposed projects, including benefits. Potential impacts on Indigenous treaty rights are also assessed and consulted on. The Agency or review panel uses the information to develop an impact assessment report.
- **Decision**. The impact assessment report and Crown consultation outcomes informs the Minister or Governor in Council decision on whether a project's adverse impacts are in the public interest. If yes, the Minister must establish conditions for the proponent. Decision statements set out the rationale for the decision, providing transparency and accountability.
- **Post Decision (Monitoring)**. The Agency will be active in verifying compliance with Decision Statements and correcting non-compliance. There will be greater transparency around follow-up programs, with increased access to key documentation, as well as increased opportunities for Indigenous and community participation in follow-up and monitoring programs.

Figure 1: Impact Assessment Act Process





Section 82 of the IAA requires that federal authorities that exercise a power or finance a project must conduct a review to determine whether a project is likely to cause significant adverse environmental effects before making any decision that would allow a project to proceed. At the time of writing, it is unknown if any federal agencies will be engaged in the Project. A tentative list of potential agencies includes:

- Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) or other related agencies for approvals or funding;
- Department of Fisheries and Oceans (DFO), for authorizations under the *Fisheries Act;*
- Transport Canada (TC), for authorizations under the *Canadian Navigable Water Act;* and
- Heritage Canada – Parks Canada, potentially triggered by projects that involve the Trent Severn Waterway.

As an example, Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) has developed an Environmental Review Process for on-Reserve projects with the following steps:

- **Determination if the ERP applies:** The Fixed Link proposal meets the definition of a "project" in the IAA. If CIRNAC is required to exercise a power, the ERP will apply.
- **Completing a Project Description form:** Once it has been determined that the ERP applies, GIFN as the proponent will complete a Project Description Form. By providing the essential details of the proposed project, CIRNAC environment officers can analyze the potential environmental risk of the project.
- **Identifying the need for further review:** CIRNAC will review the information provided and perform a risk analysis to identify whether there is a need for further environmental review. Depending on the results of this analysis, CIRNAC will identify the appropriate level of review with respect to the nature of the project and its potential risk to the environment. CIRNAC has four levels of risk and associated requirements. WSP assumes that the Project would be considered to have medium environmental risks and require a Detailed Environmental Review (DER) to be carried out. CIRNAC will issue the Proponent with guidance/ Terms of Reference to complete the DER.
- **Analysis of environmental effects:** All effects from the project to the environment should be considered, including fish and fish habitat, migratory birds, species at risk, air quality, water quality, soil, plants and wildlife, etc. Environmental effects also include health and socio-economic conditions, physical and cultural heritage, current use of land and resources for traditional purposes, structures, sites or things that are of historical, archaeological, paleontological or architectural significance. For each adverse effect that is identified, mitigation measures should be proposed, with the intent of eliminating, reducing, or otherwise controlling that adverse effect. The IEA also requires the review of factors including adverse impacts to the rights of Indigenous peoples, Indigenous knowledge, community knowledge, and comments received from the public.
- **Decision and implementation.** If the environmental review concludes that the project is unlikely to cause significant adverse effects, CIRNAC may proceed with issuing regulatory authorizations or funding to support the project.

Other federal agencies have similar environmental review processes (e.g. Parks Canada, with pending changes from CEAA to the IAA). Agencies that do not have a formal assessment process utilize the guidance outlined in the Canadian Environmental Assessment Agency guide *"Making a determination under section 67 of the Canadian Environmental Assessment Act, 2012."*

PROVINCIAL

Environmental Assessments are used as a tool to assess the potential environmental effect, both positive or negative of a proposed Project. This process promotes good planning before decisions are made to proceed with a project. The process requires the identification and evaluation of solutions (alternatives to a project), as well as design options (alternative ways of carrying out a project). EAs also require public engagement as a key requirement.

Class Environmental Assessments

These are streamlined assessments with certain categories or "classes" of projects that have predictable and manageable environmental effects. Proponents of these types of projects follow a self-assessment and decision-making process. Approval from provincial ministries of the EA is not directly granted for each project. Two Class Environmental Assessment (Class EA) processes might be applicable to the Project, depending on land ownership status and tie-ins to the municipal infrastructure in the Region of York and Town of Georgina:

- Resource Stewardship and Resource Development Projects, Ministry of Natural Resources and Forestry. Work permits under the *Public Lands Act* from the MNRF are required for activities on Crown land and shore lands before any work can take place. The ownership and administration status of the lake bed and shoreline areas off-Reserve is not understood at this time. If the shore lands and lake bottom are under MNRF jurisdiction, it is likely that in order to obtain work permits that the Project would require an environmental assessment. It is likely that the MNRF would require GIFN to complete an EA according to their Resource Stewardship and Resource Development Projects (RSFD) Class EA, or some equivalent process. Per the RSFD, the Fixed Link would likely be considered to be a Category 'C' project, subject to the full planning and consultation process; and
- Municipal Class Environmental Assessment (MCEA). This Class EA typically applies to municipal infrastructure work including roadways and water crossings. As the on or off-Reserve status of the mainland properties for the Fixed Link are not understood, it is conceivable that the MCEA could apply. Based on the early project details, the fixed link would likely be considered a Category 'C' project, subject to the full planning and consultation process in the MCEA.

Class EA processes are generally similar, and the typical stages are:

- **Phase 1 Problem or Opportunity Statement**: This phase includes the identification and documentation of a problem or problems to be addressed and/or opportunities to be realized. It involves the development of a statement of need and justification for a Project.

- **Phase 2 Development and Evaluation of Alternative Solutions.** The second phase of the study includes development of alternative solutions to address the problems and opportunities identified in Phase 1, and the screening criteria for evaluation of the alternative solutions. The alternatives are at a planning level and in the case of a transportation deficiency, involve the consideration of alternative modes of transportation, alternative routes, trip-making behaviour and other high-level methods to address the deficiency, including the option of "do nothing", which will serve as the baseline.

- **Phase 3 Alternative Design Concepts.** The third phase of the study will focus on the design concepts and construction cost estimates, as well as the development of a Preliminary Design plan and profile. Design alternatives will be developed to address the needs in the area, while taking into consideration the agency and GIFN requirements, cross sectional elements (lanes, MUP, landscaping etc.), drainage needs, as well as property impacts. Analysis and evaluation of the design concepts will be carried out and reviewed. The factors to be considered during the evaluation will include, but are not limited to, property impacts; potential impacts to future development opportunities; geometry; level of service; drainage; cost (both construction and property); and cultural and natural environmental impacts.

- **Phase 4 Environmental Study Report.** The Study culminates with the preparation and finalization of the Environmental Study Report (ESR). The final recommendations, environmental implications and mitigating measures will be documented in the ESR as required under the *Environmental Assessment Act.* The Draft ESR will be circulated to public and technical agencies such as the Town of Georgina, York Region, MNRF, and LSRCA for review and comment. The report will then be filed for a mandatory public review, which is typically a 30-day period.

- **Consultation Program.** Consultation activities occur throughout the EA process. Actively engaging stakeholders and the community, not simply to receive input, but more importantly to foster a sense of ownership, pride and commitment to the project, is of great importance to GIFN. A comprehensive consultation program for the First Nation, agencies, landowners and the public is required. The specific details of the program will depend upon the EA methodology selected. A typical program would consist of the following:

    - Stakeholder List: A list of key government Ministries, Agencies, landowners, the Community and other stakeholders who may have an interest in the project should be developed. This contact list will be used as a tracking tool to document the ongoing communications and issue resolution for the Environmental Study Report.

    - Notice of Commencement: The purpose of this point of contact is to inform potentially affected and interested parties of the start of this project and to provide an opportunity for commenting on the project. The key agencies (e.g., MECP, MNRF, LSRCA) will also be circulated a copy of the notice. Notification is typically accomplished by direct mail in the study area, and the placement of an ad in newspapers with local circulation.

- Public Information Centre # 1: The purpose of this point of contact is to interact with stakeholders to introduce the project and consult with review agencies and the public about the opportunity and alternative solutions. This is announced through the contact list and local newspapers.
- Public Information Centre # 2: The purpose this point of contact is to interact with stakeholders to present the design concepts of preferred solutions and to discuss their issues and concerns prior to finalization of the preferred design solution. This is announced through the contact list and local newspapers.
- Technical Advisory Committee (TAC): A technical advisory committee made up of agencies and regulators (e.g. MNRF, MECP, LSRCA, York Region and Town of Georgina) is commonly used for coordination during the project. The TAC will suggest ideas or concerns and may test the validity or likely success of ideas and solutions brought forth regarding technical issues related to natural heritage, water resources, water/wastewater servicing, stormwater management and will act as a forum for discussion of technical issues. Meetings of the TAC can be held at key stages in the EA.
- Notice of Completion: This notice is issued following completion of the Environmental Study Report documenting all phases of the process. It will allow for the minimum public and agency review period, which is typically 30 days.

It should be noted that the Class EA process also includes an elevation request or 'bump-up' provision so that interested parties can request to move projects from the Class process to an Individual EA.

Individual Environmental Assessment

The *Ontario Environmental Assessment Act* (EA Act) is a provincial statute that sets out a planning and decision- making framework to evaluate the environmental effects of certain proposed undertakings. Individual environmental assessments are prepared for large-scale, complex projects with the potential for significant environmental effects. They require Ministry of the Environment, Conservation and Parks approval. The process includes the development of a Terms of Reference that requires approval by the Ministry, a set of technical studies and evaluations, a consultation program and reporting. The process is typically longer than for Class EAs.

While the proposed Fixed Link project does not appear to require an Individual EA (IEA), Proponents can voluntarily complete one. For the Fixed Link, a scoped IEA approach would have the advantage of providing for a comprehensive study solution that would potentially satisfy all provincial EA requirements and be harmonized with federal IAA requirements and any requirements set out by GIFN. A potential disadvantage is the length of time to complete the study. For example, development and approval of a Terms of Reference typically takes between 8 and 12 months before the study proper can begin. The IEA process also removes an element of self-review and approval by GIFN, as the IEA requires the MECP approval.

The determination of an appropriate EA pathway is a key requirement of the Fixed Link plan. This will require careful discussion and consultation with the federal and provincial authorities. At this time, these discussions have not occurred to WSP's knowledge, and this therefore represents a significant constraint.

MUNICIPAL

Municipal permits, licences and authorizations would not apply to works associated with on-Reserve, federal lands. Connections to municipal infrastructure and roadways would require some level of permitting from York Region or the Town of Georgina (e.g. road access permits).

2. CONSTRAINTS AND OPPORTUNITIES

CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
High	Federal IAA potentially triggered by causeway length. This process may take 4+ years per the most recent guidance from the Canadian Impact Assessment Agency.	• Review project parameters to determine if the causeway can be reduced to less than 400 m in length for any continuous section. • Determine which federal authorities may be involved in terms of permits, authorization or funding. • Consultation with federal authorities to determine the screening requirements or IAA requirements.
Medium	Federal IAA screening.	• Determine which federal authorities may be involved in terms of permits, authorization or funding. • Consultation with federal authorities to determine the screening requirements per section 82 of the IAA.
High	Uncertainty regarding applicability of various Class EA processes. Potentially overlapping jurisdictions.	• Meeting with key agencies to discus the Project and to determine which is the most appropriate EA process to follow. • Key agencies may include, MECP, MNRF, York Region and Town of Georgina.

High	Individual EA Considerations.	• A voluntary Scoped IEA could provide an avenue to complete a comprehensive study that would potentially satisfy all federal, provincial and GIFN defined processes.

3. DATA GAP ANALYSIS

GAP	RATIONALE	REQUIRED STUDIES /INFORMATION *PROJECT PLAN*
Governance Structure, GIFN Land Code	Decision making authority of the First Nation.	• Confirmation if GIFN has the authority to issue guidance for environmental assessment activities, and issue environmental permits/authorization for on-Reserve Lands.
Status of Lands	On-Reserve lands under the authority of GIFN would be subject to GIFN codes and EA processes (if applicable) and potentially federal IAA screening.	• Confirmation of the Reserve status of additional properties on the shoreline. • If these lands are not part of the Reserve, determination if they be added and recognized.
Lake bed ownership	Determination of potential EA pathway/method. If the Lake is owned/administered by MNRF for the Crown, the MNRF RSFD process could apply.	• Confirmation of ownership. • Discussion with MNRF, MECP regarding appropriate EA pathway.
Federal Authorities	If federal agencies provide funding or exercise a power, IAA s82 screening required.	• Confirmation of federal agencies to be involved.

EA Methodology Determination	Determine if the Scoped IEA or a combination of Class EA and federal IAA screening is preferable to GIFN.	• Discussion with GIFN council regarding the advantages and disadvantages of the selected approach to EA methodology, based on the consultations with authorities.

4. PRELIMINARY LIST OF PERMITS, LICENCES, AUTHORIZATIONS OR APPROVALS

Potentially applicable permits, licenses authorizations or approvals are listed below. These will be confirmed during the development process prior to construction.

PERMIT / APPROVAL & AGENCY	ASSOCIATED WORK/REPORT/STUDY	WORK PHASE
Individual Environmental Assessment approvals, provincial MECP	Approval of TOR. Approval of IEA.	Environmental Assessment.
Approval per IAA, federal authority (e.g. CIRNAC)	IAA Environmental Review Process.	Environmental Assessment.
Environmental Approval / Permit, GIFN for works on-Reserve	EA study and others.	Environmental Assessment.
Scientific Collectors Permit, MNRF	Aquatic Studies.	Environmental Assessment, permitting studies.

Lakes and Rivers Improvement Act, provincial MNRF	In-water works on Provincial Crown Land (bridges, causeways, culverts that are not under the jurisdiction of a Conservation Authority). — Location approval. — Plans and specification approval.	Permitting, prior to construction.
Work Permit, *Public Lands Act,* provincial MNRF	Works on public lands.	Permitting, prior to construction.
LSRCA Authorization	Regulated shorelines, wetlands and watercourses.	Permitting, Prior to construction.
Fisheries Act Authorization, DFO	Bridge piers, in-water works.	Permitting, Prior to construction. Typically, 90% design.
Scientific Collectors Permit, MNRF	Fish Rescue.	Construction.
Letter of Advice, Registration, or Overall Benefit Permit per the provincial *Endangered Species Act.*	Required if the Fixed Link will destroy or remove provincial species at risk or critical habitat.	Permitting, prior to construction.
Permit or approvals under the *Species at Risk Act (*SARA), Environment Canada-Canadian Wildlife Service	Required if the Fixed Link will destroy or remove federal Species at Risk (SAR) or critical SAR habitat.	Permitting, prior to construction.
Notification /Authorization per the federal Canadian *Navigation Protection Act*	Required for interference with a navigable water.	Permitting, prior to construction.

Road access permit, York Region or Town of Georgina	Required for connection of the fixed link to the Regional or local road system.	Permitting, prior to construction.

Appendix C Ecology Technical Memorandum

MEMO

TO: The Chippewas of Georgina Island First Nation

FROM: Heather Drost, Senior Ecologist / Project Manager, WSP
Alden Drost, Senior Aquatic Ecologist, WSP
Leanne Wallis, Ecologist, WSP

SUBJECT: **Ecology Screening Memo**

DATE: **May 29, 2020**

BACKGROUND SCREENING TECHNICAL MEMO

ECOLOGY

1.0 INTRODUCTION

WSP Canada Group Limited (WSP) was retained by the Chippewas of Georgina Island First Nation (the Client) to develop a Project Plan for the proposed Fixed Link which would connect Georgina Island with the mainland. The study area encompasses the south west tip of Georgina Island, and a mainland area from just east of Sibbald Point Provincial Park, to just south of Black River Road, and east to Hadden Road. The study area also includes the portion of Lake Simcoe between these two land areas and the Sand Islands. Two proposed Fixed Link alignments have been developed within the study area, as shown on Figure 1. These proposed alignments are preliminary and will be subject to refinements during future study phases.

This technical memorandum provides an overview of the applicable background information and relevant policies for the terrestrial and aquatic environment. The purpose of this memorandum is to identify any designated natural areas, Species at Risk (SAR) habitat, sensitive habitat features, or other ecological features and functions that may be impacted by the future Fixed Link (i.e., potential constraints). Data gaps are also identified, along with recommendations for future studies that are anticipated to be required as the project progresses. A preliminary list of anticipated ecological permits, licences, authorizations and approvals (PLAA) is also included.

This memorandum will be submitted internally and combined with other environmental disciples in one submission to the Client.

This memo documents the following:

- Information Sources;
- Preliminary Constraints;
    - Land Use Designations
    - Fish and Aquatic Habitat

- Species at Risk
- Significant Wildlife Habitat
- Other Constraints
- Summary Table of Constraints

- Information Gap Analysis and Recommended Surveys;
- Preliminary List of Permits, Licences, Authorizations or Approvals;
- Conclusions; and
- References.

2.0 INFORMATION SOURCES

2.1 PLANNING, LEGISLATION AND POLICY DOCUMENTS

The following planning, legislation, and policy documents are relevant to Fixed Link study and relevant sections have been reviewed in the context of the project:

FEDERAL

- Species at Risk Act (Government of Canada 2002)
- Migratory Birds Convention Act (Government of Canada 1994)
- Fisheries Act (Government of Canada 1985)

PROVINCIAL

- Provincial Policy Statement (Ontario Ministry of Municipal Affairs and Housing 2020)
- Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement (Ontario Ministry of Natural Resources 2010)
- Endangered Species Act (Government of Ontario 2007)
- Ontario Regulation 242/08 under Endangered Species Act (Government of Ontario 2008)
- Growth Plan for the Greater Golden Horseshoe (Government of Ontario 2019)
- Greenbelt Plan (Ontario Ministry of Municipal Affairs and Housing 2017)
- Oak Ridges Moraine Conservation Plan (Ontario Ministry of Municipal Affairs and Housing 2017)
- Lake Simcoe Protection Plan (Government of Ontario 2009)
- Lake and Rivers Improvement Act (Government of Ontario 1990)
- Public Lands Act (Government of Ontario 1990)

- Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (Ontario Ministry of Natural Resources and Forestry 2015)

REGIONAL / LOCAL

- York Region Official Plan (Regional Municipality of York 2010, Office Consolidation April 2019)
- Town of Georgina Official Plan (Town of Georgina 2016, Office Consolidation April 2019)
- Georgina, Fox, and Snake Islands Subwatershed Plan (Lake Simcoe Region Conservation Authority 2017)
- Georgina, Fox, and Snake Islands Subwatershed Plan. Implementation Plan 2017-2022 (Lake Simcoe Region Conservation Authority 2017)

For a complete list of information sources consulted, please refer to the References section.

2.2 ONLINE MAPPING RESOURCES

- Lake Simcoe Region Conservation Authority Mapping (LSRCA 2020)
- Land Information Ontario (LIO) Mapping (Government of Ontario 2020)

2.3 ECOLOGICAL STUDIES

The following primary ecological study documents pertinent to the study area were reviewed:

- Georgina Island First Nation 2016 Invasive Species Management Activities (Cambium 2017)
- Wetland Evaluation on Georgina Island 2014 (Toronto Zoo, Adopt-a-Pond Wetland Conservation Programme 2015)
- Georgina Island Spring/Summer Breeding Bird Survey (E.P.D.I. 2015)
- Chippewas of Georgina Island First Nation Nearshore Small Fish Biodiversity (Tremblay 2014)
- Species at Risk Mapping on Georgina Island (Unknown 2014)
- Pre-construction Bat Survey Pukwis Community Wind Park (AET 2010)
- Georgina Island Species at Risk Assessment (Oakridge Environmental 2008)
- Proposed Fixed Link Study - Preliminary Evaluation of Engineering and Environmental Alternatives (Neegan Burnside 2008)
- Chippewas of Georgina Island First Nation, Fish Habitat Management Plan (Anishinabek/Ontario Fisheries Resource Centre 2008 and 2009 versions)
- Lake Simcoe Basin's Natural Capital (Natural Capital Research & Consulting 2008)
- Georgina Island Forest Management Plan 2000-2019 (Neighborhood Environmental Science and Technology 2000)

For a complete list of information sources consulted, please refer to the References section.

3.0 PRELIMINARY CONSTRAINTS

3.1 LAND USE DESIGNATIONS

The previously listed planning and policy documents from the provincial, regional and municipal levels and online mapping resources were reviewed to determine existing natural heritage land use designations within the study area.

The review of relevant designations within the study area are summarized below and mapped on Figure 1, where present:

- Land Information Ontario (LIO) Mapping (2020)
    - Provincially Significant Wetland (PSW) – *Georgina Island Wetland PSW* (See Figure 1).
    - Area of Natural or Scientific Interest (ANSI) – *not present in study area.*
    - Environmentally Significant Area (ESA) – *not present in study area.*
    - Watercourses – *three watercourses within the mainland study area are classified as warmwater fish habitat. A fourth watercourse on the island is not classified* (See Figure 1).
    - Significant Wildlife Habitat - Deer Wintering Area (Stratum 2) – *present in the study area on the mainland* (See Figure 1).
- Oak Ridges Moraine Conservation Plan (2017) – *not present in study area.*
- York Region Official Plan (2010, Office Consolidation April 2019).
    - Georgina Island and Sand Islands
        - Regional Greenlands System – *no land use designations are mapped For Georgina Island and the Sand Islands.*
    - Mainland
        - Regional Greenlands System – *present in most of the mainland study area* (refer to ROP Map 2).
        - Woodlands – *present in parts of the mainland study area (refer to ROP Map 5).*

          Note: Per the ROP, Map 5 identifies woodlands in York Region based on best available information and data. The determination of woodland significance will rely on site-specific studies per policies 2.2.45 and 2.2.48 of the Plan.
        - Wetlands – Evaluated, Other – *present (three shoreline wetlands between Lee Farm Lane and Doyle Beach Lane (refer to ROP Map 4; also mapped on Figure 1).*
- Town of Georgina Official Plan (2016, Office Consolidation April 2019)
    - Georgina Island and Sand Islands
        - Georgina Island – *no land use designations are mapped for Georgina Island (refer to Town OP Schedule A2).*

        - Sand Islands – *designated Environmental Protection Area (refer to Town OP Schedule A2).*
    - Mainland
        - Environmental Protection Area – *present within majority of mainland study area (refer to Town OP Schedule A2).*
        - Agricultural Protection Area – *present with a portion of the study area south of Black River Road and west of the hamlet of Virginia (refer to Town OP Schedule A2).*
        - Rural Area – *present within a portion of the study area from just west of Bayvista Lane to a point east of Lee Farm Lane and north of Black River Road (refer to Town OP Schedule A2).*
        - Hamlet – *the east portion of the study area is within the hamlet of Virginia (refer to Town OP Schedule A2).*
        - Hazard Land – *shoreline areas and Lake Simcoe tributaries (refer to Town OP Schedule C). Hazard Land includes floodplain, meander belt, steep slopes, and areas of wave uprush.*
- Greenbelt Plan (2017)
    - Georgina Island and Sand Islands – *outside of Greenbelt Plan Area*
    - Mainland – *within Greenbelt Plan Area* (See Figure 1).
        - *mapped as Protected Countryside.*
- Lake Simcoe Region Conservation Authority Regulated Area
    - Georgina Island and Sand Islands – *outside of regulated area.*
    - Mainland – *portions of the mainland study area are within the regulated area (Lake Simcoe shoreline, tributaries of Lake Simcoe, etc. See Regulation Limit mapping on LSRCA website).*
- Growth Plan for the Greater Golden Horseshoe (2019)
    - Georgina Island and Sand Islands – *outside of the Growth Plan for the Greater Golden Horseshoe Area.*
    - Mainland – *within the Growth Plan for the Greater Golden Horseshoe Area.*
- Lake Simcoe Protection Plan (2009)
    - *All of the study area (including Lake Simcoe) is within the Lake Simcoe Protection Area.*

3.2 FISH AND AQUATIC HABITAT

3.2.1 Existing Conditions

The main aquatic feature within the study area is Lake Simcoe, which provides fish habitat for a range of coldwater, coolwater and warmwater fish species. Background information indicates a total of 58 species have been documented in the Lake Simcoe watershed. Coldwater species (e.g., Lake Trout, Lake Whitefish, Lake Herring and Rainbow Smelt) are frequently caught north of the Georgina Island and are not typically found along the southern shoreline. A warm water to cool water fishery generally exists north of mainland shoreline between Duclos Point, south-west to Sibbald Point and south of Georgina Island. Also, the south shoreline of Georgina Island is known to contain Muskellunge spawning and nursery habitat as well as Northern Pike spawning habitat (Anishinabek/Ontario Fisheries Resource Centre 2009). The study area also includes three warmwater tributaries of Lake Simcoe on the mainland, and one tributary on the island. These aquatic features are mapped on Figure 2.

3.2.2 Fisheries Act

As the project progresses, it will require a detailed level of review by the Department of Fisheries and Oceans (DFO) under the Fisheries Act. The first step of this process would be submission of a Request for Review (RfR) form for their review. This form will advise the agency of the proposed works, the location of the works, description of the fish habitat and the potential effects of the proposed project on fish and fish habitat as well as mitigation measures and residual / harmful effects. It is recommended to submit the form as soon as possible following the project initiation to ensure early involvement and consultation with DFO.

It is anticipated DFO's review of the RfR, will determine that Authorization under the Fisheries Act will be required. An Application for Authorization will then be required as well as offsetting measures to offset the project effects on fish and fish habitat.

On August 28, 2019, changes were made to the Fisheries Act that strengthened fish and fish habitat protection provisions, as well as regulations that support these provisions.

These changes include:

- protection for all fish and fish habitats;
- restoring the previous prohibition against the "harmful alteration, disruption or destruction of fish habitat"; and,
- restoring a prohibition against causing "the death of fish by means other than fishing".

Some key considerations for proponents are outlined in the Fish and Fish Habitat Protection Policy Statement (August 2019) as follows:

Works, undertakings, or activities taking place in or near water may harmfully impact fish or fish habitat.

Proponents of these activities should:

- understand the types of harmful impacts their works, undertakings, or activities are likely to cause;

- take measures to avoid harmful impacts, including following relevant standards, codes of practice, or regulations; and
- request an exception to the section 34.4 and 35 prohibitions from the Minister when it is not possible to avoid harmful impacts to fish and fish habitat, and abide by the conditions of any such exception. In most cases, this exception would be in the form of Ministerial authorizations granted to proponents under the Authorizations Concerning Fish and Fish Habitat Protection Regulations.

Furthermore, the Fish and Fish Habitat Protection Policy Statement (August 2019) states that the Government of Canada is committed to a renewed, nation-to-nation, Inuit-Crown and government-to-government relationship based upon the recognition of rights, respect, cooperation and partnership. To support this commitment, the Fisheries Act includes the:

- requirement for the Minister to consider the adverse effects that decisions made under the Act may have on the rights of the Indigenous peoples of Canada recognized and affirmed by section 35 of the *Constitution Act*, 1982 (Section 2.4 of the Fisheries Act);
- requirement for the Minister to consider, when making certain decisions related to the fish and fish habitat protection (and pollution prevention) provisions of the Act, the Indigenous knowledge of the Indigenous peoples of Canada that has been provided to the Minister (34.1(1) (g) of the *Fisheries Act*); and
- requirement to protect the confidentiality of Indigenous knowledge that is provided to the Minister in confidence, except under limited circumstances (subsection 61.2 (1) of the *Fisheries Act*).

The *Fisheries Act* includes provisions for the Minister to delegate his or her authority to an Indigenous governing body and to enter into agreements with Indigenous governing bodies to further the purposes of the *Fisheries Act* (section 4.1).

3.3 SPECIES AT RISK (SAR)

Species at Risk (SAR) refer to species that are 'designated' by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and/or listed under the federal Species at Risk Act (SARA 2002) and species 'designated' by the Committee on the Status of Species at Risk in Ontario (COSSARO), including those [Endangered and Threatened] species listed and regulated under the provincial Endangered Species Act (ESA 2007).

3.3.1 SAR Records and SAR with Potential to Occur within the Study Area

WSP conducted a background review for records of SAR known to use the study area as habitat. Results of this background review are provided below:

- Three (3) SAR records have been recorded in the study area (END and THR species only):
    - Two (2) Avian SAR (Least Bittern [Fed: THR; Prov: THR], Barn Swallow [Fed: THR; Prov: THR]):
        - **Least Bittern** (Fed: THR; Prov: THR) may have nested in the marsh (wetland neM6) in the 1980's. Appropriate nesting habitat still exists; however, noise levels and recreational boating activity may

influence the presence of nesting birds at this location (Varga 1998; Toronto Zoo 2015) (See Figure 2).

        - **Barn Swallow** (Fed: THR; Prov: THR) has been recorded nesting on structures at the ferry dock and foraging over the shoreline and marsh areas at the south end of Georgina Island (E.P.D.I. 2015) (See Figure 2).

    - One (1) SAR Reptile (Blanding's Turtle):

        - **Blanding's Turtle** (Fed: THR; Prov: THR) is reported to "frequent" the marsh (wetland neM6) based on NHIC data, personal communications with Ellie Big Canoe and Kerry-Ann Charles, and through traditional knowledge among the island's community members (Toronto Zoo 2015) (See Figure 2).

- Twelve (12) SAR have been identified as having *potential* to use the study area as habitat (END and THR species only), though some have very low likelihood. This preliminary SAR habitat assessment is based on review of the background sources cited in the References section, cross-referenced with known habitat within the study area. Additional ecological studies within the study area and further SAR habitat assessment may identify the potential for additional SAR to be present. The twelve (12) species that have currently been identified as having *potential* to occur include:

    - Three (3) Birds (**Bank Swallow** [Fed: THR; Prov: THR], **Cerulean Warbler** [Fed: END; Prov: THR], **Acadian Flycatcher** [Fed: END; Prov: END]);

    - Two (2) Reptiles and Amphibians (**Spotted Turtle** [Fed: END; Prov: END], **Eastern Hog-nosed Snake** [Fed: THR; Prov: THR]);

    - Five (5) Mammals (**Little Brown Bat** [Fed: END; Prov: END], **Northern Long-eared Bat** [Fed: END; Prov: END], **Eastern Small-footed Bat** [Fed: Not at Risk; Prov: END], **Tri-coloured Bat** [Fed: END; Prov: END], **Grey Fox** [Fed: THR; Prov: THR]); and

    - Two (2) Vascular Plants (**Butternut** [Fed: END; Prov: END], **American Ginseng** [Fed: END; Prov: END]).

Three (3) of these SAR with *potential* to occur in the study area have been reported from Georgina Island, outside of the study area (Butternut, American Ginseng, Tricoloured Bat). Additional bat calls were recorded during surveys conducted on the north end of the island in 2008 that could not be identified to the species level, but were identified to genus (*Myotis sp.*) Little Brown Bat, Northern Long-eared Bat and Eastern Small-footed Bat are in the *Myotis* genus. (AET, 2010).

No aquatic SAR have been identified within the study area (LSRCA 2017; DFO SAR Mapping 2020).

3.3.2 Federal Species at Risk Act (SARA)

The federal Species at Risk Act (SARA) incorporates several prohibitions to protect individuals of listed threatened, endangered or extirpated Species at Risk (per Schedule 1 of SARA), including:

- *Section 32(1). No person shall kill, harm, harass, capture or take an individual of a Threatened, Endangered or Extirpated species.*
- *Section 32(2). No person shall possess, collect, buy, sell or trade an individual of a Threatened, Endangered or Extirpated species, or any part or derivative of such an individual.*
- *Section 33. No person shall damage or destroy the residence of one or more individuals of a Threatened or Endangered species, or of an Extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.*
- *Section 58. No person shall destroy any part of the critical habitat of any listed Endangered species or of any listed Threatened species – or of any listed Extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.*

Per Section 34, Section 58 and Section 61, these prohibitions apply to:

1. *Aquatic species – on any lands (federal and non-federal);*
2. *Species of migratory birds protected by the Migratory Birds Convention Act – on any lands;*
3. *Any listed wildlife species – when on federal lands; and*
4. *Any listed wildlife species – when on non-federal lands, if recommended by the Minister of the Environment to the Governor in Council.*

Projects that may impact the habitat of endangered and threatened species directly or indirectly may require federal approval or permitting to remain in compliance with SARA.

3.3.3 Provincial Endangered Species Act (ESA)

All species listed as threatened or endangered under the ESA receive legal protection from being killed, harmed, or harassed. In addition, when a species is listed as threatened or endangered under the ESA, their "general habitat" is automatically protected; this includes areas the species depends on for breeding, rearing, feeding, hibernation and migration. For species with an approved Recovery Strategy, a specific habitat regulation as described in the Recovery Strategy will be applied. Species listed as special concern, do not receive legal protection under the ESA; however, these are defined as species that are "not endangered or threatened, but may become threatened or endangered because of a combination of biological characteristics and identified threats" and therefore, are recommended to be included when assessing natural heritage impacts and mitigation measures.

Projects that may impact the habitat of endangered and threatened species directly or indirectly may require provincial approval or permitting to remain in compliance with the ESA and its supporting regulations (Ontario Regulations 230/08 and 242/08).

3.4 SIGNIFICANT WILDLIFE HABITAT (SWH)

Significant Wildlife Habitat (SWH) is identified by MNRF or other relevant planning authorities. As outlined in their Significant Wildlife Habitat Technical Guide (OMNR, 2000), SWH is broadly categorized as:

- Seasonal concentration areas (e.g., conifer forests for deer wintering);
- Rare vegetation communities or specialized habitats for wildlife;
- Habitats of species of conservation concern, excluding the habitats of endangered and threatened species; and
- Animal movement corridors.

A *Deer Wintering Area* (i.e., a seasonal concentration area for wildlife) is located in the study area, on the mainland (See Figure 1). This SWH feature has been identified by the MNRF and mapped in the provincial LIO database.

A preliminary SWH screening assessment was conducted as part of the Information Gap Analysis (refer to Section 4) and is based on a review of the background sources cited in the References section, cross-referenced with known habitat within the study area. This process identified information gaps and identified recommended future ecological studies to assess potential SWH. The review of potential SWH in the study area has been based on evaluation criteria in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNRF, 2015) as well as the Significant Wildlife Habitat Mitigation Support Tool (MNRF, 2014).

3.5 OTHER POTENTIAL CONSTRAINTS

3.5.2 Key Natural Heritage Features and Key Hydrologic Features, Region of York Official Plan (2010)

Per Section 2.2 of the Regional Official Plan, key natural heritage features and key hydrologic features and functions within York Region are to be 'protected and enhanced where possible' (Regional Municipality of York 2019). Key natural heritage features and key natural hydrologic features within York Region include:

a) Significant habitat of endangered and threatened species;
b) Fish habitat;
c) Wetlands;
d) Life Science Areas and Earth Science Areas of Natural and Scientific Interest;
e) Environmentally Significant Areas;
f) Significant valleylands;
g) Significant woodlands;
h) Significant wildlife habitat;
i) Sand barrens, savannahs and tallgrass prairies;
j) Lakes and littoral zones;
k) Permanent and intermittent streams;
l) Kettle lakes;
m) Seepage areas and springs deemed vulnerable or sensitive surface water features; and

n) Lake Simcoe shoreline.

Key natural heritage features and key hydrologic features (e.g., wetlands, Life Science and Earth Science Areas of Natural and Scientific Interest, Environmentally Significant Areas, and kettle lakes) are shows on Map 3 and 4 of the Regional OP with the remaining key natural heritage features and key hydrologic features to be identified during site-level assessments in accordance with criteria contained within the Regional OP, or, where Regional criteria is not provided, using procedures established by the Province, where applicable.

Review of the Fixed Link project in relation to the Regional OP may be required at future project phases.

3.6 SUMMARY OF CONSTRAINTS

The previous sections outlined a number of potential ecological constraints within the Fixed Link study area. Each constraint has been assigned a qualitative category of potential risk (i.e., Low, Medium, High). The implications of each constraint, and recommendations to address the constraints are identified in the summary table below. These preliminary constraints have been assigned based on the following general criteria:

LOW CONSTRAINT – other natural areas (not designated, disturbed); low constraint areas are generally very tolerant of disturbance and/or impacts can easily be address through standard mitigation measures.

MEDIUM CONSTRAINT – provincially designated areas (e.g., Greenbelt Protected Countryside), lands with regional designations, lands with potential SAR habitat (unconfirmed); medium constraint features are generally tolerant of disturbance and/or impacts can be managed through mitigation measures.

HIGH CONSTRAINT – provincially designated *natural* areas (e.g., PSW) and lands for which permitting is likely required (e.g., confirmed SAR habitat, specialized fish habitat); high constraint features are sensitive to disturbance, require permitting and may require more extensive mitigation and/or compensation to address potential impacts.

Table 1: Summary Table of Preliminary Constraints

CATEGORY	CONSTRAINT AND IMPLICATIONS	RECOMMENDATIONS
High	**Provincially Significant Wetlands** Provincially Significant Wetlands are present at the southwest tip of Georgina Island. Permitting and/or compensation may be required per MNRF and/or LSRCA policies.	• Avoid where possible. • Early consultation with MNRF and LSRCA to determine permitting, mitigation and/or compensation requirements resulting from potential direct and indirect impacts.

CATEGORY	CONSTRAINT AND IMPLICATIONS	RECOMMENDATIONS
High	**Fish Habitat / Sensitive Fish Habitat** Fish and aquatic habitat within the study area includes: Lake Simcoe, three warmwater tributaries of Lake Simcoe (on the mainland), and one tributary on the island. There is also Muskellunge and Northern Pike spawning habitat and nursery areas found in Lake Simcoe along the south shoreline of Georgina Island. Construction of the Fixed Link will require review and approval by DFO under the Fisheries Act.	• Avoid sensitive areas for fish where possible (e.g., spawning and nursery areas). • Additional fish and aquatic habitat assessment studies should be completed along the proposed alignments, to identify type of fish habitat present and any sensitive areas that may require protection and/or mitigation (e.g., spawning areas). • Consult with DFO early in the process.
High	**Species at Risk (confirmed habitat)** SAR are known to be present within the wetlands at the southwest tip of Georgina Island. Additional SAR and SAR habitat may be confirmed during future ecological studies to address data gaps. May require ESA and/or SARA approvals.	• Avoid where possible. • Complete additional SAR habitat assessment and ecological surveys within the study area according to accepted seasonal timing windows and protocols. • Consult with MECP early in the process.
Medium	**Species at Risk (potential habitat)** Potential habitat for additional SAR has been identified based on a review of background information. May require ESA and/or SARA approvals.	• Avoid where possible. • Additional studies and a SAR habitat screening required to refine the assessment of potential habitat. • May require targeted surveys to confirm species presence/absence. • Consult with MECP early in the process.
Medium	**Significant Wildlife Habitat** Deer Wintering Area (stratum 2) is mapped on the mainland within the study area. Additional SWH may be identified during future ecological studies. SWH is protected under the Provincial Policy Statement (PPS).	• Avoid where possible. • Determine policy implications under the PPS for GIFN. • Additional ecological studies recommended to fully assess SWH potential in the study area.

CATEGORY	CONSTRAINT AND IMPLICATIONS	RECOMMENDATIONS
Medium	**Regional Greenlands System** Regional Greenlands are present on the mainland. May require review and approval by York Region.	• Avoid where possible. • Consult with York Region to determine regional policy implications for GIFN.
Medium	**Key Natural Heritage Features (KNHF) and Key Hydrologic Features (KHF)** A preliminary list of KNHF and KHF relevant to the study area, include: significant habitat of endangered and threatened species, fish habitat, wetlands, significant woodlands, significant wildlife habitat, lakes and their littoral zones, permanent and intermittent streams, seepage areas and springs deemed vulnerable or sensitive, surface water features, and Lake Simcoe shoreline. May require review and approval by York Region.	• Avoid where possible. • Ecological field studies (e.g., Ecological Land Classification, botanical inventory, breeding bird surveys, SWH and SAR assessment, aquatic habitat assessment) to determine designation as a KNHF or KHF should be completed at future study phases. • Consult with York Region to determine regional policy implications for GIFN.
Medium	**Woodlands / Significant Woodlands** Woodlands are present on the mainland and on the island. Significant Woodlands, as identified in the Regional OP, are considered key natural heritage features and in general, receive protection from development and/or site alteration. May require review and approval by York Region.	• Avoid where possible. • Ecological field studies (e.g., Ecological Land Classification, botanical inventory, breeding bird surveys, SWH and SAR assessment) to determine woodland significance should be completed at future study phases. • Consult with York Region to determine regional policy implications for GIFN.
Medium	**Wetlands (non-PSW)** Wetlands (non-PSW) are present on the mainland. Wetlands are regulated by the LSRCA. Development and/or site alteration within a wetland or its proximity requires approval from LSRCA. Compensation to address impacts may be required.	• Avoid where possible. • Consult with LSRCA to determine policy implications for GIFN.
Low	**Greenbelt Plan Area** Protected Countryside is present on the mainland.	• Consult with the Government of Ontario to determine policy implications for GIFN.

4.0 INFORMATION GAP ANALYSIS AND RECOMMENDED SURVEYS

Based on the background data review, the following ecological data gaps have been identified. Further studies are recommended and may be required to identify additional features and functions that may be impacted by the proposed works.

Table 2: Table of Information Gaps, Rationale, and Recommended Surveys

GAP	RATIONALE / RECOMMENDED SURVEYS
SAR HABITAT ASSESSMENT AND SAR SURVEYS	
SAR HABITAT SCREENING • SAR Habitat Assessment based on ELC and SAR known to be present in the general area.	A number of SAR are known to be present on the island and mainland and have potential to occur within the study area. • A SAR habitat screening to determine if additional SAR surveys should be completed. Additional survey requirements to be determined in consultation with MECP and the GIFN.
SAR BATS • Identification of SAR bat habitat. • Bat Maternity Colonies (SWH).	Four bat species are SAR in Ontario. Bat acoustic surveys at the north end of Georgina Island (AET 2010) identified bat species as present on the island. • Vegetation clearing may impact SAR bat habitat or SWH (Bat Maternity Colonies). • Bat acoustic, visual and/or roost surveys recommended to identify SAR habitat and significant wildlife habitat. Requirements to be determined in consultation with MECP and GIFN.
BUTTERNUT • Identification of SAR Butternut trees. • Butternut Health Assessment (if identified in the study area during botanical surveys).	Butternut is not known to be present within the study area, however, it has been recorded elsewhere on Georgina Island. • Vegetation clearing may impact this SAR. • General botanical surveys recommended, if Butternut is present in the study area, it is recommended that the trees undergo a Butternut Health Assessment by a provincially-certified Butternut Health Assessor. Removal of butternut trees may require submission of the Butternut Health Assessment and approval from MECP.
SIGNIFICANT WILDLIFE HABITAT SURVEYS	
AMPHIBIANS AND REPTILES • Turtle Wintering Areas	Previous studies have identified SAR herpetofauna (amphibian and reptile) species within the study area and elsewhere on Georgina Island. Amphibian breeding surveys would identify any critical breeding locations. Snake and

• Turtle Nesting Areas • Reptile Hibernaculum • Amphibian Breeding Habitat (Woodland) • Amphibian Breeding Habitat (Wetland) • Amphibian Movement Corridors	turtle surveys would identify any overwintering areas, as well as turtle nesting areas. In addition, surveys would identify locations and general habitat use of SAR herpetofauna. • Vegetation clearing and in-water works may impact SAR, SAR habitat and SWH. • Amphibian breeding call surveys, and targeted reptile surveys are recommended to identify SAR habitat and significant wildlife habitat.
BIRDS • Waterfowl Stopover and Staging Areas (aquatic) surveys • Shorebird Migratory Stopover Areas • Colonial Bird Nesting Habitat (Ground) • Waterfowl Nesting Area • Marsh Breeding Bird Habitat • Bald Eagle and Osprey Nesting, Foraging and Perching Habitat • Woodland Area-Sensitive Bird Breeding Habitat (if needed) • Woodland Raptor Nesting Habitat (if needed) • Raptor Overwintering Areas (if needed)	Concentrations of waterfowl were noted in the vicinity of the Sand Islands. Osprey were recorded at the south tip of Georgina Island, and around the Sand Islands. The E.P.D.I. survey focused on land birds, with only incidental observations of waterfowl and shorebirds. (E.P.D.I., 2015). Bald Eagles have been reported nearby from Fox Island (LSRCA 2017). • Vegetation clearing and in-water works may impact SAR and SWH. • Surveys of wetlands and aquatic areas within the study area are recommended (particularly the Sand Islands and the marshes to the west of the ferry dock). • A breeding bird survey of woodland area-sensitive birds, woodland raptor nesting habitat, and raptor overwintering areas are recommended only if sufficient detail is not present in the E.P.D.I., 2015 report (or other available sources) to assess whether the woodlands provide significant wildlife habitat for woodland area-sensitive breeding birds.
OTHER SWH SURVEYS • Terrestrial Crayfish • Seeps and Springs • Special Concern and Rare Wildlife Species	These surveys can be conducted concurrently with botanical and wildlife surveys. • Vegetation clearing and in-water works may impact SAR and Significant Wildlife Habitat.
GENERAL ECOLOGICAL SURVEYS	
Ecological Land Classification (ELC) / Vegetation Inventory (two season)	There is some high-level vegetation mapping for Georgina Island. There is potential for rare vegetation communities to be present, and these areas could be considered SWH therefore additional surveys following ELC protocols

	should be completed. As some beaches are considered rare vegetation types, the surveys should include the full study area including the Sand Islands. In addition, while some vascular plant species are known from Georgina Island, a detailed vegetation (botanical) inventory for the complete study area is not known to exist. • Vegetation clearing and in-water works may impact SAR and SWH. • ELC vegetation mapping of the complete study area, as well as a concurrent vegetation inventory (two season – spring/summer).
Fisheries and Aquatic Habitat Assessment	There is some existing fish inventory and aquatic habitat assessment information available from the existing background studies. • In-water works will impact fish habitat. • Additional fish inventory surveys and/or aquatic habitat assessments will be required in the immediate vicinity of the proposed alignments. • Updated and/or additional fish inventory surveys and/or aquatic habitat assessments will assist in identifying sensitive areas (e.g., spawning areas) that require protection and/or mitigation and will assist DFO in their review.

5.0 PRELIMINARY LIST OF PERMITS, LICENCES, AUTHORIZATIONS AND APPROVALS

Construction of the Fixed Link will require review and approval from various regulatory agencies. A preliminary list of permits, licences, authorizations and approvals that may be required, as well as the associated work, and work phase, can be found below.

Table 3: Table of Preliminary Permits, Licences, Authorizations and Approvals

PERMIT / APPROVAL & AGENCY	ASSOCIATED WORK	WORK PHASE
Licence to Collect Fish for Scientific Purposes, MNRF	Fisheries and Aquatic Habitat Studies / Assessments.	Data collection, prior to fish inventory surveys.
Licence to Collect Fish for Scientific Purposes, MNRF	Fish Rescue.	Construction.
Navigable Waters Protection Act, Authorization for Works Affecting Navigable Waters, Transport Canada	Bridge piers and / or causeway, in-water works.	Prior to construction.

PERMIT / APPROVAL & AGENCY	ASSOCIATED WORK	WORK PHASE
Fisheries Act Authorization, DFO	Bridge piers and / or causeway, in-water works.	Prior to construction.
Species at Risk Act, Authorization, Environment Canada	Bridge piers and / or causeway, in-water works, terrestrial works.	Prior to construction.
Endangered Species Act, ESA Registrations, Overall Benefit Permits, Letters of Advice, MECP	Bridge piers and / or causeway, in-water works, terrestrial works.	Prior to construction.
Lake and Rivers Improvement Act, Authorization, MNRF	Bridge piers and / or causeway, in-water works.	Prior to construction.
Public Lands Act, Authorization, MNRF	Bridge piers and / or causeway, in-water works.	Prior to construction.
Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 179/06), Authorization, LSRCA	Bridge piers and / or causeway, in-water works, terrestrial works.	Prior to construction.

In addition, construction activities have the potential to impact breeding birds that are of species protected under the Migratory Birds Convention Act (MBCA) and its regulations. Avoiding activities during the active season (April 1 to August 31) greatly reduces the potential for contravening the Act and its regulations. It is recommended that building removals, tree removals or vegetation clearing be conducted outside of the active breeding bird season, and where that is not possible, that a qualified avian biologist conduct a due-diligence nest search (in simple habitats', defined by Environment and Climate Change Canada) to reduce the potential of the works contravening the Act.

6.0 CONCLUSIONS

A number of ecological studies have been conducted on Georgina Island and within the Lake Simcoe watershed and those that were available to WSP have been reviewed as part of this background screening and preliminary constraints analysis. These background resources, combined with available online natural heritage information, provided valuable information on known terrestrial and aquatic conditions, including the presence of SAR and potential SWH within the study area. In addition, a review of planning, legislation and policy documents was completed to inform the preliminary constraints determination. The preliminary constraints identified will inform the development of future Fixed Link alignment.

As the regulatory environment is constantly evolving (as new policy documents are released, and as species are designated as At Risk or removed from these lists, etc.), the requirements placed on proponents shifts accordingly. For example, Ontario now has four SAR bats, whose numbers are in decline from White-nosed Syndrome, an introduced fungus that often is fatal to bats and was first discovered in Ontario in 2010 (OMNRF, 2015). Accordingly, as part of the background review, WSP has identified bat surveys as an information gap and recommended future surveys. Additional recommended surveys include Ecological Land Classification (ELC), botanical inventory, fish and aquatic habitat assessment, SAR habitat screening / surveys, and a SWH assessment.

This technical memorandum also includes a preliminary list of permits, licences, authorizations, and approvals that may be required from various regulatory agencies. Potential permitting will be dependent on the confirmation of existing conditions through future ecological surveys, the anticipated impacts of the future Fixed Link alignment, and the recommended mitigation measures. Consultation with regulatory agencies is recommended to occur early in the process to determine anticipated permitting requirements.

This background review supports the development of a Project Plan for the proposed Fixed Link to connect Georgina Island with the mainland.

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Appendix A

Figures

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Georgina Island Wetland

Lake Simcoe

SIBBALD POINT PROVINCIAL PARK (RECREATIONAL CLASS)

Virginia Beach Wetland Complex

BLACK RIVER ROAD

HADDEN ROAD

N

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Study Area
- Reserve Lands (LIO)
- Other GIFN Property
- Bayvista Property
- Proposed Alignment 1
- Proposed Alignment 2
- Provincial Park (LIO)
- Deer Wintering Area (Stratum 2) (LIO)
- Road (LIO)
- Greenbelt Policy Area (LIO)
- Non-Provincial Significant Wetlands (NPSW, LIO)
- Provincially Significant Wetlands (PSW, LIO)
- Watercourse (LIO)
- Warmwater Watercourse (LIO)

FIGURE 1
GEORGINA ISLAND FIXED LINK
Designated Natural Areas

0 250 500
Meters
1:12,000

Project No.: 19M-01346-00
Date Created: 20/05/2020
Date Modified: May 28, 2020
Coordinate System: NAD 1983 UTM Zone 17N
Source: York Region, GeoHub (LIO), ESRI Basemaps, WSP

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Lake Simcoe

BLACK RIVER ROAD

HADDEN ROAD

N

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Study
- Reserve Lands (LIO)
- Other GIFN Property
- Bayvista Property
- Proposed Alignment
- Proposed Alignment
- Road
- Watercourse (LIO)
- Warmwater Watercourse

Potential SAR Habitat

- Blandings Turtle (*Emydoidea blandingii*, THR), Snapping Turtle (*Chelydra serpentina*, SC), Barn Swallow (*Hirundo rustica*, THR) (Toronto Zoo, 2015; E.P.D.I., 2015)
- Blandings Turtle (*Emydoidea blandingii*, THR), Snapping Turtle (*Chelydra serpentina*, THR), Least Bittern (*Ixobrychus exilis*, THR) (Toronto Zoo, 2015)
- Muskellunge Spawning and Nursery Area (Anishinabek/Ontario Fisheries Resource Centre, 2009)
- Northern Pike Spawning Area (Anishinabek/Ontario Fisheries Resource Centre, 2009)

Georgina Island Wetland Types (Toronto Zoo, 2015)

- hS4 Silver Maple Swamp with Prominent Lake Sedge Layer
- neM2 Lake Sedge Marsh with Prominant Cattail Layer
- neM6 Soft Stemmed Bulrush Marsh
- reM4 Cattail Marsh with Prominent Purple Loosestrife Layer
- suW7 Pondweed Open Water Marsh

FIGURE 2
GEORGINA ISLAND FIXED LINK
Existing Aquatic and Terrestrial Features

0 250 500
Meters
1:12,000

Project No.: 19M-01346-00
Date Created: 20/05/2020
Date Modified: May 28, 2020
Coordinate System: NAD 1983 UTM Zone 17N
Source: York Region, GeoHub (LIO), ESRI Basemaps, WSP

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Georgina Island Wetland

Lake Simcoe

SIBBALD POINT PROVINCIAL PARK (RECREATIONAL CLASS)

Virginia Beach Wetland Complex

BLACK RIVER ROAD

HADDEN ROAD

N

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Study Area
- Reserve Lands (LIO)
- Other GIFN Property
- Bayvista Property
- Proposed Alignment 1
- Proposed Alignment 2
- Provincial Park (LIO)
- Deer Wintering Area (Stratum 2) (LIO)
- Road (LIO)
- Greenbelt Policy Area (LIO)
- Non-Provincial Significant Wetlands (NPSW, LIO)
- Provincially Significant Wetlands (PSW, LIO)
- Watercourse (LIO)
- Warmwater Watercourse (LIO)

FIGURE 1
GEORGINA ISLAND FIXED LINK
Designated Natural Areas

0 250 500
Meters
1:12,000

Project No.: 19M-01346-00
Date Created: 20/05/2020
Date Modified: May 28, 2020
Coordinate System: NAD 1983 UTM Zone 17N
Source: York Region, GeoHub (LIO), ESRI Basemaps, WSP

L:\Projects\2019\01346_00_ChippewaGeorgina\19M_01346_00_ChippewaGeorgina_OtherData_202005.mxd

Lake Simcoe

BLACK RIVER ROAD

HADDEN ROAD

N

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Study
- Reserve Lands (LIO)
- Other GIFN Property
- Bayvista Property
- Proposed Alignment
- Proposed Alignment
- Road
- Watercourse (LIO)
- Warmwater Watercourse

Potential SAR Habitat

- Blandings Turtle (*Emydoidea blandingii*, THR), Snapping Turtle (*Chelydra serpentina*, SC), Barn Swallow (*Hirundo rustica*, THR) (Toronto Zoo, 2015; E.P.D.I., 2015)
- Blandings Turtle (*Emydoidea blandingii*, THR), Snapping Turtle (*Chelydra serpentina*, THR), Least Bittern (*Ixobrychus exilis*, THR) (Toronto Zoo, 2015)
- Muskellunge Spawning and Nursery Area (Anishinabek/Ontario Fisheries Resource Centre, 2009)
- Northern Pike Spawning Area (Anishinabek/Ontario Fisheries Resource Centre, 2009)

Georgina Island Wetland Types (Toronto Zoo, 2015)

- hS4 Silver Maple Swamp with Prominent Lake Sedge Layer
- neM2 Lake Sedge Marsh with Prominant Cattail Layer
- neM6 Soft Stemmed Bulrush Marsh
- reM4 Cattail Marsh with Prominent Purple Loosestrife Layer
- suW7 Pondweed Open Water Marsh

FIGURE 2
GEORGINA ISLAND FIXED LINK
Existing Aquatic and Terrestrial Features

0 250 500
Meters
1:12,000

Project No.: 19M-01346-00
Date Created: 20/05/2020
Date Modified: May 28, 2020
Coordinate System: NAD 1983 UTM Zone 17N
Source: York Region, GeoHub (LIO), ESRI Basemaps, WSP

Appendix D Traffic Technical Memorandum

MEMO

TO: SUE OLGUIN
ANDREW ROBERTS
CHRISTINE FURTADO

FROM: David Lukezic, M.Eng., LEL, RPP, Project Manager

SUBJECT: Technical Memo - (Transportation, Traffic)

DATE: May 28, 2020

1. BACKGROUND DATA - TECHNICAL MEMO

BACKGROUND INFORMATION REVIEW

WSP reviewed the following reports / documents:

- Georgina Island Fixed Link Study Community Visioning Workshop Summary Report, prepared by WSP February 7, 2020;
- Georgina Island Fixed Link, Opportunities and Constraints Figure, prepared by WSP, May 21, 2020;
- Proposed Fixed Link Study – Preliminary Evaluation of Engineering and Environmental Alternatives Chippewas of Georgina Island First Nation, prepared by R. J. Burnside & Associates Limited, January 2008;
- Town of Georgina Official Plan, December 2016; and
- The Regional Municipality of York Transportation Master Plan, November 2016.

The Fixed Link is proposed to include the construction of a permanent land-based access route from the mainland to the shoreline of Georgina Island. There is currently a ferry service, known as the Aazhaawe Ferry, between the island and mainland which would be replaced by this proposed Fixed Link. The socio-economic benefits of this Link are manifold but its primary objective would be to increase the speed, efficiency and reliability of the movement of people and goods between the island and mainland.

Community engagement workshops with Chippewas of Georgina Island First Nation (GIFN) leadership, staff and community members were summarized by WSP in a *Community Visioning Workshop Summary Report*. From a transportation standpoint, the report sets outs the vision of the workshop attendees for the Fixed Link to:

- preferably be a combination of a bridge and causeway;
- have a two-lane cross-section with one lane in each direction;
- incorporate a multi-use path for cyclists and pedestrians;

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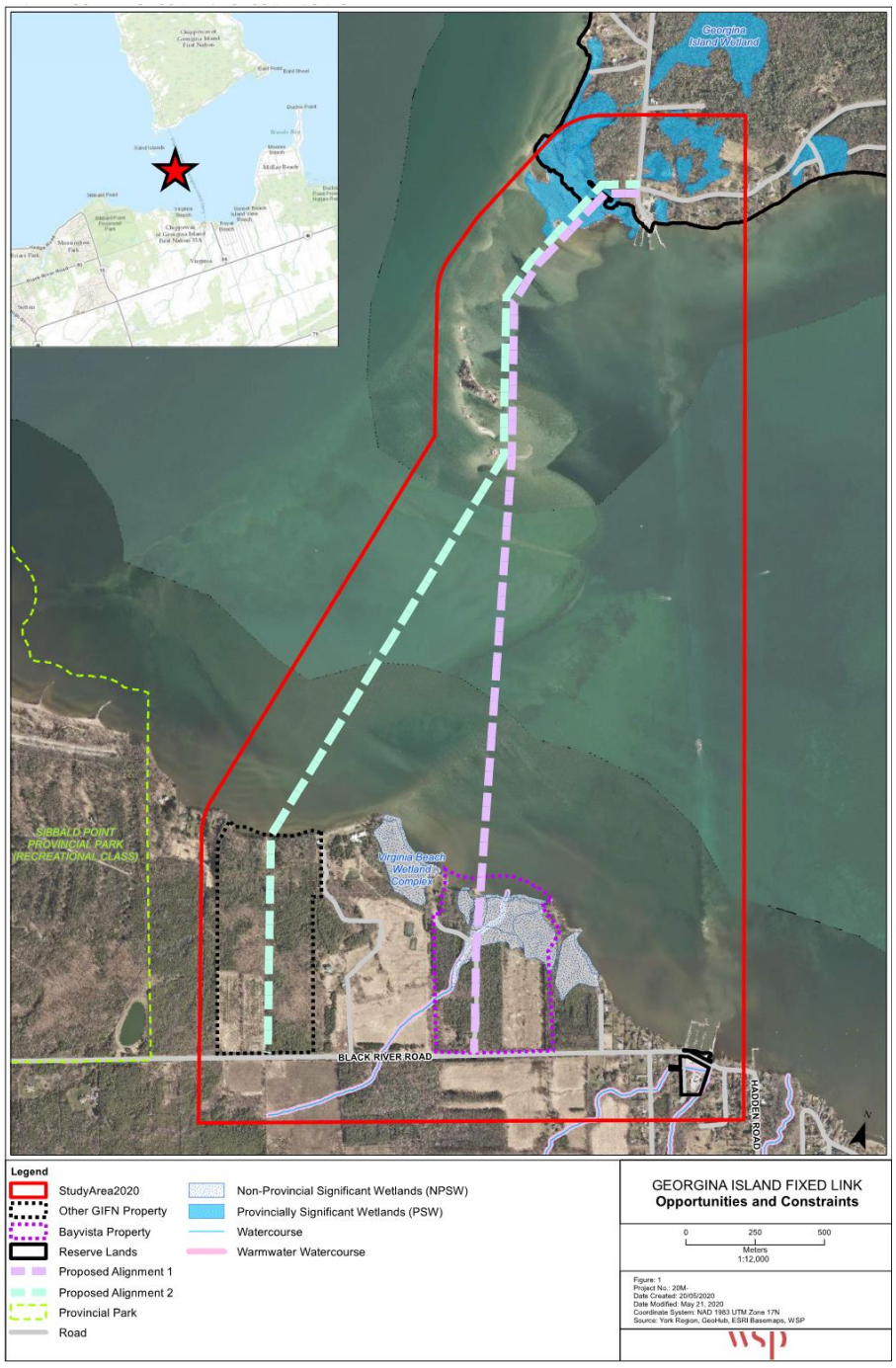
- have enhanced security and controlled access with ideally an attendant positioned at a guard booth; and
- generate revenue for GIFN by charging a toll to visitors to the island.

The *Georgina Island Fixed Link, Opportunities and Constraints Figure* shown below identifies two potential alignments for the Fixed Link. On the shoreline the Fixed Link would connect to Black River Road either through GIFN property west of the Virginia Beach Wetland Complex (Alignment 1) or through the Bayvista property east of the Virginia Beach Wetland Complex (Alignment 2). Both alignments would connect to the island at the existing intersection of Chief Joseph Snake Road and Bear Road.



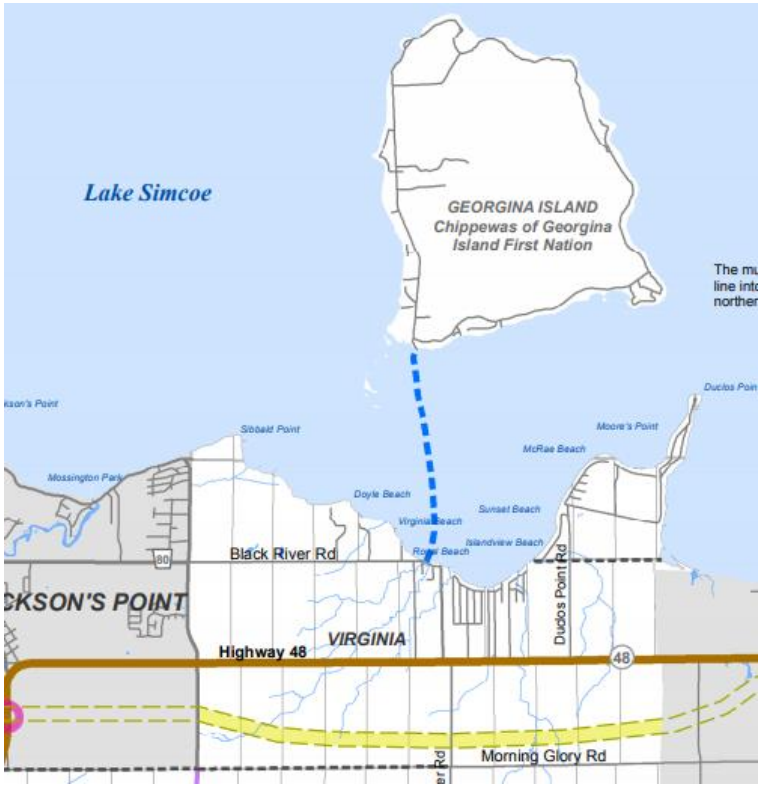
The *Proposed Fixed Link Study – Preliminary Evaluation of Engineering and Environmental Alternatives Chippewas of Georgina Island First Nation* included a Transportation Assessment that is over a decade old and requires updating. Some key information identified in the report includes the following:

- Passenger and vehicle demand for 2006 showed that the maximum monthly usage of the ferry occurred in the summer with a maximum of 4,398 vehicles and 138 passengers in a month;
- The number of vehicle trips utilizing the ferry link is significantly less than the number that would use a proposed Fixed Link, due to the cost and time constraint imposed by the ferry link;
- The long-term demand on the fixed link was forecasted to be about 2,180 vehicles per day, with 142 vehicle crossings in the am peak hour and 206 vehicle crossings in the pm peak hour;
- It is typical practice to utilize asphalt surface for roads that experience traffic volumes exceeding 400 vehicles per day and it was recommended that all roadways within the study area include asphalt surface; and
- Traffic from the Fixed Link could impact the operations of the intersection of Hadden Road at Highway 48 and potentially trigger a signal subject to signal warrant analysis.

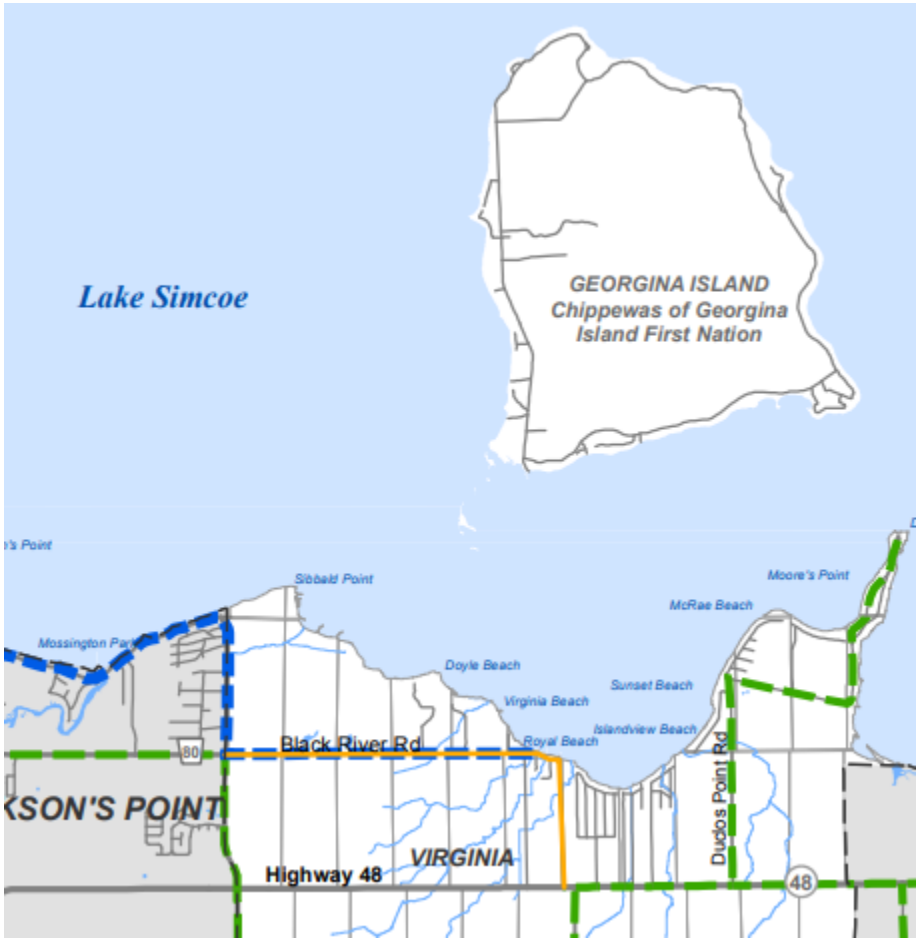
The Town of Georgina Official Plan (OP) Schedule E (Roads Plan) shown below identifies the following roads in the study area:

- Black River Road is a local road
- Highway 48 is a provincial road
- All roads on Georgina Island are local roads

The Town OP Schedule E identifies the ferry route between the mainland and Georgina island but does not identify the Fixed Link.



The Town OP Schedule F (Active Transportation Plan) identifies the proposed Lake to Lake Route that would have a segment along Black River Road where the Fixed Link is proposed to connect. The Lake to Lake Route is a proposed 121 kilometre recreational and commuter cycling and walking trail that will connect Lake Simcoe to Lake Ontario. The York Region Transportation Master Plan (TMP) 2041 Proposed Cycling Network identifies that the proposed cycling facility on Black River Road will include dedicated cycling lanes.



The York Region TMP 2041 Proposed Transit Network shown below identifies that rural bus connections will be provided along Highway 48.



The population in the Town of Georgina is expected to grow from 57,900 in 2021 to 70,300 in 2031. During the same period the employment is projected to grow from 13,900 to 21,200. This growth is expected to contribute to increased traffic volumes on Black River Road and Highway 48.

2. CONSTRAINTS AND OPPORTUNITIES

Based on the background data review, the key elements of the Transportation Study will include:

1. Establishing and assess existing baseline conditions of the ferry operations and traffic volumes on the existing roadways.
2. Forecast future total traffic volumes on the Fixed Link and at key intersections to determine the need for left-turn lanes, right-turn lanes and signalization and recommend the lane configurations. The key intersections will include the Fixed Link at Black River Road, Hadden Road at Highway 48 on the mainland side and the intersection of Chief Joseph Snake Road and Bear Road on the island side.
3. Based on queuing analysis establish the appropriate location of the tool booth.
4. Correspondence with York Region Transit (YRT) and York Region District School Board (YRDSB) to explore the potential for YRT to operate a transit bus and for YRDSB to operate a school bus between the mainland and island to aid both residents and visitors without private vehicle access.
5. An active transportation plan showing how an active transportation facility on the Fixed Link could tie onto the existing and proposed active transportation network.

The constraints for completing the Transportation Study are shown in the table below.

CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
Low	*Data is missing to complete the Transportation Study and will require coordination with municipal, regional and provincial agencies.* *Due to Covid-19 traffic patterns are not typical and collecting current traffic data may not represent typical baseline conditions.*	• Submit the Terms of Reference for completing a Transportation Study to key agencies, including Town of Georgina, York Region, MTO, YRT and YRDSB • Obtain historical traffic data that is available

The Fixed Link would add a number of opportunities such as increasing the speed, efficiency and reliability of the movement of people and goods between the island and mainland, potentially integrating pedestrian, cycling and transit networks between the island and mainland.

6. DATA GAP ANALYSIS

The table below includes the information that will be needed for the Transportation Study and the Agency from which it would be obtained.

AGENCY	INFORMATION NEEDED	REASON FOR INFORMATION
Aazhaawe Ferry	Information relating to existing ferry operations, namely, pedestrian and vehicle capacity of existing ferry as well as annual pedestrian and vehicle ridership data on weekdays and weekends by month to determine existing demand.	Existing ferry operations for Transportation Study

Chippewas of Georgina Island First Nation (GIFN)	Existing road and land use conditions on the island (number of houses, number of cottages, Georgina Island school enrolment, number of students enrolled in schools on the mainland and gross floor area of commercial/social services, car ownership).	Existing conditions for Transportation Study
	Peak period (7-9am and 4-6pm) turning movement counts at the intersection of Chief Joseph Snake Road at Bear Road.	Existing conditions for Transportation Study
	Increase in number of houses, cottages and gross floor area of commercial/social services on Georgina Island.	Future traffic forecast for Transportation Study
	Increase in anticipated school enrolment of Georgina Island students attending school on the mainland.	Future traffic forecast for Transportation Study
Town of Georgina	Automatic traffic record (ATR) data for Black River Road.	Existing conditions for Transportation Study
	Historical Average Annual Daily Traffic (AADT) on Black River Road.	Future traffic forecast for Transportation Study
	Population and employment growth in the Town of Georgina.	Future traffic forecast for Transportation Study
	Background Developments.	Future traffic forecast for Transportation Study
Regional Municipality of York	York Region EMME model plots (existing and 2031).	Future traffic forecast for Transportation Study
York Region District School Board (YRDSB)	Discuss potential to operate a school bus on the Fixed Link.	Future conditions for Transportation Study
Ministry of Transportation Ontario	Peak period (7-9am and 4-6pm) turning movement counts at the intersection of Hadden Road at Highway 48.	Existing conditions for Transportation Study
York Region District Transit (YRT)	Discuss potential to operate a transit bus on Fixed Link.	Future conditions for Transportation Study

7. PRELIMINARY LIST OF PERMITS, LICENCES, AUTHORIZATIONS OR APPROVALS

Based on the background data review, we anticipate that the Transportation Study would be reviewed and require approval from the Town of Georgina, York Region and the Ministry of Transportation Ontario. WSP would not

require any special permits to undertake the study. However, we propose to submit a Terms of Reference (TOR) before commencing the study.

It is imperative to establish an agreed upon scope in the TOR before commencing the work. During this stage we would inquire about other area developments and transportation improvements. The terms of reference would include:

- Study area limits
- Horizon years for analysis
- Peak periods for analysis
- Method for predicting traffic volumes
- Method for establishing background traffic volumes
- Software program for intersection capacity analysis
- List of data requested

The Transportation Study should be completed prior to the design phase.

8. ADDITIONAL INFORMATION

In addition to information listed in Section 6, to assess existing traffic operations WSP will commission third-party traffic counters specialized in traffic data collection obtain the following information:

- Automatic traffic record (ATR) data for Black River Road; and
- Peak period (7-9am and 4-6pm) turning movement counts at the intersection of Hadden Road at Highway 48 and Chief Joseph Snake Road at Bear Road.

It should be noted that traffic data collected at this time may not represent typical traffic patterns due to Covid-19. Therefore, WSP would also request the information from the Town of Georgina and the Ministry of Transportation Ontario (MTO) and compare the data with historical counts (if available) to establish baseline existing conditions.

Appendix E Civil Roads Technical Memorandum

MEMO

TO: SUE OLGUIN
ANDREW ROBERTS
CHRISTINE FURTADO

FROM: Chris Follett, M.Eng. P.Eng.

SUBJECT: Technical Memo - Civil Roads

DATE: June 2, 2020

The purpose of this memo is to provide an outline of what is currently available and what is required to complete a design for the Georgina Island Fixed Link. The data, reports, studies, surveys, etc. that will need to be obtained or produced before the civil roads design can be completed include but are not limited to what is outlined in this memo.

1. BACKGROUND DATA - TECHNICAL MEMO

BACKGROUND INFORMATION REVIEW

- List of documents/data sources reviewed
    - Proposed Fixed Link Study – Preliminary Evaluation of Engineering and Environmental Alternatives, prepared by Neegan Burnside Ltd., dated January 2008
    - Phase 1 Environmental Site Assessment – 1 Bayvista Lane, prepared by Cambium Inc, dated March 9, 2020
    - Phase 1 Environmental Site Assessment – Black River Road, prepared by Cambium Inc, dated June 14, 2019
    - Phase 1 Environmental Site Assessment – 33 Lyall Lane, prepared by Cambium Inc, dated October 26, 2017
    - Plan & Profile Drawings for road works on Georgina Island, prepared by C.C. Tatham & Associates Ltd., dated December 2013

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The Environmental Site Assessments indicated that there were no environmental concerns associated with any of the 3 sites, meaning multiple options for connection locations to the mainland are feasible. The 2 to be considered are the 1 Bayvista Lane property, and the Black River Road property.

Plan and profile drawings for road works on Georgina Island provide information on existing right-of-way widths, drainage conditions, culverts, and intersection configurations on the island side which will all need to be considered when designing the island side road connection and intersection design. It is recommended that CAD files of the road designs be requested from C.C. Tatham & Associates Ltd. to be used in this design.

2. CONSTRAINTS AND OPPORTUNITIES

CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
Medium	Black River Road right-of-way is very narrow, may require widening to accommodate potential intersection, additional lanes, sight lines, etc.	Complete traffic study to determine extent of intersection design and additional lanes required to determine whether any additional land transfer for right-of-way widening is required
Low	1 Bayvista Lane property is owned by GIFN but is not reserve land. Road construction may require additional approvals/agreements with municipality if property is not reserve land.	Begin process to convert property to reserve land. Process could potentially delay construction timeline.
High	Alignment connecting to Black River Road property will interfere with adjacent landowner. Potential legal resistance could be very costly and delay construction by years.	Avoid this option

Medium	Black River Road property has significantly lower elevation then 1 Bayvista Lane property. Additional fill will be required to connect mainland to causeway. Lower connection elevation also has a higher ice impact risk because structure is closer to water level.	Complete preliminary earthworks analysis (topographic survey required) to determine how much extra fill would be required on Black River Road property. Extra cost to be accounted for in decision on which property to connect to.
Low	Significant tree clearing will be required on mainland to build road. Endangered trees such as Butternuts may need to be protected.	Complete tree survey and arborist report to identify any endangered trees that will need to be protected or compensated.
Medium	Stagnation of lake water could occur due to restriction of flows based on location/configuration of mainland connection. This could affect oxygen levels, lead to algae build up, or other environmental concerns.	Ecology report to be completed to determine risk of stagnation for different connection locations.
Low	Vertical datum, coordinate system, and grid to ground scale factor need to be coordinated and consistent across all surveys. Inconsistent surveys between mainland and island could result offset at connection.	Ensure all required topographic surveys are completed at the same time by one surveyor to ensure consistency.
Low	Soil types and groundwater levels will have impact on stability of roads and pavement structure requirements.	Geotechnical and hydrogeological reports to be completed.

3. DATA GAP ANALYSIS

GAP	RATIONALE	REQUIRED STUDIES /INFORMATION PROJECT PLAN
ROW widths, configurations, road classifications, pavement structures, curb/gutter requirements.	These will all depend on traffic volumes, pedestrian volumes, expected vehicle weights, etc.	Full traffic survey and report to be prepared to determine these parameters.
Topographic surveys of properties not currently available.	Topography will be required to determine earthworks volumes, which will affect costs and decision of which property to connect to.	LIDAR survey to be completed soon which can be used to calculate earthworks volumes. More detailed physical survey will need to be completed before detailed design.
Tree species/condition on properties.	Endangered trees will need to be protected and/or compensated if present. Tree clearing will be necessary for road construction.	Tree survey and arborist report to be completed.
Impacts of causeway on lake water currents.	Causeway could block currents, depending on location and configuration, which could cause stagnation, leading to environmental impacts.	Ecology report to be completed for the area, water currents to be studied to determine configuration with smallest impact.
Soil types and groundwater levels unknown.	This will affect road stability and pavement structure.	Geotechnical and hydrogeological reports to be completed.

4. PRELIMINARY LIST OF PERMITS, LICENCES, AUTHORIZATIONS OR APPROVALS

PERMIT / APPROVAL & AGENCY	ASSOCIATED WORK/REPORT/STUDY	WORK PHASE
Road occupancy permit, Town of Georgina	Black River Road intersection works	Prior to construction
Road occupancy permit, MTO	Black River Road intersection works	Prior to construction
Site alteration permit, Town of Georgina	Earthworks	Prior to construction
Site alteration permit, LSRCA	Earthworks	Prior to construction

Appendix F Hydrogeologic Technical Memorandum

MEMO

TO: The Chippewas of Georgina Island First Nation

FROM: Natalia Codoban, M.Eng., P.Eng.

SUBJECT: **Hydrogeological Screening Memo**

DATE: **May 28, 2020**

BACKGROUND SCREENING - TECHNICAL MEMO

HYDROGEOLOGY

BACKGROUND INFORMATION REVIEW

The following documents have been reviewed in preparation of the hydrogeological input:

- Chapman, L.J., and Putnam, D.F. (1984). The Physiography of Southern Ontario, Third Edition, Ontario. Geological Survey Special Volume 2.
- Lake Simcoe Region Conservation Authority (2017). The Georgina, Fox and Snake Islands Subwatershed Plan, available at:

  https://www.lsrca.on.ca/Shared%20Documents/reports/Georgina_Fox_Snake_Islands_Subwatershed_Plan_2017.pdf
- Lake Simcoe Environmental Management Strategy (2003). State of the Lake Simcoe Watershed.
- Ministry of Natural Resources (1980). Ontario Geological Survey, Map P.2715, Physiography of Southern Ontario, Scale 1:600,000.
- Ontario Geological Survey (1990). Quaternary Geology: Toronto and Surrounding Area. Ontario Geological Survey Map P. 2204, Scale 1:100,000.
- Ministry of the Environment, Conservation and Parks (May 2020a). Map: Well records, available at:

  https://www.ontario.ca/environment-and-energy/map-well-records
- Ontario Ministry of the Natural Resources and Forestry, Make a Map: Natural Heritage Feature Areas (May 2020b). Source Water Protection Information Atlas, available at:

  https://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US

- Ontario Ministry of the Environment, Conservation and Parks (May 2020c). Source Water Protection Information Atlas, available at:

  https://www.gisapplication.lrc.gov.on.ca/SourceWaterProtection/Index.html?site=SourceWaterProtection&viewer=SWPViewer&locale=en-US

Hydrogeological Figure 1 "Urban and Natural Features" and Figure 2 "Surficial Geology" have been prepared to support the hydrogeological input.

Ministry of the Environment, Conservation and Parks (MECP) Water Well Records

The review of the Ministry of the Environment, Conservation and Parks (May 2020a) water well records shows that the water wells were advanced within 500 m radius of the proposed design alternatives on the mainland (see **Figure 1**) between 1950 and 2017. These include 19 records of domestic and public water supply wells, test holes and one (1) record of an abandoned well.

The records show that groundwater is present at depths ranging between 5.8 and 17.1 meters below the ground surface (mbgs) in the overburden, which indicates that management of groundwater will be needed during construction of the Fixed Link, depending on the chosen construction methodology.

Based on recent water supply well records, it is interpreted that the mainland may be partially serviced by groundwater and watermains. The "Georgina, Fox and Snake Islands Subwatershed Plan" (2017) confirms that drinking water within the area is provided through private wells and surface water from Lake Simcoe. A water well survey will need to be completed to confirm the reliance on and details of water wells available in the area.

Surficial Geology

The surficial geology within the 500-m buffer zone of the proposed design alternatives is shown on **Figure 2**. This information shows that the mainland is dominated by sand deposits, with some sand and gravel, sandy silt to silty sand deposits. Due to presence of shallow groundwater in this area, significant groundwater volumes may need to be managed during construction. A drilling program (to be completed as part of detailed geotechnical and hydrogeological investigations) at further stages of the project will confirm this.

Natural Heritage Areas

Based on review of the natural heritage feature areas (May 2020b), there are unevaluated wetlands on the mainland where the foundations of the proposed Fixed Link are proposed to be constructed. There are Provincially Significantly Wetlands (PSWs) on the Georgina Island (see **Figure 1**). The unevaluated wetlands are located in the area of the "Natural Heritage System".

Detailed ecological investigations in consultation with the Lake Simcoe Region Conservation Authorities will be required to be completed, to confirm the ecological buffers to be implemented for construction of the Fixed Link.

Presence of the unevaluated wetlands and PSWs potentially indicates shallow groundwater conditions and surface-water groundwater interactions, which will need to be evaluated in detailed hydrogeological studies.

Source Water Protection

The MECP Source Protection Information Atlas indicates that the 500-m buffer zone of the proposed design alternatives falls within vulnerable areas (May 2020c). There are no wellhead protection areas, areas of highly vulnerable aquifers or areas of significant groundwater recharge in this area. However, there are several Intake Protection Zones in Lake Simcoe. The closest IPZ is located immediately west of the Georgina Island. As described in the "Georgina, Fox and Snake Islands Subwatershed Plan" (2017), the Chippewas of Georgina Island First Nation provides drinking water to approximately 109 households on Georgina Island. This supply has been in place since 1993 and surface water from Lake Simcoe is taken in a location approximately 345 m to the west of the Georgina Island, treated at the Georgina Island Water Treatment Plan.

Mitigation measures will need to be developed at further stages of hydrogeological studies, in coordination with the Lake Simcoe Region Conservation Authorities, to protect surface water quality during construction and operation of the Fixed Link.

CONSTRAINTS AND OPPORTUNITIES

CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
Medium	Detailed information on wetlands is not available.	• Discuss completion of studies focused on wetlands with ecologists on the project.
Medium	Water well survey forms, groundwater level details and servicing plans are not available.	• Complete water well surveys at Preliminary Design to confirm presence of private wells and evaluate impacts of the project to well owners (can be Preliminary or Detail Design task).
High	Detailed engineering design drawings for construction of Fixed Link are not available.	• Complete dewatering analysis once design drawings are available (Detail Design task).

DATA GAP ANALYSIS

GAP	RATIONALE	REQUIRED STUDIES /INFORMATION *PROJECT PLAN*
Impact of the project on water quality/quantity on private wells potentially present on the mainland.	Review of MECP water well records suggests that the mainland may be partially serviced by groundwater and partially by watermains. Construction of the Fixed Link may impair water quality and water quantity in near-by private wells.	• Completion of water well surveys.
Impacts of the project to unevaluated wetlands and Provincially Significant Wetlands.	Construction and operation of the Fixed Link may negatively impact unevaluated wetlands and Provincially Significant Wetlands.	• Review of proposed construction methods, geotechnical records, engineering drawings and evaluate zones of influence from dewatering activities. • Review of ecological information and discussions with ecologists.
Impacts of the project on surface water quality in Lake Simcoe (there are three (3) Intake Protection Zones in Lake Simcoe, the closest IPZ present west of the Georgina Island).	Construction and operation of the Fixed Link may lead to impairment of surface water quality in Lake Simcoe.	• Review of proposed construction methods, geotechnical records, engineering drawings and evaluate zones of influence from dewatering activities.

PRELIMINARY LIST OF PERMITS, LICENCES, AUTHORIZATIONS OR APPROVALS

PERMIT / APPROVAL & AGENCY	ASSOCIATED WORK/REPORT/STUDY	WORK PHASE
Detailed hydrogeological studies (focused on source water protection) may be needed, Lake Simcoe Region Conservation Authority.	Hydrogeological Study.	Prior to construction (Preliminary Design or Detail Design).
Permit to Take Water, Ministry of the Environment, Conservation and Parks.	Hydrogeological Study.	Prior to construction (Detailed Design).

ADDITIONAL INFORMATION

There is nothing specific to the hydrogeological study, however, protection of water quality (surface water and groundwater) is important as Lake Simcoe is a source of drinking water and has an Intake Protection Zone located immediately west of the Georgina Island.

Drafted By: SerroulJ

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0 100 200 400 600
Metres

Legend

- Proposed Route Alternatives
- Study Area - 500m Buffer
- Bayvista Property
- Other GIFN Property
- MECP Water Well Record
- Topographic Contours
- Watercourses

Thermal Regime

- Warm

Wetland Significance

- Provincially Significant Wetland
- Non-Provincially Significant Wetland

Client: **Chippewas of Georgina Island, First Nation**

Title: **Urban and Natural Features**

Prepared By: [redacted]

19M-01347-00	Scale as Shown	Review: NC
Date: May 2020	**Figure: 1**	
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Drafted By: SerroulJ

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Metres

Legend

- Proposed Route Alternatives
- Study Area - 500m Buffer
- Bayvista Property
- Other GIFN Property

Surficial Geology

- Sand and Gravel
- Sandy silt to Silty sand
- Clay and silt
- Sand
- Waterbodies

Client:
Chippewas of Georgina Island, First Nation

Title:
Surficial Geology

Prepared By: [redacted]

19M-01347-00	Scale as Shown	Review: NC
Date: May 2020	**Figure: 2**	
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Drafted By: SerroulJ

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I:\EngSoftware\2019\33\19M-01347-00 GFIN\MXD\Figure 1 Urban_Nat Features.mxd

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Legend

- Proposed Route Alternatives
- Study Area - 500m Buffer
- Bayvista Property
- Other GIFN Property
- MECP Water Well Record
- Topographic Contours
- Watercourses

Thermal Regime

- Warm

Wetland Significance

- Provincially Significant Wetland
- Non-Provincially Significant Wetland

Client: **Chippewas of Georgina Island, First Nation**

Title: **Urban and Natural Features**

Prepared By: [redacted]

19M-01347-00	Scale as Shown	Review: NC
Date: May 2020	**Figure: 1**	
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Drafted By: SerroulJ

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Lake Simcoe

I:\EngSoftware\2019\33\19M-01347-00 GFIN\MXD\Figure 2 Surficial Geology.mxd

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Metres

Legend

- Proposed Route Alternatives
- Study Area - 500m Buffer
- Bayvista Property
- Other GIFN Property

Surficial Geology

- Sand and Gravel
- Sandy silt to Silty sand
- Clay and silt
- Sand
- Waterbodies

Client:
Chippewas of Georgina Island, First Nation

Title:
Surficial Geology

Prepared By: [redacted]

19M-01347-00	Scale as Shown	Review: NC
Date: May 2020	**Figure: 2**	
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Appendix G Geotechnical Technical Memorandum

MEMO

TO: SUE OLGUIN
ANDREW ROBERTS
CHRISTINE FURTADO

FROM: Gijs Buitenhuis

SUBJECT: Technical Memo – Georgina Island Fixed Link Project
(Preliminary Review of Geotechnical Conditions)

DATE: June 01, 2020

1. BACKGROUND DATA

BACKGROUND INFORMATION REVIEW

Sound knowledge of the geotechnical conditions at the project location is vitalfor the design and construction of the fixed-link between Georgina Island and the main land. Geotechnical information is required for the following:

- Foundation design of the bridge;
- Stability assessment of the side slopes of the causeway;
- Determination of the amount and rate of of settlement which is expected during the design life of the structures;
- Determination if ground improvement is required;
- Provide input into the road design in terms of bearing capacity of the subsoil;
- Provide input for the cut and fill balance within the project. Within the cut and fill balance the quantities of suitable and unsuitable material which will have to be excavated within the project have to be determined as well as the quantities of fill material which have to be imported to construct the project;
- Provide information for morphologic modelling (erosion and sedimentation processes due to currents and wave action), for example a silty lake bed will behave differently compared to sandy or gravelly lake bed conditions.

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Information provided by the Client has been reviewed to assess what additional information will be required to successfully design and construct the fixed link. The geotechnical information will need to provide answers to questions such as:

- What are the ground levels and lake bed elevations a long the potential alignments of the fixed link?
- What is the general geology in the area?
- What are the seismic conditions to be taken into account?
- What are the local geotechnical conditions specific for the potential alignments of the fixed link?
- Are there any specific features along the alignment which are not necessarily documented or picked up during a geotechnical investigation but could play an important role within the design such as local rock outcrops, buried channels or local dips in bedrock elevations, or manmade elements like cables, pipelines and debris.

The following documents were reviewed in the preparation of this memorandum:

- Sonar Maps (No references provided, but these maps seem to be from "Navionics")
- Landfill Borehole logs on Georgina Island (borehole numbers MW101-17 to MW107-17), carried out by Cambium Consulting & Engineering for Georgina Island First Nation in 2017.
- Drawing set "Georgina Island First Nation Road Works" by C.C. Tatham & Associates Ltd dated 2013.
- "Georgina Island First Nation Water Treatment Plant Upgrades and Expansion" by S. Burnett & Associates Limited Engineering & Environmental. Prepared for Chippewas of Georgina Island First Nation, Project No. F15050, 2017
- Phase I Environmental Site Assessments prepared by Cambium Consulting & Engineering for Cambium Aboriginal Inc. in 2019. (3856 Baseline Road / Black River Road / 7522 Black River Road / Part Lot 10, Concession 8, as in B34937B / Part Lot 10, Concession 8, as in R299178)
- Soils Map-Mainland and Soils_Map-Island (no references)
- Google earth satellite images
- The Georgina, Fox and Snake Islands Subwatershed Plan, Georgina Island, Lake Simcoe Region Conservation Authority, 2017

A high-level summary of the available information is presented below.

Regional geology[1]

[1] Based on "The Georgina, Fox and Snake Islands Subwatershed Plan, 2017" and Quaternary Geology (1:1,000,000) GIS download by Ontario Geological Survey

The bedrock geology in the Georgina Island area consists of flat lying, thinly bedded sedimentary rock comprising limestone, dolostone, shale, arkose and sandstone (Figure 1). This rock underlies all of the islands as well as the shoreline of the main land. The top of bedrock is slightly higher at the northeast side of Georgina Island compared to the southwest. Bedrock may be locally exposed at ground surface in a zone along the northwestern to southeastern part of the island as well as along the shoreline elsewhere on the island.

The bedrock within the Georgina Islands is overlain by unconsolidated sediments (overburden). The surficial unit of the southwest portion on Georgina Island is glacial till, consisting of heterogeneous deposits of silt, sand, gravel, cobbles and boulders (Figure 1). The overburden thickness on the southwestern corner of the island is several meters thick.

The overburden at the location where the fixed-link is planned to connect to the mainland is part of a different geological unit, comprising glaciolacustrine deposits of sand, gravelly sand and gravel, nearshore and beach deposits.

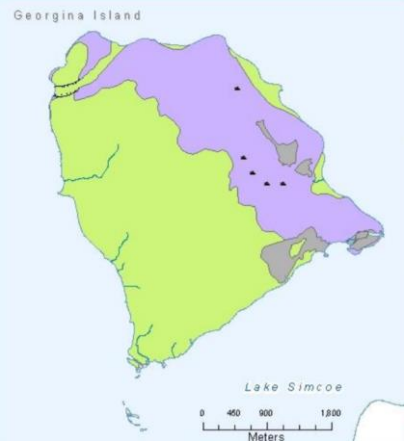

Figure 1: Surface geology at Georgina Island.[2]

Seismic condition

Bridges will need to be designed to resist seismic loads. At the project location, the Peak Ground Accelerations (PGA) at bedrock level are relatively low. The 2015 National Building Code interpolated seismic hazard values at the project location have been determined indicatively in the following table:

Return Period (years)	Probability of exceedance in 50 years (%)	Peak Ground Acceleration at bedrock (g)

[2] Figure from "The Georgina, Fox and Snake Islands Subwatershed Plan, 2017" and geological descriptions from "Quaternary Geology (1 : 1,000,000) GIS download by Ontario Geological Survey"

475	10	0.029
975	5	0.044
2475	2	0.069

Topography

The topographic information is based on the Canadian Digital Elevation Model (DEM). The elevation at the southwestern tip of the island is 218 to 220m above sea level (Figure 2). The elevations at the main land are not known at this stage, but this data could be requested from the Government of Canada ("https://maps.canada.ca/czs/index-en.html"). The data points would then need to be processed to obtain the 3D terrain model.

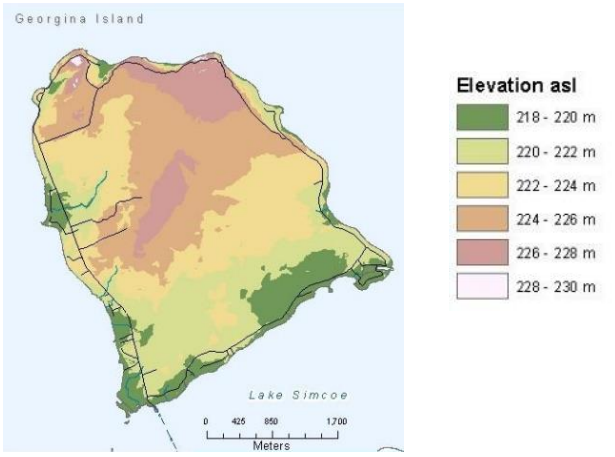

Figure 2: Topography of Georgina Island.[3]

Bathymetry

Bathymetric information has been based on Navionics (https://webapp.navionics.com). The charts show water depths generally less then 2m with shallow sand banks near the southwestern tip of Georgina Island (Figure 3). Water depths indicated on admiralty charts are relative to Chart Datum. Chart Datum is commonly related to lowest astronomical tide (LAT) or mean lower low water (MLLW) but in non-tidal areas could be related to a mean sea/lake level. Therefore, it would be important to know the details to which datum the water levels are measured in order to compare it to the topographic data.

Submerged cables

[3] Figure from "The Georgina, Fox and Snake Islands Subwatershed Plan, 2017"

The charts presented by Navionics show that there are a number of submerged cables on the lake bed from the main land to Georgina Island (Figure 3). The exact locations of submerged cables are to be take into account in the planning of the fixed link.

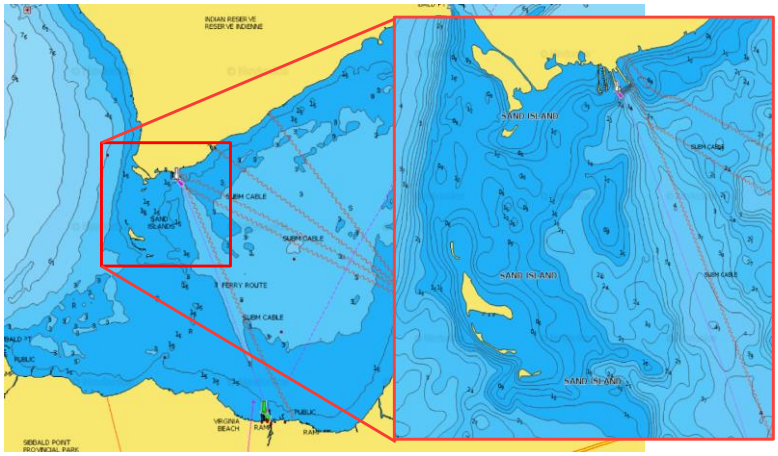

Figure 3: Bathymetric data from "Navionics". Note that it is not intended here to show legible water depths rather it is only intended to show the typical density of the available data.

2. CONSTRAINTS AND OPPORTUNITIES

CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
Low	<u>Geology</u> The general geological setting is known	There is sufficient geological information publicly available. Desktop study is recommended to collect sufficient information for a site specific geological description.
Low	<u>Seismic Hazard</u> Earthquakes can result in damage of	The seismic hazard is relatively low at the project location,

CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
	the fixed-link and could also be a safety hazard for any person on the fixed-link during an earthquake event.	however it is advised to take the appropriate seismic load into account during the design of the fixed-link.
Medium	<u>Ground and lake bed elevations.</u> The exact levels at the potential alignments of the fixed-link are critical, for example for: • Design such as connection to existing infrastructure, • Geotechnical aspects such as stability and settlement of embankments, • quantities of material required to construct the project, • Total project costs.	Use accurate ground and lake bed levels in the design and provide tenderers with accurate data for them to price the project.
Medium	<u>Ice load</u> The bay freezes over (partly) during the winter. Ice can provide an additional load on bridge piers and other parts of the fixed-link which	It is recommended to carry out a study to identify what the ice loads are which would need to be taken into account for this projects.

CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
	could damage the structure if it is not designed for. There is insufficient data available to determine the ice load on the fixed-link structures.	
High	<u>Geotechnical conditions</u> Accurate geotechnical information is of utmost important for the design of the fixed-link. It will assist in determining the most suitable foundation methods, slope angles of embankments, and any potential ground improvement requirements. A large part of the project risk will be related to ground conditions.	The design must be based on accurate geotechnical information obtained from geotechnical and geophysical investigations.
High	<u>Specific features along alignment</u> The presence of utilities such as submerged cables must be known during planning stage to assess any potential impact on the alignment or	Request for the locates of any utilities around the project area. Carry out an investigation to identify the presence of any utilities and other manmade features such as debris.

CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
	design of the fixed link. Presence of debris, sunken vessels etc, is of importance as well. Mostly this will not impact the design, but can affect the construction cost in case it needs to be removed prior to construction.	

3. DATA GAP ANALYSIS

GAP	RATIONALE	REQUIRED STUDIES /INFORMATION *PROJECT PLAN*
Geology	The general geological setting is known, however detailed site-specific soil and bedrock conditions are not known	<u>Desktop Study</u> There is sufficient geological information publicly available. A desktop study is recommended to collect sufficient information for a site specific geological description.
Seismic Hazard	Seismic hazard is low, however it will need to be taken into account in the design of the fixed-link.	<u>Desktop Study</u> Based on design standards the seismic design parameters will need to be determined,

GAP	RATIONALE	REQUIRED STUDIES /INFORMATION *PROJECT PLAN*
		such as the return period to be adopted and the earthquake magnitude.
Topography	The exact topography is not available at the project location.	<u>DEM information</u> It is recommended to obtain DEM information which can serve as initial indication of ground levels at potential alignments. <u>Topographic Survey</u> At design stage it will be important to carry out a detailed topographic survey. This would include identification of any above ground features such as fences, trees, manholes, roads, etc. It could be considered to include a LiDAR or drone survey for additional detail and pre-construction condition survey.
Bathymetry	Water depth is known indicatively only.	<u>Bathymetric survey</u> It is recommended to carry out a bathymetric survey along the potential

GAP	RATIONALE	REQUIRED STUDIES /INFORMATION *PROJECT PLAN*
		alignments of the fixed-link. For geomorphological studies, environmental impact assessment and wave modelling, it will be required to carry out a bathymetric survey in a wider area than only along the fixed-link alignment. A detailed and cost-efficient scope of survey will need to be determined based on above consideration and is expected to consist of a Multibeam Echo Sounder (MBES) and Single Beam Echo Sounder (SBES) survey.
Geophysical survey information	No geophysical survey data is available. A marine geophysical survey can be correlated to geotechnical investigation and can provide information on subsoil conditions in between boreholes. It is generally a cost-efficient survey	<u>Marine geophysical survey</u> • Sub Bottom Profiler (SBP) to determine ground conditions. • Side Scan Sonar (SSS) to provide an image of the lake bed to determine features on the

GAP	RATIONALE	REQUIRED STUDIES /INFORMATION *PROJECT PLAN*
	especially if it is used to optimize the scope of the geotechnical site investigation. Geophysical surveys can also provide information on submerged pipelines and cables as well as any debris on the lake bed. Marine geophysical surveys are often combined with bathymetric surveys which are discussed above. On land geophysical surveys can also be used to determine geotechnical conditions in between geotechnical boreholes.	lake bed such as debris, but also provide information on seabed ground conditions such as soil type or rock outcrops. • Magnetometer survey to determine submerged cables and pipelines, metallic debris, and when required this survey can be carried out to identify any unexploded ordnance (UXO) <u>Onland geophysical survey</u> • Multichannel Analysis of Surface Waves (MASW) to determine ground conditions and Seismic Site Class.
Geotechnical Data	No geotechnical information is available along the alignment of the fixed-link.	<u>Desktop study</u> Collecting geotechnical reports from other projects in the vicinity of the

GAP	RATIONALE	REQUIRED STUDIES /INFORMATION *PROJECT PLAN*
		fixed-link which can provide geotechnical information at concept design stage when no geotechnical site investigations at the project location have been carried out. It can also assist to optimize the scope of the site-specific site investigation. Geotechnical Site Investigation (on land) On the island as well as on the mainland on land geotechnical site investigation will be required. A detailed scope of work will need to be prepared prior to the investigation. The most common exploration method is borehole drilling with in-situ testing and sampling in combination with laboratory testing, however other exploration methods might be required as well. Geotechnical Site Investigation (marine)

GAP	RATIONALE	REQUIRED STUDIES /INFORMATION *PROJECT PLAN*
		Along the potential alignments geotechnical investigations will be required. A detailed scope of work will need to be prepared prior to the investigation. The most common exploration method is borehole drilling from a barge with in-situ testing and sampling in combination with laboratory testing, however other exploration methods might be required as well. If the bay freezes over in winter and the ice is sufficiently thick, it might be possible to save cost because no barge would be required.
Ice loads	No details available on the ice coverage of the bay is available.	<u>Desktop study</u> It is recommended to carry out a desktop study in order to obtain the necessary information about the ice coverage in the bay in order to determine the loads to be taken into

GAP	RATIONALE	REQUIRED STUDIES /INFORMATION *PROJECT PLAN*
		account in the design of the fixed-link.

4. PRELIMINARY LIST OF PERMITS, LICENCES, AUTHORIZATIONS OR APPROVALS

PERMIT / APPROVAL & AGENCY	ASSOCIATED WORK/REPORT/STUDY	WORK PHASE
Work permit, district	Surveys and Investigations	Geotechnical Investigations
Ministry of Natural Resources and Forestry	Surveys and Investigations	Geotechnical Investigations
Department of Fisheries and Oceans	Surveys and Investigations	Geotechnical Investigations
Navigation Authority	Surveys and Investigations	For any survey or investigation
Public Locates (request location of public utilities)	Surveys and Investigations	Geotechnical Investigations
Private Locates (request location of private utilities)	Surveys and Investigations	Geotechnical Investigations (in case of explorations on private property)

Permit to Enter (to work on private property)	Surveys and Investigations	For any survey or investigation where it is required to enter private property.

5. ADDITIONAL INFORMATION

Strategy

Marine investigations are significantly more expensive and will take more time to conduct compared to onland investigations. Therefore, careful planning of the investigation is required. A phased approach is recommended, beginning with desktop studies and geophysical surveys of the over-water alignment alternatives.

The costs and time required to carry out surveys and investigations are often considerable, therefore it is advised to determine a survey strategy. For example, for a fixed-link it would be important to have geotechnical data available to be able to make a calculated decision what the optimal alignment is. However, this does not require a full scope of investigations along all possible alignments. And to optimize a large investigation, it would be very useful to have already some data available of the variation in ground conditions. Therefore, investigations are often split in:

- Preliminary investigation early in the project with a limited scope covering a wider area to cover all possible alignments.
- Detailed investigation after the alignment has been determined and the Client has sufficient confidence that the project will be executed.

The scope of the investigation could also depend on the tender strategy. A larger scope of surveys and investigations prior to tendering will increase the time required to carry out these investigations and will increase the cost for the Client in the project preparation stages, however it will provide the tenderers with more information allowing the tenderers to provide tighter pricing.

It is also possible to minimize time and cost spend in the preparation stage and shift the responsibility for detailed site investigations to the contractor, the cost for the investigations and the geotechnical risk will be build in the price of the Tenderer. WSP does not recommend this approach as it reduces price certainty and greatly increases project risk.

Surveys by the Contractor

At commencement of the project the Contractor will conduct a survey (topo & bathymetric survey) to document the state in which he has received the site. Intermediate surveys will be conducted for progress measurements. A final survey will be conducted to demonstrate that all parts of the structure meet the required elevations and dimensions as per design.

Compliance testing by the Contractor

The Contractor will need to carry out testing to demonstrate that the works has been constructed according to the requirements. The type and frequency will be described in the technical specifications, which will be part of the tender documents.

Appendix H Contamination Technical Memorandum

MEMO

TO: SUE OLGUIN
ANDREW ROBERTS
CHRISTINE FURTADO

FROM: Derek Stewart

SUBJECT: Technical Memo - Site Contamination

DATE: May 28, 2020

1. BACKGROUND DATA - TECHNICAL MEMO

BACKGROUND INFORMATION REVIEW

- List of documents/data sources reviewed [Include Links if online sources etc.]
    - Report: Neegan Burnside – *Proposed Fixed Link Study Preliminary Evaluation of Engineering and Environmental Alternatives – Chippewas of georginal Island First Nation* – January 2008
        - Neegan Burnside completed a Phase 1 and 2 ESA on Georgina Island in 1998 and 2000 and identified 3 inactive landfills on Georgina Island
    - Report: Cambium Inc. *Phase I Environmental Site Assessment - 33 Lyall Lane, Georgina, Ontario.* October 26, 2017.
        - No Areas of Potential Environmental Concern (APEC) were identified; however, Potential Contaminating Activities (PCAs) were identified to the north associated with the marina, historical aboveground and underground fuel storage tanks, and historical spills.
    - Report: Cambium Inc. *Phase I Environmental Site Assessment – Black River Road, Georgina, Ontario.* June 14, 2019
        - No Areas of Potential Environmental Concern (APEC) were identified

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- Report: Cambium Inc. *Phase I Environmental Site Assessment – 1 Bayvista Lane, Georgina, Ontario.* March 9, 2020
  - No Areas of Potential Environmental Concern (APEC) were identified.
- Report: Cambium Inc. *Phase I Environmental Site Assessment – 7522 Black River Road, Georgina, Ontario.* October 11, 2019
  - No Areas of Potential Environmental Concern (APEC) were identified
- Report: Cambium Inc. *Phase I Environmental Site Assessment – Part 10, Concession 8 as in B34937B, Georgina, Ontario.* October 11, 2019
  - No Areas of Potential Environmental Concern (APEC) were identified
- Report: Cambium Inc. *Phase I Environmental Site Assessment – Part 10, Concession 8 as in R299178, Georgina, Ontario.* October 11, 2019
  - No Areas of Potential Environmental Concern (APEC) were identified
- Google Earth Imagery (Areas of Potential Environmental Concern)
  - 2009 - 2020 – Island View Marina and Business Centre on mainland – fuel storage and dispensing and vehicle/equipment and waste materials storage
  - 2009 – 2018 - buildings/storage yard at ferry docks on Georgina Island – possible fuel storage and dispensing, and vehicle/equipment and waste materials storage

2. CONSTRAINTS AND OPPORTUNITIES

CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
Low	Overall, most of the potential for site contamination within the Study Area is low as most of the area is residential	• None

Medium	The presence of the Marina and Business Centre at the ferry docks on the mainland, and the buildings/storage yard on the ferry docks on Georgina Island represent a medium concern due to the potential for fuel spills and leaks from fuel storage tanks and fuel dispensing equipment, and vehicle/equipment and waste materials storage	Complete a Phase One and Two Environmental Site Assessments of the lands to confirm the presence or absence of soil and groundwater contamination
High	A previous Phase 1 and 2 Environmental Site Assessment for Georgina Island was identified in the Neegan Burnside report (1998 and 2000) noted above in the Background Information Review. The report alluded to the fact that there are 3 inactive landfills on the island. However, this report was not available for review. Landfills are generally always considered as a high risk from a regulatory and mitigation perspective.	Obtain a copy of the Neegan Burnside Phase 1 and 2 Environmental Site Assessment Report to confirm if any of the inactive landfills are within and/or in close proximity to the Study Area

3. DATA GAP ANALYSIS

GAP	RATIONALE	REQUIRED STUDIES /INFORMATION *PROJECT PLAN*
Locations of and any supporting studies for the 3 inactive landfills on Georgina Island	If any of the landfills are identified within and/or in close proximity to the Study Area, then regulatory approvals and mitigation may be required if directly impacted by the alignment	• 1998 and 2000 Neegan Burnside Phase 1 and 2 Environmental Site Assessment Report for Georgina Island • Any other available information for these inactive landfills
Environmental information on the Marina and Business Centre property on the mainland ferry docks, and the buildings/storage yard on the ferry docks on Georgina Island	Confirm the presence or absence of soil and groundwater contamination and any appropriate mitigation measures (environmental clean-up)	• Copies of any Phase 1 and/or 2 Environmental Site Assessment reports • If no studies have been completed, such studies will be required if directly impacted by the alignment

4. PRELIMINARY LIST OF PERMITS, LICENCES, AUTHORIZATIONS OR APPROVALS

PERMIT / APPROVAL & AGENCY	ASSOCIATED WORK/REPORT/STUDY	WORK PHASE

On-Site Excess Soil and Management Regulation (O. Reg. 406/19) - MECP	Throughout project where excess soil will be generated during construction	Prior to and during construction
Records of Site Condition (O. Reg. 153/04) - MECP	Identification and management of soil and groundwater contamination during construction	During construction
General Waste Management (O. Reg. 347) - MECP	Identification and off-site disposal management of soil and groundwater contamination during construction	During construction
Municipal Sewer Use By Laws – Local Municipality	Identification and off-site disposal management of excess groundwater during construction	During construction
Permit To Take Water/EASR - MECP	Management of excess groundwater	Prior to and during construction
Section 46 of the EPA – Former Disposal Sites	Inactive landfills which have been closed less than 25 years require Ministerial approval for the proposed use	Prior to construction

5. ADDITIONAL INFORMATION

N/A

Appendix I Archaeology Technical Memorandum

MEMO

TO: The Chippewas of Georgina Island First Nation

FROM: Jason Stephenson, MES, Professional Archaeologist

SUBJECT: **Archaeology Screening Memo**

DATE: **May 27, 2020**

BACKGROUND SCREENING TECHNICAL MEMO

ARCHAEOLOGY

BACKGROUND INFORMATION REVIEW

The subject memo will review the archaeology policy and guidelines for the proposed study areas to identify constraints. The study area includes land at the southeast of Georgina Island and on the coast of the Township of Georgina, located generally between Sibbald Point Provincial Park on the west and Royal Beach on the east. The study area is generally described as a mixture of wetland, woodlot, residential, and natural/recreational, as well as a substantial area of open water. A review of the *Ontario Archaeological Sites Database* indicates there are no recorded archaeological sites within or up to 1 km from the study area. A review of the *Ontario Public Register of Archaeological Reports* indicates no archaeological assessments have been completed for the study area. However, the York Region Archaeological Management Plan shows much of the study area on the mainland to hold archaeological potential.

- List of documents/data sources reviewed:
    - York Region *Land Information Map – Archaeological Potential* (n.d.)
        - https://ww6.yorkmaps.ca/Html5Viewer24/Index.html?configBase=https://ww6.yorkmaps.ca/Geocortex/Essentials/Essentials43/REST/sites/LandInformation/viewers/YorkMaps/virtualdirectory/Resources/Config/DefaultTownship of Georgina Heritage Register
    - *Ontario Public Register of Archaeological Reports* (n.d)
    - *Ontario Archaeological Sites Database*
    - *Standards & Guidelines for Consultant Archaeologists*
    - *Ontario Heritage Act* (2005)
        - https://www.ontario.ca/laws/statute/90o18
    - *Provincial Policy Statement* (2020)
        - https://www.ontario.ca/page/provincial-policy-statement-2020

CONSTRAINTS

CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
Medium	Study area holds archaeological potential.	• Avoid where possible. • Assess the archaeological potential to determine appropriate mitigation strategies (e.g. Stage 2 Archaeological Assessment).
	New Ministry of Heritage, Sport, Tourism and Culture Industries direction includes the consideration for underwater archaeological potential.	• Avoid where possible. • Note consideration for underwater archaeological potential must be included in the Stage 1 Archaeological Assessment. • Potential future work to survey and visually confirm underwater archaeological features by a licensed marine archaeologist.

DATA GAP ANALYSIS

GAP	RATIONALE	REQUIRED STUDIES/ INFORMAITON
No studies have been completed to identify archaeological resources within and adjacent to the study area.	As per the *PPS* (2020), Section 2.6.2, "Development and site alteration shall not be permitted on lands containing archaeological resources or areas of archaeological potential unless significant archaeological resources have been conserved."	• Stage 1 Archaeological Assessment will identify the archaeological potential of the study area and recommend appropriate mitigation strategies. Consideration for underwater archaeological potential must be encapsulated within the Stage 1 report.

PRELIMINARY LIST OF PERMITS, LICENCES, AUTHORIZATIONS OR APPROVALS

PERMIT / APPROVAL & AGENCY	ASSOCIATED WORK	WORK PHASE
Township of Georgina	Stage 1 Archaeological Assessment	Data collection, prior to construction.
Ministry of Heritage, Sport, Tourism and Culture Industries	Stage 1 Archaeological Assessment	Data collection, prior to construction.

Appendix J Cultural Heritage Technical Memorandum

MEMO

TO: The Chippewas of Georgina Island First Nation

FROM: Joel Konrad, PhD, CAHP, Senior Cultural Heritage Specialist

SUBJECT: **Cultural Heritage Screening Memo**

DATE: **May 27, 2020**

BACKGROUND SCREENING TECHNICAL MEMO

CULTURAL HERITAGE

BACKGROUND INFORMATION REVIEW

The subject memo will review the heritage policy and guidelines for the proposed study areas to identify constraints. The study area includes land at the southeast of Georgina Island and on the coast of the Township of Georgina, located generally between Sibbald Point Provincial Park on the west and Royal Beach on the east. The study area is generally described as a mixture of wetland, woodlot, residential, and natural/recreational, as well as a substantial area of open water.

- List of documents/data sources reviewed:
    - Township of Georgina *Official Plan* (2019 Consolidation)
        - https://www.georgina.ca/living-here/planning-and-development/official-plan-and-secondary-plans/official-plan
    - Township of Georgina Heritage Register
        - https://www.georgina.ca/sites/default/files/page_assets/heritage_register_feb_2017.pdf
    - *Ontario Heritage Toolkit* (2006)
        - http://www.mtc.gov.on.ca/en/heritage/heritage_toolkit.shtml
    - *Ontario Heritage Act* (2005)
        - https://www.ontario.ca/laws/statute/90o18
    - *Provincial Policy Statement* (2020)
        - https://www.ontario.ca/page/provincial-policy-statement-2020

CONSTRAINTS

CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
Low	Potential culturally significant views may be obscured by a fixed link.	• Identify any significant views through a Cultural Heritage Resource Assessment. • Recommendations to preserve significant views should be considered when choosing a location for the fixed link.
Medium	Listed, Designated, or potential cultural heritage resources location and status to be determined.	• Avoid where possible. • Location of cultural heritage resources to be determined through completion of a Cultural Heritage Resource Assessment.
	Official Plan indicates that Renewable Energy projects may require a Visual Impact Study. Though this is not a Renewable Energy project, there may be a call to provide a similar study or have the Cultural Heritage Resource Assessment account for impacts to views.	• Recommendations to preserve significant views should be considered when choosing a location for the fixed link.

	Serviced and Unserviced Lakeshore Residential Areas (*Official Plan*, Section D) stipulates a requirement to "conserve and enhance the cultural heritage and lake-oriented character that is unique to the lakeshore residential areas."	• Ensure special planning areas are considered in the Cultural Heritage Resource Assessment.
High	If listed or designated properties are within or adjacent to the study area they could be a barrier to development within the area.	• Ensure a Cultural Heritage Resource Assessment is completed at the early stages of the project to provide detailed information on the location of potential and existing cultural heritage resources and provide appropriate mitigation recommendations.

DATA GAP ANALYSIS

GAP	RATIONALE	REQUIRED STUDIES / INFORMAITON
No studies have been completed to identify built heritage resources and cultural heritage landscapes within and adjacent to the study area and no mitigation measures to conserve these have been produced.	As per the *PPS* (2020), Section 2.6.1, "significant built heritage resources and significant cultural heritage landscapes shall be conserved."	• Cultural Heritage Resource Assessment, which will identify built heritage resources and cultural heritage landscapes; provide a discussion of preliminary impacts; and outline mitigation recommendations.

PRELIMINARY LIST OF PERMITS, LICENCES, AUTHORIZATIONS OR APPROVALS

PERMIT / APPROVAL & AGENCY	ASSOCIATED WORK	WORK PHASE
Township of Georgina	Cultural Heritage Resource Assessment	Data collection, prior to construction.
Ministry of Heritage, Sport, Tourism and Culture Industries	Cultural Heritage Resource Assessment	Data collection, prior to construction.

Appendix K Air and Noise Technical Memorandum

MEMO

TO: The Chippewas of Georgina Island First Nation

FROM: Kelly Graver and Camille Taylor

SUBJECT: **Air Quality, Greenhouse Gas and Noise Screening Memo**

DATE: **May 28, 2020**

BACKGROUND SCREENING TECHNICAL MEMO

AIR QUALITY AND NOISE

BACKGROUND INFORMATION REVIEW

WSP has reviewed the background information pertaining to the proposed Georgina Island Fixed Link construction project, as it pertains to air quality, greenhouse gases, and noise emissions.

The project has two proposed alignments for the Fixed Link being considered; these will be referred to as the East and West Options. The proposed East Option is ~3,100 m in length, originates from the Bayvista Property and terminates at Georgina Island. The proposed West Option is ~2,830m in length, originates from an alternate Georgina Fist Nations property (to the West of Bayvista) and terminates at Georgina Island.

There are no specific background studies that were conducted for air quality, greenhouse gas, and/ or noise, however, the following background information was reviewed for this memo:

- Project scope;
- Link option drawing;
- Proposed Link locations;
- Ecology proposed alignment figure;
- Reviewed availability of local air quality data;
- Ontario Environmental Protection Act; and
- Ontario Regulations 419/05 and 524/98.

CONSTRAINTS

Based on the background data reviewed the following constraints and implication have been identified and assigned a qualitative category of potential risk (low, medium or high).

CATEGORY	CONSTRAINT & IMPLICATIONS	RECOMMENDATION
Low	Air quality is already impacted (i.e. potential adverse effects from cumulative air quality impacts).	• Demonstrate the obligations set out in the Environmental Protection Act will be met.
Medium	Noise impacts on sensitive receptors.	• Design to minimize impacts of noise emissions from the Link (i.e. barriers, incorporation of noise guidelines in the design). • Demonstrate the obligations set out in the Environmental Protection Act will be met.

DATA GAP ANALYSIS

GAP	RATIONALE	REQUIRED STUDIES/ INFORMAITON
Existing air quality (included greenhouse gas) is not documented	Existing air quality is required to assess potential mitigation requirements as part of the project impacts.	• Document the existing air quality using publicly available data from nearby air quality monitoring stations as part of the Environment Assessment.
Existing noise levels	Existing noise levels are required to assess potential mitigation requirements as part of the project impacts.	• Document the existing noise levels as part of the Environment Assessment.

PRELIMINARY LIST OF PERMITS, LICENCES, AUTHORIZATIONS OR APPROVALS

Based on the background data review, the following will be required prior to construction.

PERMIT / APPROVAL & AGENCY	ASSOCIATED WORK	WORK PHASE
BMPP - MECP	• Best Management Practices Plan for minimizing dust and noise to be provided and implemented.	Prior to construction and may be the obligation of the Constructor.
ECA (if required) - MECP	• Mobile equipment Air and Noise Approval.	Prior to construction and may be the obligation of the Constructor.

The following recommendations for the construction and operation phases of the project have been described in detail below.

Recommendations during construction (Air Quality):

- Minimize impacts;
- Best Management Practices Plan for Dust; and
- Mobile construction equipment Air Approval.

Recommendations prior and during construction (Noise)

- As part of the design, assess if noise controls will be required on the fixed Link (e.g. noise barrier or other);
- Minimize impacts; and
- Mobile construction equipment Noise Approval.

Recommendations for operation (Air Quality):

- No significant air sources;
- Regular bridge maintenance to limit dust; and
- Operation and maintenance considered to minimize air quality impacts.

Environmental Protection Act Requirements and Obligations

In Ontario, Section 9 of the Environmental Protection Act (EPA) requires that an approval be obtained before the installation or modification of all atmospheric emission sources. In addition to compliance with Section 9, all facilities are required to meet the air quality standards, as stated in Ontario Regulation 419/05 Local Air Pollution (O. Reg. 419/05). Construction activities are exempt from O. Reg. 419/05, as indicated in Ontario Regulation 524/98 Environmental Compliance Approvals – Exemptions from Section 9 of the Act (O.Reg. 524/98). However, it should be noted that Section 49 of Ontario Regulation 419/05 specifically indicates the following related to construction based activities:

49. Except for heat, sound, vibration or radiation, no person shall,

(a) construct, alter, demolish, drill, blast, crush or screen anything or cause or permit the construction, alteration, demolition, drilling, blasting, crushing or screening of anything so that a contaminant is carried beyond the limits of the property on which the construction, alteration, demolition, drilling, blasting, crushing or screening is being carried out; or,

(b) sandblast or permit the sandblasting of anything so that a contaminant is emitted into the air, to an extent or degree greater than that which would result if every step necessary to control the emission of the contaminant were implemented. O. Reg. 507/09, s. 32 (1).

The regulation states that air and noise emission discharged from construction activities must be controlled to avoid causing an adverse effect using “every step necessary to control the emissions”.

Minimize Impacts

Construction activities are subject to the general prohibitions under the Ontario EPA against causing an adverse effect, rather than focus solely on the nature of those activities. An “adverse effect” is defined under the Ontario EPA as:

(a) impairment of the quality of the natural environment for any use that can be made of it;
(b) injury or damage to property or to plant or animal life;
(c) harm or material discomfort to any person;
(d) an adverse effect on the health of any person;
(e) impairment of the safety of any person;
(f) rendering any property or plant or animal life unfit for human use;
(g) loss of enjoyment of normal use of property; and
(h) interference with the normal conduct of business.

As such, WSP recommends that the Construction Contractor provide and implement recommended best management practices that are industry standard in Ontario to minimize air emissions from construction activities.

An alternative approach to minimizing the air impacts from the proposed project would be to select the link option that would result in fewer air emissions. At this time the information available surrounding the two options is limited to the physical length of the proposed construction project. The East Option is approximately 3,100 m in length and the West Option is approximately 2,830 m in length. The West option is 270 m shorter in length, the shorter length

may result in shorter construction period, and fewer construction materials needed on site. The length of construction time on site, and the quantity of materials brought to the project site can both increase the potential dust emissions from the construction site.

Best Management Practices Plan for Dust

The Construction Contractor will be required to prepare a detailed fugitive dust Best Management Practice Plan (BMPP) to fulfill the requirements of O.Reg. 419/05, Section 49. At a minimum, the BMPP should include:

- identification of the sources of fugitive dust emissions;
- review the composition and size range of the fugitive dust;
- description how fugitive dust will be controlled from each identified source;
- schedule by which the plan will be implemented;
- description of how the plan will be implemented, including training of facility personnel;
- description of inspection and maintenance procedures; and
- description of methods of monitoring and recordkeeping to verify compliance with the plan.

The components listed above are necessary to ensure that mitigation is effective in controlling fugitive dust emissions and avoiding an adverse effect. Documentation of the plan along with the inspection record shall be made available on site for review by GIFN.

Mobile Construction Equipment Approval

If during the course of the construction project a Mobile Asphalt Plant, Mobile Crushing/ Screening Plant, or Mobile Cement Plant is brought to the site to prepare construction materials required for the project, the selected Contractors will be required to provide a copy of their Environmental Compliance Approval (Air and Noise) emissions for the mobile operations of their equipment. As stated previously Section 9 of the Environmental Protection Act (EPA) requires that an approval be obtained before the installation or modification (i.e. use) of all atmospheric emission sources. Mobile operations are required to obtain Environmental Compliance Approvals, via the Ministry of Environment, Conservation and Parks permissions and approvals branch.

Appendix L Neegan Burnside Report

NEEGAN BURNSIDE

Proposed Fixed Link Study – Preliminary Evaluation of Engineering and Environmental Alternatives
Chippewas of Georgina Island First Nation

Prepared by

Neegan Burnside Ltd.
15 Townline Orangeville ON L9W 3R4 Canada

January 2008

File No: FC010428

The material in this report reflects best judgement in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Neegan Burnside accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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Executive Summary

Neegan Burnside was retained by the Chippewas of Georgina Island to help complete a first step toward realizing a fixed link between their island community and the mainland. This report focuses on a preliminary evaluation of routes and alternative crossing methods to begin to answer the question of how to provide a more convenient and consistent mode of travel for the residents and their visitors.

The preliminary cost reviews estimate a capital requirement of between $60 million and $200 million, which is ambitious, but provides a starting basis for potential discussions on partnerships and investments.

Preliminary estimates on revenue generation are encouraging even when reviewing revenue independent of possible commercial development.

An estimate to complete the Final Feasibility Study to INAC requirements is provided. The cost is potentially estimated at $881,000, including geotechnical investigations for the final design.

1.0 Introduction and Background

1.1 Introduction

The Chippewas of Georgina Island First Nation has initiated a Preliminary Evaluation of Engineering and Environmental Alternatives Study for a proposed Fixed Link, a reliable all-weather transportation (vehicle and passenger) link from Georgina Island to the mainland. This project will affect not only the lifestyle of the community and its members but also cottagers and other visitors to the island.

The community is located in southern Lake Simcoe, approximately 2 km from the mainland shore. Access to the Virginia Beach Marina is provided from Highway 48. Figure 1.1 shows the community location.

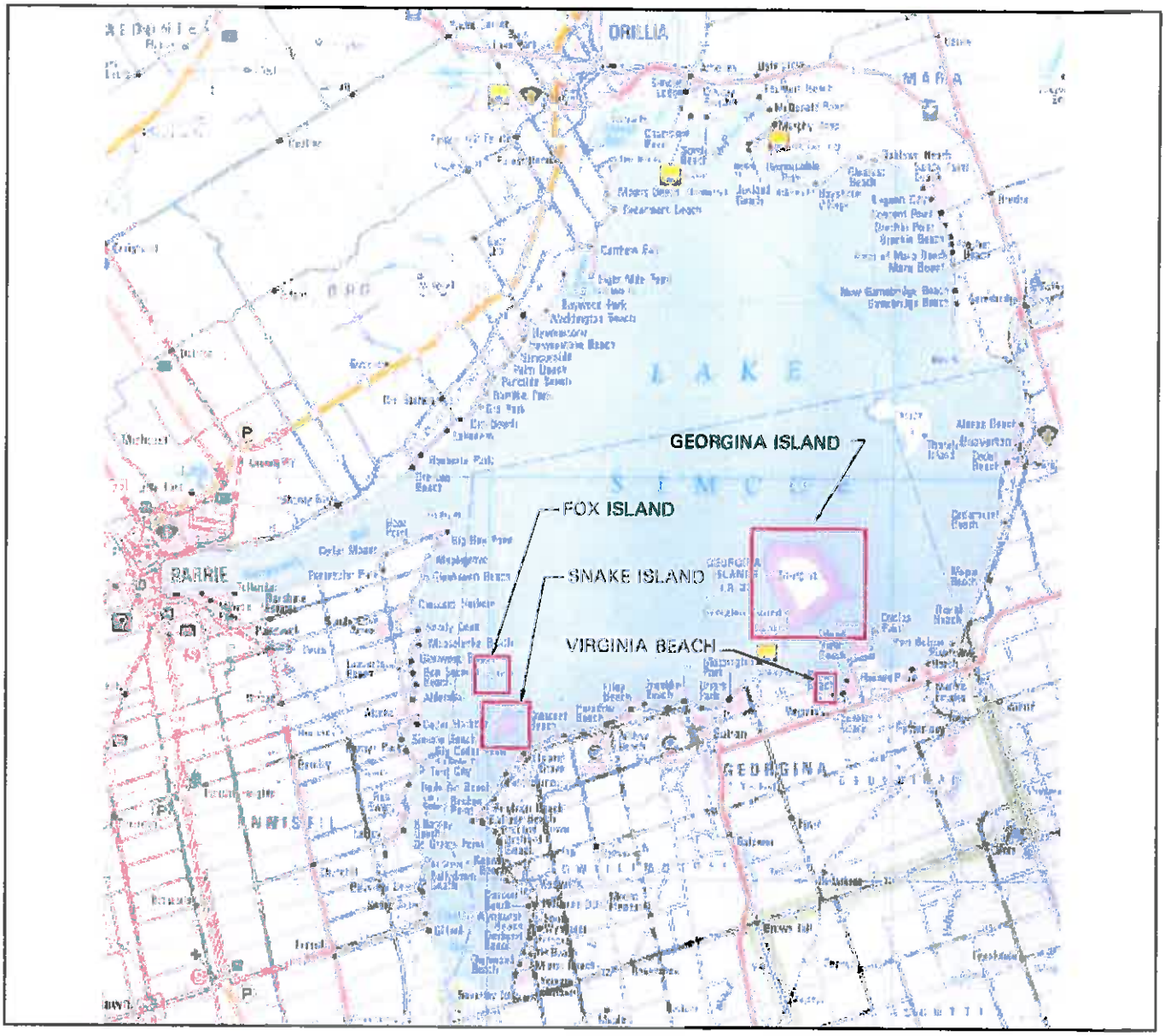
The proposed study limits are defined by Highway 48 to the south, Sibbald Point Provincial Park to the west, the north shore of Georgina Island and Duclos Point to the east (Figure 1.2).

The Chippewas of Georgina Island First Nation has retained Neegan Burnside Ltd. (Neegan Burnside) to undertake this study, which will identify existing conditions within the study area, identify and evaluate alternative solutions, routes and designs and determine a preliminary conceptual preferred design.

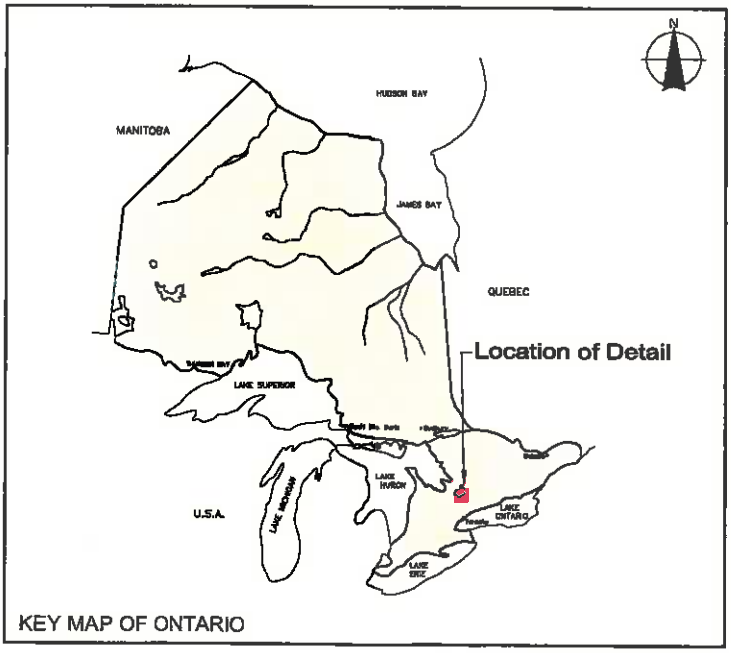
1.2 Study Background

In May 2006, a Capital Planning Study was prepared by Neegan Burnside to determine infrastructure and planning needs within The Chippewas of Georgina Island First Nation community. Based on the results of the community survey, administered as part of the Capital Planning Study Update, the need for a Fixed Link to the Mainland was identified as a high priority for the community members. Of the community facilities identified for prioritization, the Fixed Link ranked second out of 18 facilities identified. Of the 40 respondents to the community survey, 22 people identified it as one of their top three community facilities in terms of priority.

Seventy-five percent of respondents to an off-Reserve questionnaire, undertaken during the Capital Planning Study, said that they would consider returning to the community if there was a Fixed Link to the mainland. A total of 132 people would potentially return to the community.



Map Reference:
Map Art Publishing
Ontario Road Atlas



KEY MAP OF ONTARIO

FIGURE 1.1 - COMMUNITY LOCATION

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

PROPOSED FIXED LINK STUDY

August 2007
Project Number: FCO10428

Prepared by: C. Reynolds

Verified by: C. Jones

NEEGAN BURNSIDE

Revision # 1

FCO10428 PFLS SI.DWG

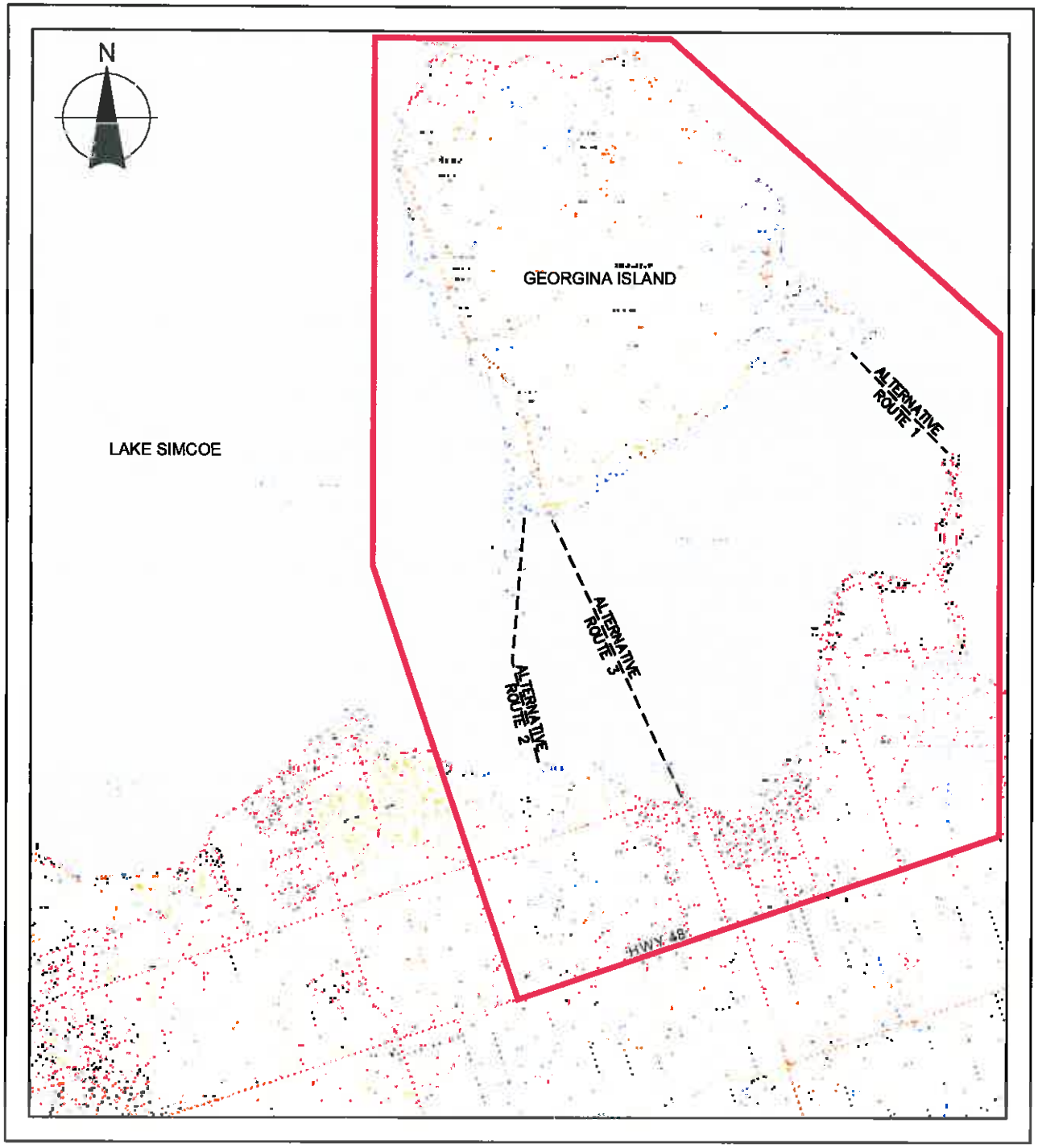


FIGURE 1.2

CHIPPEWAS OF GEORGINA ISLAND REGION OF YORK, TOWN OF GEORGINA *FIXED LINK STAGE 1 STUDY*

STUDY LIMITS

Legend

LIMITS OF STUDY AREA

PROPOSED FIXED LINK CORRIDORS

Map Source: Background 1:10,000 Ontario Base Mapping obtained from First Base Solutions Inc.

0 .40 .80 1.2 1.6 2.0 2.4 2.8 3.2 3.6 4.0 4.4 4.8

Kilometers

1:60,000
November 2006
Project Number: FCO10428

Projection: UTM Zone 17
Datum: NAD83

Prepared by: J. Amsen

Verified by: C. Jones

NEEGAN BURNSIDE

REVISION #: 1

FCO10428 RP.DWG

The Capital Planning Study stated that a Fixed Link to the mainland was an important step to increasing economic development, tourism, employment, health and safety for the community. It would also provide better opportunities for youth to become involved with educational and recreational programs outside of the community. However, a Fixed Link to the mainland has the potential to change the character of the island. The island would effectively become an extension of the mainland. With that come potential changes to the amount of traffic, the amount of vehicles and the amount of isolation that community residents have.

1.3 Existing Ferry Operations

Georgina Island is located approximately 3km from the mainland. During the months of April to December, when there is open water on Lake Simcoe, the Georgina Island First Nation relies on a passenger and vehicle ferry to transport community members between the island and the mainland. In addition to the 220 First Nation members living on the island, there are approximately 330 cottagers located on Georgina Island First Nation and additional island visitors which rely on the ferry service. The ferry is operated by the First Nation and has a capacity of 99 passengers and 17 vehicles. This ferry, known as the "Aazhaawe" has been in service since 2001. The weight capacity is 70 tons. The ferry has a regular daily schedule consisting of 10 to 17 return trips per day. Community members travel on a daily basis to the mainland for access to schools, shopping and employment. Access to the Island is required for construction vehicles, residents, cottagers and tourists. Docks for the Virginia and Georgina Island dock terminals were reconstructed in 2001 to accommodate the ferry. Construction involved additional sheet piling and channel dredging of Lake Simcoe to accommodate the draft of the ferry.

The existing ferry became operational in 2001. During 2001 there were some unexpected operational problems that caused the ferry to be out of operation for one week in April and two weeks in July. Passenger traffic did not recover following the July operational problems. Since that time, there have been intermittent problems resulting in lost travel days due to breakdowns and unforeseen problems.

During the freeze and thaw months of January to March, the ferry is winterized at the Virginia Beach site. Transportation is limited during this time to using scoots, which are 12 passenger air-propelled vehicles, snowmobile, or personal car across the ice. Vehicles cross on an ice road once the ice thickness is sufficient to accommodate their loading (i.e. about 30 cm minimum thickness is recommended for car travel) though there is no formal restrictions enforced by the First Nation. The scoot is considered a somewhat dangerous vehicle give its size. The Ferry Operation Business Plan (Neegan Burnside 2002) recommended that, as this time of year is considered quite dangerous for the community given the uncertain weather conditions and ice structure of the lake, a secure winter transportation method should be investigated.

Additional information on existing ferry operations is provided in Section 5.0.

2.0 Project Description

2.1 Project Site

Georgina Island First Nation is located in the southern portion of Lake Simcoe, in the Township of Georgina, Region of York, Ontario. The community is comprised of three islands: Georgina, Snake, and Fox (Snake and Fox island are located to the south west of the project study area). The First Nation community also owns a portion of land on the mainland at Virginia Beach (Figure 1.1). The existing community plan for Georgina Island is shown in Figure 2.1 and for the Virginia Beach Marina Parcel in Figure 2.2.

Chippewas of Georgina Island First Nation is approximately 1,295 ha. As of 2007, there were 214 people residing within the Georgina Island First Nation Community, including 190 band members and 24 non-band members. In addition, 330 cottagers have seasonal residences on the various Islands.

2.2 Purpose/Rationale of Project

The long-term goal of providing a Fixed Link for the community is to address safety concerns for residents, create potential economic and development benefits and provide positive social impacts to the community.

This study will provide a framework for moving forward with the additional studies and planning exercises required for a project of this size and importance. Once the studies outlined are completed, a better understanding of the design considerations and constraints will be available, as well as a clear picture of the best design alternative, taking into account social and economic costs.

2.3 Preliminary Project Alternative Solutions, Alternative Routes and Alternative Designs

To develop the preliminary study, it was necessary to first review alternative solutions that would satisfactorily meet the long term goals of the community.

The following alternative solutions have been considered:

- Do Nothing
- Improve existing ferry and ice road operations (larger ferry, ferry schedule, ice breakers, bubble system etc)
- Utilize existing Ferry and/or Hovercraft
- Utilize existing Ferry and/or Helicopter
- Utilize existing Ferry and Cable Car
- Implement new Fixed Link - Road link (tunnel)
- Implement new Fixed Link - Road link (bridge and/or causeway combination).

Potential routing of alternatives was also reviewed. For the purposes of this preliminary study, three routes within the study area were chosen as indicative of the potential positives and negatives that may be encountered throughout the study area.

The following alternative routes/corridors have been considered:

- Alternative 1 – South east Georgina Island to Duclos Point – this site offers the shortest connecting route with roads developed near each beach point

- Alternative 2 – South west Georgian Island to Doyle Beach/Virginia - this option provides a historically shallow route between the developed on-island marina and a potential beach road allowance on the mainland

- Alternative 3 – South west Georgina Island to Virginia Beach (existing ferry route) – this option uses the existing ferry route as a guideline. The termination point on both sides belongs to the Georgina Island First Nation and is environmentally disturbed.

A figure showing the proposed routes is included as Figure 2.3.

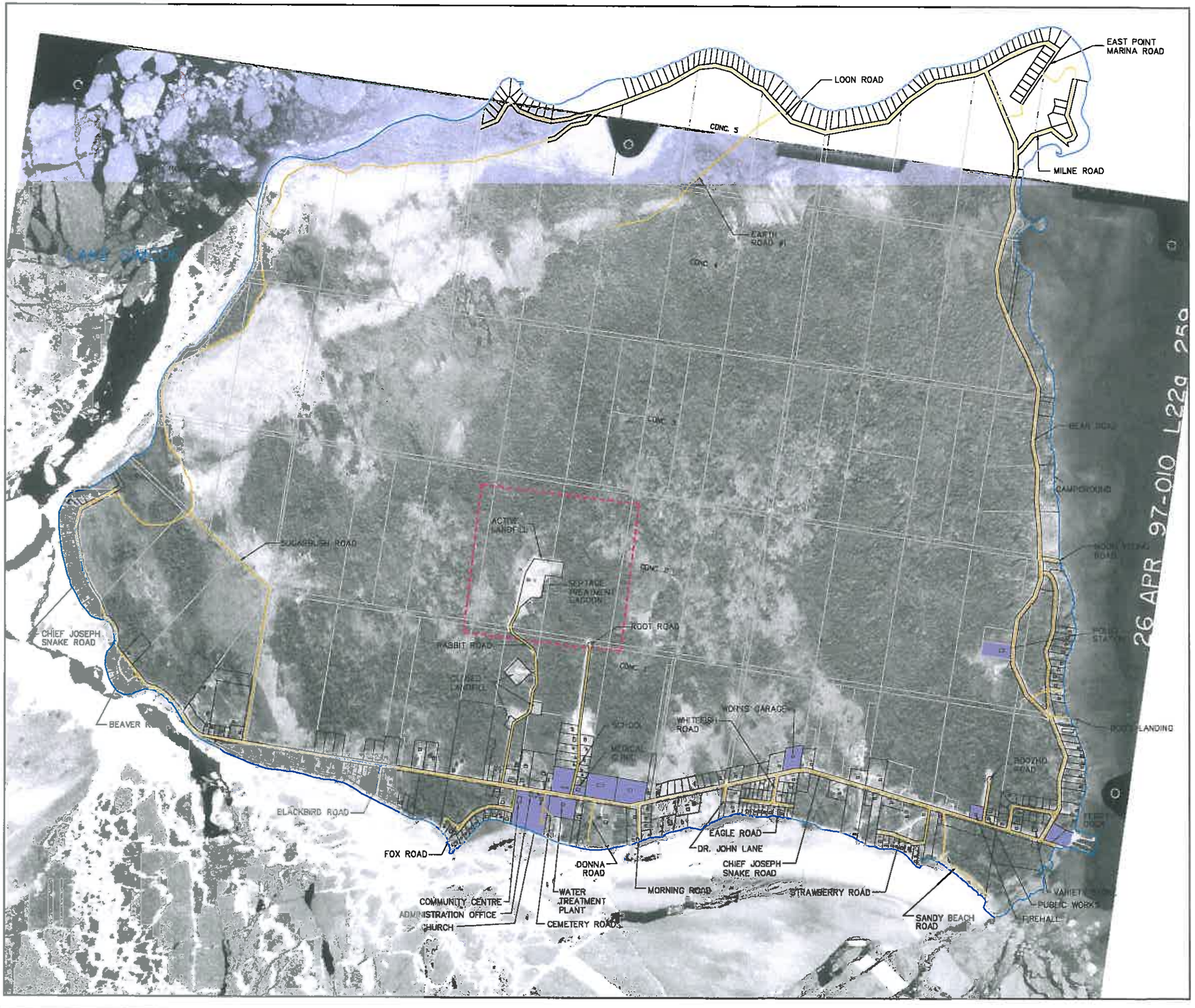


FIGURE 2.1

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

PROPOSED FIXED LINK STUDY

GEORGINA ISLAND COMMUNITY PLAN

Legend

EXISTING ROAD

N

0 200 400 600 800 1000 1200 1400

Meters

1:17,500
August 2007
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds

Verified by: C. Jones

NEEGAN BURNSIDE

Revision #: 1

FCO10428 PFLS GEORGINA CP.DWG



FIGURE 2.2

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
PROPOSED FIXED LINK STUDY

VIRGINIA BEACH COMMUNITY PLAN

Legend

APPROXIMATE FIRST NATION BOUNDARY

Airphoto Source:
Background 1999 airphoto obtained from Triathlon Inc.

N

0 10 20 30 40 50 60 70 80 90 100 110 120
Meters

1:1,500
August 2007
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds Verified by: C. Jones

NEEGAN BURNSIDE

Revision #: FCO10428 PFLS VIRGINIA BEACH CP.DWG

1. Georgina Island ANSI
2. Duclos Point Park Reserve ANSI
3. Georgina Island ESA
4. Big Shoal ESA
5. Duclos Point ESA
6. Mossington Park ESA
7. Virginia Beach ESA
8. Georgina Island PSW
9. Morning Glory Swamp PSW
10. Mossington Park NPSW
11. Riverview Beach Wetlands NPSW
12. Sibbald Point Provincial Park

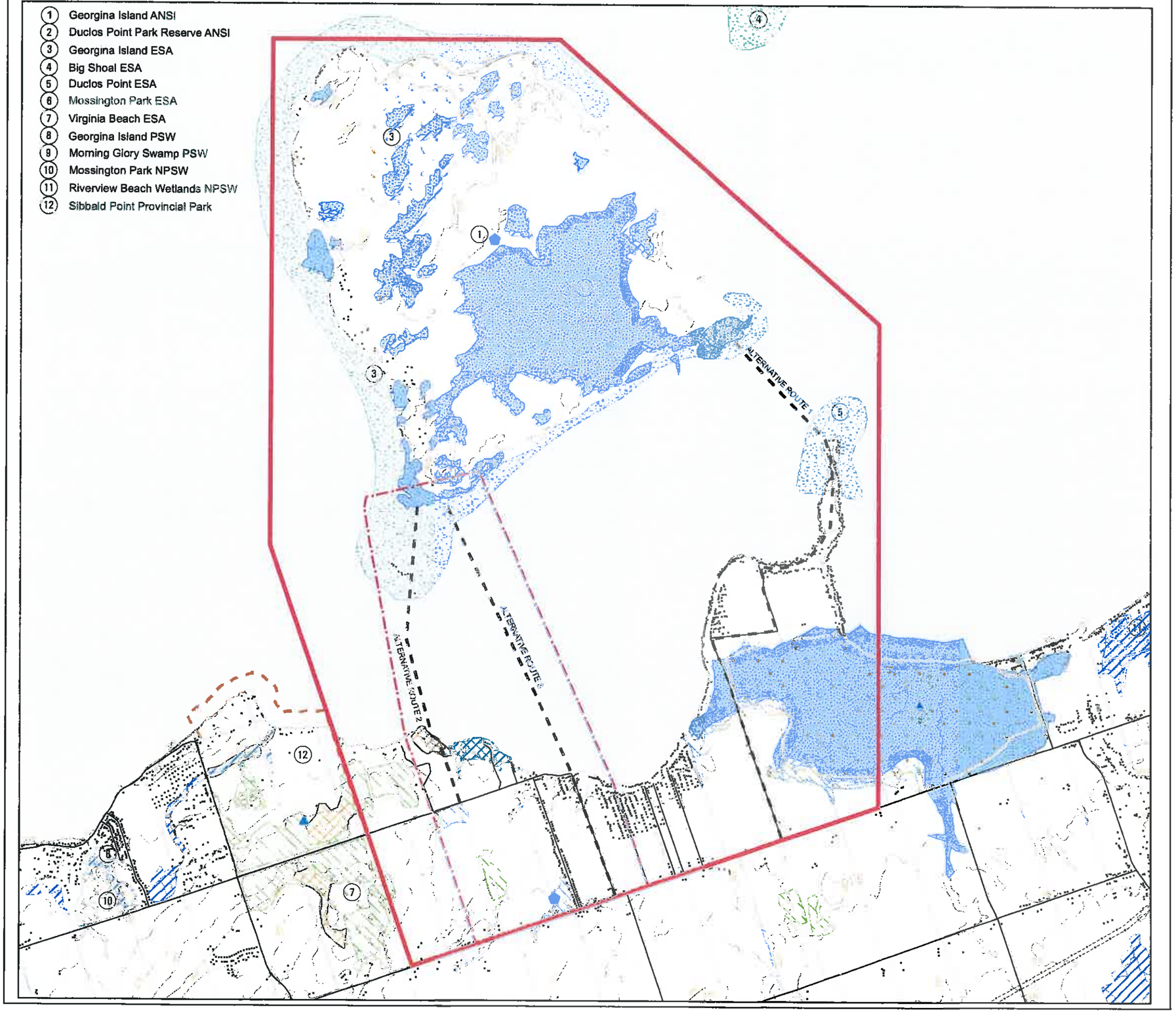


FIGURE 2.3

CHIPPEWAS OF GEORGINA ISLAND
REGION OF YORK, TOWN OF GEORGINA

PRELIMINARY EVALUATION OF ENGINEERING AND ENVIRONMENTAL ALTERNATIVES STUDY

PROPOSED ROUTES

Legend

- River/Stream: Seasonal
- River/Stream: Permanent
- Study Area
- Area Identified for Additional Studies
- Road
- Lot
- Utility Line: Unspecified
- Waterbody
- Provincial Life Science Areas of Natural and Scientific Interest (ANSI)
- Provincial Park
- First Nation Owned Land
- Shoal Environmentally Significant Areas (ESA)
- Old Growth Forest (>100 Years)
- Mid-to-Late Successional Forest (>4 ha)
- Non-Provincial Significant Wetlands (NPSW)
- Provincial Significant Wetlands (PSW)
- Biological ESAs
- Local Life Science Site
- Local Earth Science Site
- Buildings

Produced using information provided by the Ministry of Natural Resources, Copyright © Queen's Printer, 2007.
York Region, Town of Georgina Official Plan, Schedule B3, B4, B5, B6.

N

0 500 1,000 1,500 2,000 2,500
Meters

Scale: 1:40,000
Mapping Date: January 24, 2007

Projection: UTM Zone 17
Datum: NAD 83

Project: FC010428
Prepared By: B. Berry

Verified By: T. Radburn

NEEGAN BURNSIDE

X:\Project\Jobs\FC010428\Map\FC010428 PROPOSED ROUTES 2.3.MXD

3.0 Description of the Study Area

To enable the identification of feasible routes, alternatives and evaluate potential environmental effects, the study team reviewed and updated inventory information of natural and socio-economic features within the study area. In particular the inventory work included:

- Review and analysis of existing documentation:
  –Land ownership/zoning
  –Land uses
  –Ministry of Natural Resources (MNR) and Department of Fisheries and Oceans (DFO) resource information
  –Socio-economic review of INAC registration system
  –Review of Natural Heritage Information Center (NHIC), Environment Canada (EC) and Ontario Breeding Bird Atlas websites.

- Site reconnaissance:
  –Terrestrial ecosystems
  –Land use factors.

Field data and existing documents were supplemented with information obtained through pre-consultation with government agencies and stakeholder groups. For an overview of the public consultation activities refer to Section 4.0.

3.1 Climate, Geology and Soil

Climate

Within Lake Simcoe, precipitation is heaviest from June to January ranging from 79 to 95 mm; with lower amounts of precipitation from February to May ranging from 59 to 70 mm. Total average precipitation is approximately 932 mm annually. The mean average temperature for Lake Simcoe is 5.6°C, with cooler temperatures occurring between October and April ranging from -12°C to 7.4°C, and warmer temperatures occurring between May and September ranging from 13°C to 20.4°C.

Air quality within the study area can be characterized by the Ministry of Environment (MOE) Air Quality Index (AQI) reports based on monitoring results from MOE Air Quality Monitoring Stations. The closest air quality monitoring station to Georgina Island is the Barrie Station. The general trend for the AQI in this area, based on 2005 and 2006 data, tends to range from good to very good in January and February, good from March to October with a few poor days in early June and moderate days throughout the summer months. October and November range from good to very good with a few moderate days near the beginning of October.

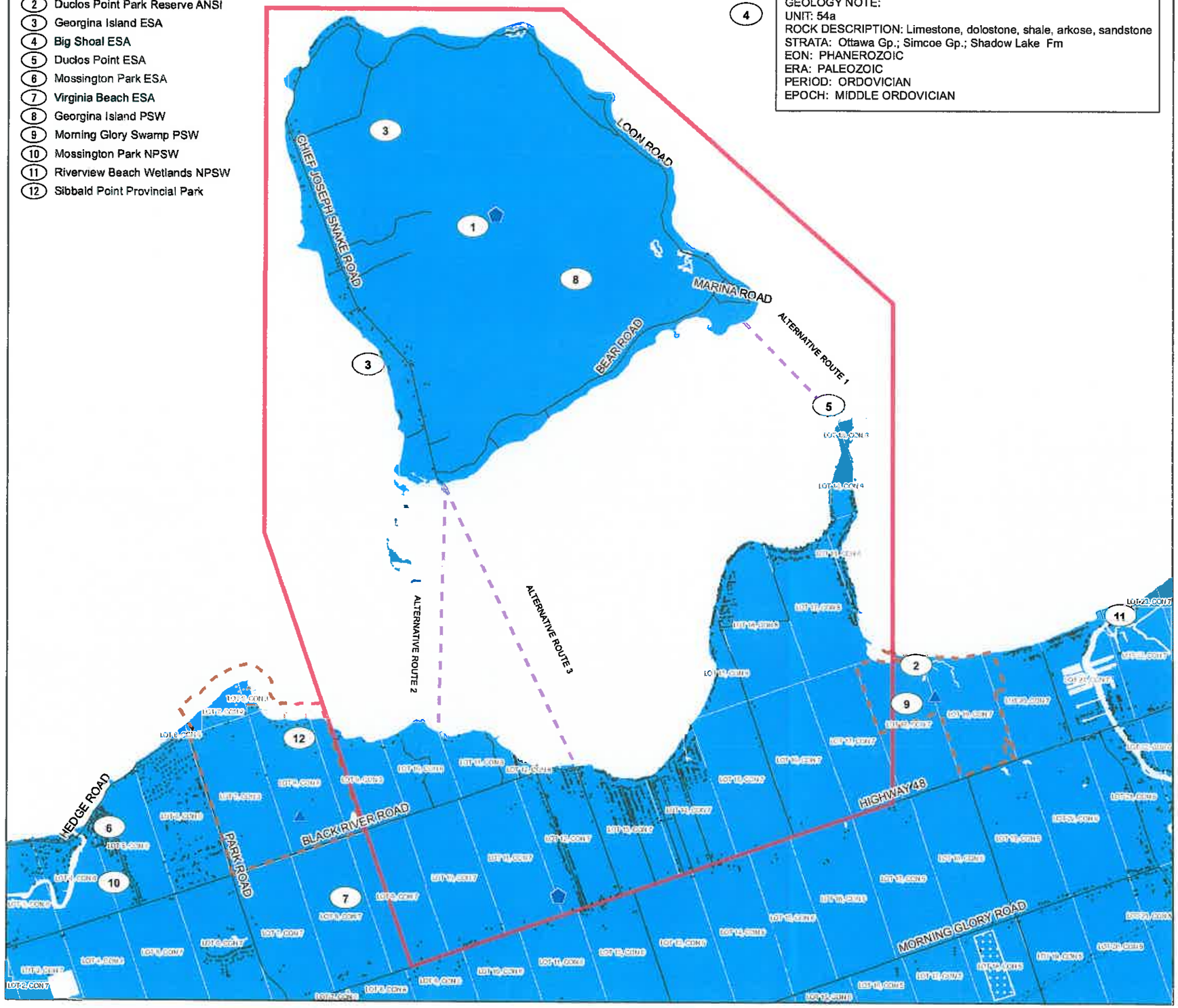
There is a gradual warming in the climate affecting Lake Simcoe that has impacted the ice cover and freeze-up/break-up trends for the Lake. Historical data shows that the lake currently freezes 1.3 days later and breaks up four days earlier than it did 140 years ago (Canadian Council of Ministers of the Environment, 2003). Environment Canada has stated that climate change could reduce water levels in the Great Lakes and related watersheds to lower than they have been in recorded history. These changes will impact shipping, power generation, and wildlife. Even though most climate scenarios predict increased precipitation for the region around the Great Lakes, higher temperatures will mean greater evaporation of water into the atmosphere. They will also mean less snow in winter, so less spring run-off and snow melt entering the lakes. According to researchers, the average temperature in the Great Lakes basin could go up by about 4.5°C by 2055, with slightly larger increases in winter than in summer. Higher rates of evaporation and drier soils would reduce runoff, and water levels in the Great Lakes could fall by an average of between 0.5 m and 1.0 m, according to typical scenarios.

Geology/Soils

Chippewas of Georgina Island First Nation is underlain by limestone bedrock which rises 8-10 m above Lake Simcoe on its northwestern and northeastern points. On these points the bedrock is covered by only 10 to 15 cm of sandy or clay loams. The bedrock is exposed as a cliff along the steep slopes of the north shore. Two former embankments along this shore have a series of post-glacial cobble beach ridges. To the south, the island slopes down into the lake with much of the land only 0.5 to 3 m above the lake. A former embayment along the southeast side has accumulated thick organic deposits in excess of 40 cm deep. Off the south shore, there are shallow silts over gley and, off the island's southwest corner; currents have deposited a series of small islands and spits known as the Sand Islands (Varga et al., 1998).

Georgina Island is part of the Drumlinized Till Plain Physiographic Unit. The surface soil cover consists of Otonabee sandy loam occupying gentle sloping areas and the king clay series found in more steeply sloping areas, which cover approximately 90 percent of the island. The soils are predominantly loam-textured with clays in the northern portion. The main soil type developed from loamy glacial till, is well drained, and occurs on moderately sloping topography. Because of these slopes, the soil is susceptible to sheet erosion. The clay soils were derived from till deposits intermixed with glaciolacustrine sediments and are well drained occurring on smooth, moderately sloping topography. This soil type is also susceptible to erosion. The remainder of Georgina Island is composed primarily of loam-textured soils similar to those described above. Figure 3.1 shows the underlying geology of the area, while Figure 3.2 shows the overlying soil structure.

1. Georgina Island ANSI
2. Duclos Point Park Reserve ANSI
3. Georgina Island ESA
4. Big Shoal ESA
5. Duclos Point ESA
6. Mossington Park ESA
7. Virginia Beach ESA
8. Georgina Island PSW
9. Morning Glory Swamp PSW
10. Mossington Park NPSW
11. Riverview Beach Wetlands NPSW
12. Sibbald Point Provincial Park



CHIPPEWAS OF GEORGINA ISLAND
REGION OF YORK, TOWN OF GEORGINA
PRELIMINARY EVALUATION OF ENGINEERING AND ENVIRONMENTAL ALTERNATIVES STUDY

STUDY AREA GEOLOGY
FIGURE 3.1

Legend

- Local Earth Science Site
- Local Life Science Site
- Building: Not to Scale
- Study Area
- Utility Line: Unspecified
- Provincial Park
- Road
- River/Stream: Seasonal
- River/Stream: Permanent
- Lot
- Pit/Quarry: Unspecified
- Waterbody
- Geology (51a Ottawa Gp.; Simcoe Gp.; Shadow Lake Fm.)

Produced using information provided by the Ministry of Natural Resources, Ontario Geologic Survey
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York Region, Town of Georgina Official Plan, Schedule B3, B4, B5, B6.

0 500 1,000 1,500 2,000
Meters

N

Scale: 1:40,000
Mapping Date: June, 2007

Projection: UTM Zone 17
Datum: NAD 83

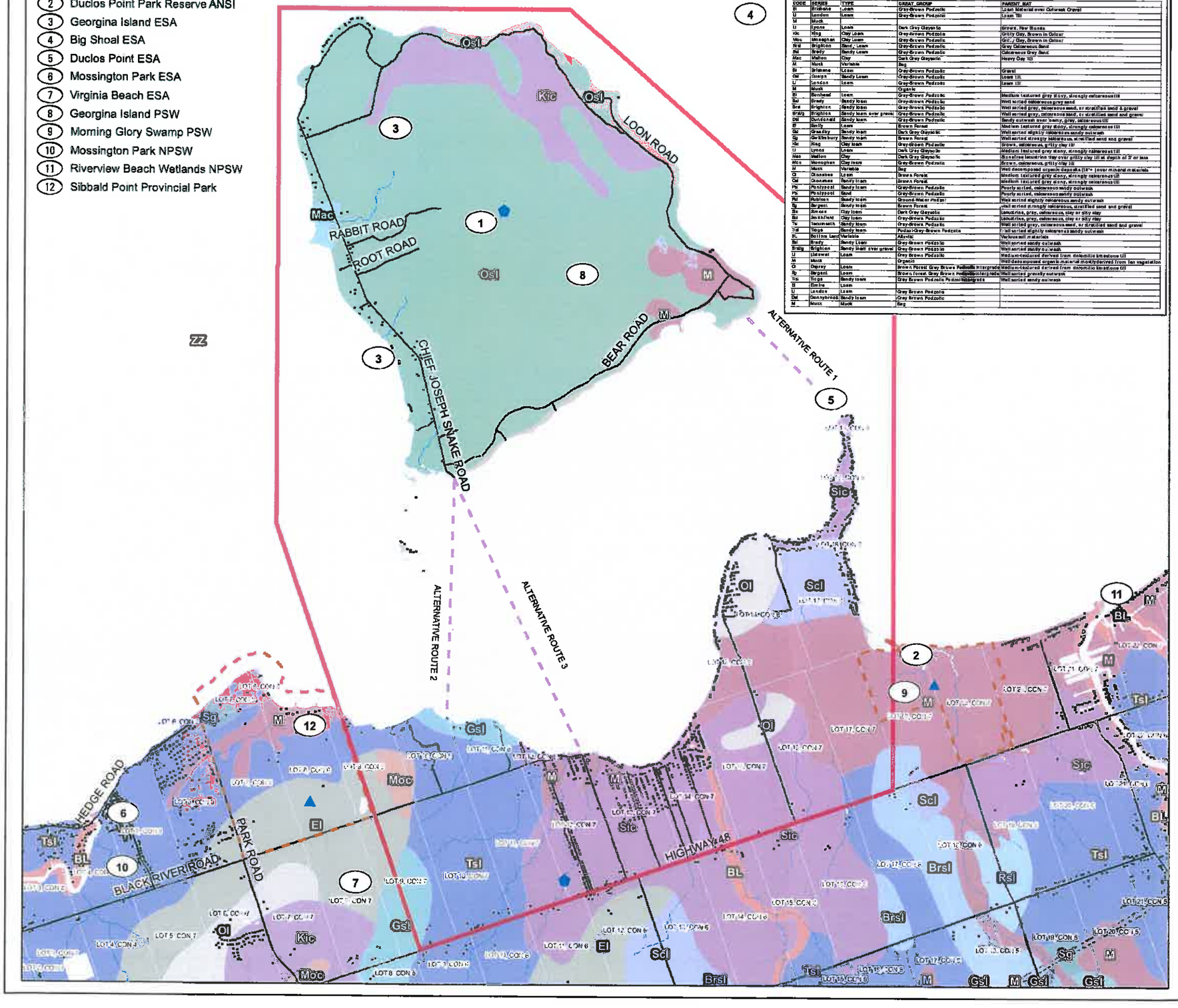
Project: FCD10428
Prepared By: Z. Jake Jakop

Verified By: Henry Centen

NEEGAN BURNSIDE

X:\Projects\FCD\FCD10428\Map\FCD10428 Figure 3.1 Study Area GeoCopy.mxd

1. Georgina Island ANSI
2. Duclos Point Park Reserve ANSI
3. Georgina Island ESA
4. Big Shoal ESA
5. Duclos Point ESA
6. Mossington Park ESA
7. Virginia Beach ESA
8. Georgina Island PSW
9. Morning Glory Swamp PSW
10. Mossington Park NPSW
11. Riverview Beach Wetlands NPSW
12. Sibbald Point Provincial Park



SOILS LOOK UP TABLE

CODE	SERIES	TYPE	GREAT_GROUP	PARENT_MAT
Bl	Brisbane	Loam	Grey-Brown Podzolic	Loam Material over Outwash Gravel
Ld	London	Loam	Grey-Brown Podzolic	Loam Till
M	Muck			
Ly	Lyons	Loam	Dark Grey Gleysolic	Brown, Few Stones
Kic	King	Clay Loam	Grey-Brown Podzolic	Gritty Clay, Brown in Colour
Mcs	Monaghan	Clay Loam	Grey-Brown Podzolic	Gritty Clay, Brown in Colour
Brgt	Brighton	Sand, Loam	Grey-Brown Podzolic	Grey Calcareous Sand
Bsl	Brady	Sandy Loam	Grey-Brown Podzolic	Calcareous Grey Sand
Mac	Mellon	Clay	Dark Grey Gleysolic	Heavy Clay till
M	Muck	Variable	Bog	
Gl	Grimsby	Loam	Grey-Brown Podzolic	Gravel
Osl	Oakalla	Sandy Loam	Grey-Brown Podzolic	Loam till
Ld	London	Loam	Grey-Brown Podzolic	Loam till
M	Muck		Organic	
Bl	Bonehead	Loam	Grey-Brown Podzolic	Medium textured grey stony, strongly calcareous till
Bsl	Brady	Sandy loam	Grey-Brown Podzolic	Well sorted calcareous grey sand
Brgt	Brighton	Sandy loam	Grey-Brown Podzolic	Well sorted grey, calcareous sand, or stratified sand & gravel
Brgty	Brighton	Sandy loam over gravel	Grey-Brown Podzolic	Well sorted grey, calcareous sand, or stratified sand and gravel
Dld	Dundonald	Sandy loam	Grey-Brown Podzolic	Sandy outwash over loamy, grey, calcareous till
Bf	Barrie	Loam	Brown Forest	Medium textured grey stony, strongly calcareous till
Gld	Granby	Sandy loam	Dark Grey Gleysolic	Well sorted slightly calcareous sandy outwash
Gy	Gwillimbury	Sandy loam	Brown Forest	Well sorted strongly calcareous, stratified sand and gravel
Kic	King	Clay loam	Grey-Brown Podzolic	Brown, calcareous, gritty clay till
Ly	Lyons	Loam	Dark Grey Gleysolic	Medium textured grey stony, strongly calcareous till
Mac	Mellon	Clay	Dark Grey Gleysolic	Stonefree lacustrine clay over gritty clay till at depth of 3' or less
Mcs	Monaghan	Clay loam	Grey-Brown Podzolic	Brown, calcareous, gritty clay till
M	Muck	Variable	Bog	Well decomposed organic deposits (16"+) over mineral materials
Ot	Otonabee	Loam	Brown Forest	Medium textured grey stony, strongly calcareous till
Otd	Otonabee	Sandy loam	Brown Forest	Medium textured grey stony, strongly calcareous till
Pls	Parkhill	Sandy loam	Grey-Brown Podzolic	Poorly sorted, calcareous sandy outwash
Plsl	Parkhill	Sand	Grey-Brown Podzolic	Poorly sorted, calcareous sandy outwash
Rd	Rubicon	Sandy loam	Ground-Water Podzol	Well sorted slightly calcareous sandy outwash
Bg	Bergen	Sandy loam	Brown Forest	Well sorted strongly calcareous, stratified sand and gravel
Stc	Simcoe	Clay loam	Dark Grey Gleysolic	Lacustrine, gray, calcareous, clay or silty clay
Bd	Brantford	Clay loam	Grey-Brown Podzolic	Lacustrine, gray, calcareous, clay or silty clay
Te	Tecumseth	Sandy loam	Grey-Brown Podzolic	Well sorted gravelly calcareous sand, or stratified sand and gravel
Tld	Tioga	Sandy loam	Podzol-Grey-Brown Podzolic	Well sorted slightly calcareous sandy outwash
BL	Bottom Land	Variable	Alluvial	Various soil materials
Bd	Brady	Sandy Loam	Grey-Brown Podzolic	Well sorted sandy outwash
Brdg	Brighton	Sandy loam over gravel	Grey-Brown Podzolic	Well sorted sandy outwash
Ll	Listowel	Loam	Grey Brown Podzolic	Medium-textured derived from dolomitic limestone till
M	Muck		Organic	Well decomposed organic material mostly derived from fen vegetation
Os	Osprey	Loam	Brown Forest Grey Brown Podzolic Intergrade	Medium-textured derived from dolomitic limestone till
Sg	Sargent	Loam	Brown forest Grey Brown Podzolic Intergrade	Well sorted gravelly outwash
Tds	Tioga	Sandy loam	Grey Brown Podzolic Podzol Intergrade	Well sorted sandy outwash
El	Elmira	Loam		
Ld	London	Loam	Grey Brown Podzolic	
Dd	Donnybrook	Sandy loam	Grey Brown Podzolic	
M	Muck	Muck	Bog	

CHIPPEWAS OF GEORGINA ISLAND
REGION OF YORK, TOWN OF GEORGINA

PRELIMINARY EVALUATION OF ENGINEERING AND ENVIRONMENTAL ALTERNATIVES STUDY

STUDY AREA SOILS
FIGURE 3.2

Legend

- Local Earth Science Site
- Local Life Science Site
- Building: Not to Scale
- Study Area
- Utility Line: Unspecified
- Provincial Park
- Road
- River/Stream: Seasonal
- River/Stream: Permanent
- Lot
- Pit/Quarry: Unspecified
- Waterbody

Soils

- BL
- Brsl
- El
- Gsl
- Kic
- M
- Mac
- Moc
- Ol
- Osl
- Rsl
- Scl
- Sg
- Slc
- Tsl
- ZZ

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York Region, Town of Georgina Official Plan, Schedule B3, B4, B5, B6.
1957 Bathymetry provided by Nautical Data International, Inc. (Chart File No #2790)

0 500 1,000 1,500 2,000
Meters

N

Scale: 1:40,000
Mapping Date: Jan, 2008

Projection: UTM Zone 17
Datum: NAD 83

Project: FC010428
Prepared By: Z. Jake Jakop

Verified By: Henry Centen

NEEGAN BURNSIDE

X:\Projects\FC0\FC010428\Map\FC010428 Figure 3.2 Study Area Soils.mxd

3.2 Bathymetry and Water Levels

Lake Simcoe is in the Severn River watershed and is part of the Trent-Severn waterway. Water levels and flows are managed by Parks Canada, an agency of Environment Canada. Dam settings are based on the establishment of trends, extremes and averages from level recording stations and from streamflow precipitation gauges. Lake Simcoe has been managed using a rule curve, in effect since 1918, which serves as a target or guide for water levels throughout the year. Due to its large size, Lake Simcoe reacts relatively slowly to climatic conditions and stop-log changes. Flows are also coordinated on the Black River to reduce the threat of flooding downstream on the Severn River and Sparrow Lake.

The minimum depth is 1.8 m in the Trent-Severn waterway, between the locks in Peterborough and the outfall to Georgian Bay at Port Severn. The minimum overhead fixed bridge clearance is 6.7 m (22 ft.) in the main Trent-Severn waterway channel. The locks along the waterway open in mid May. The entrance of the waterway into Lake Simcoe is located about 13 km to the north and east of Georgina Island. The exit of the waterway from Lake Simcoe is at the north end of the lake, crossing under the Atherley Narrows Bridge (clearance 7.0 m) and into Lake Couchiching.

To identify potential design heights of the water levels for clear opening and wave action, a study of local water elevations is needed. The Lake Simcoe Region Conservation Authority (LRSCA) has historical water level information. The chart datum (or level below which the water will seldom fall) is 218.7 m. This could be considered the low water level. The average annual high water mark (AAHW) for Lake Simcoe has been determined to be 219.5 m above sea level (asl) and could be considered the high water level expected. Over the past 100 years, records show the actual low and high water levels to have varied from 219.47 m to 218.37 m.

Annual variation in the water level in Lake Simcoe is about 0.5 m, with higher lake levels occurring in the summer and lower levels in the winter months. In addition, seiching (i.e. sloshing of water within the lake following an initial storm surge or setup on one part of the lake) may provide a short term increase in lake levels by as much as 0.15 m. Also waves will increase the depths in localized areas, depending upon the prevailing winds (i.e. prevailing winds from the northwest in the summer and from the southwest in the Fall). The bathymetry in the study area is shown in Figure 3.3 The depths from the chart level, as well as marine navigation constraints, are summarized as follows:

- Eastern Area (i.e. between Duclos Point and Georgina Island) – Shoals are shown to extend out from both the mainland point and the island in this area, with depths of less than 1.0 m. A marked shoal (Bald Shoal) also exists in the central area of the channel (although not shown on the bathymetry). Shallow draft boats can navigate through this area by staying to the north of the central shoal, where the depths are assumed to be in the order of 2.5 m within a relatively narrow channel.

1. Georgina Island ANSI
2. Duclos Point Park Reserve ANSI
3. Georgina Island ESA
4. Big Shoal ESA
5. Duclos Point ESA
6. Mossington Park ESA
7. Virginia Beach ESA
8. Georgina Island PSW
9. Morning Glory Swamp PSW
10. Mossington Park NPSW
11. Riverview Beach Wetlands NPSW
12. Sibbald Point Provincial Park

Bathymetry amd Water Level Note:

Point depths LakeSimcoeBathymetry* provided from Lake Simcoe Region Conservation Authority

Additional Bathymetry Data also available for 1957 FileNo #2790 from Nautical Data International, Inc.

Chart datum for Lake Simcoe = 218.7 m (i.e. defined as the level below which the water level will seldom fall). Average annual high water mark (AAHW) = 219.15 m (fromWatershed Development Policies, April 2006, Lake Simcoe Conservation Authority)

LOON ROAD
CHIEF JOSEPH SNAKE ROAD
BEAR ROAD
HIGHWAY 48
HEDGE ROAD
BLACK RIVER ROAD
PARK ROAD
MORNING GLORY ROAD
OLD HOMESTEAD ROAD

CHIPPEWAS OF GEORGINA ISLAND
REGION OF YORK, TOWN OF GEORGINA
PRELIMINARY EVALUATION OF ENGINEERING AND ENVIRONMENTAL ALTERNATIVES STUDY

STUDY AREA BATHYMETRY
FIGURE 3.3

Legend

- Local Earth Science Site
- Local Life Science Site
- Building: Not to Scale
- Proposed Routes
- Study Area
- LakeSimcoeBathymetry
- Utility Line: Unspecified
- Provincial Park
- Road
- River/Stream: Seasonal
- River/Stream: Permanent
- Lot
- Biological ESAs
- Provincial Life Science ANSI
- Provincial Significant Wetlands
- Non-Provincial Significant Wetlands
- Mid-to-Late Successional Forest (>4 ha)
- Old Growth Forest (>100 Years)
- Shoal ESAs
- Waterbody

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York Region, Town of Georgina Official Plan, Schedule B3, B4, B5, B6.
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0 500 1,000 1,500 2,000 2,500
Meters

N

Scale: 1:40,000
Mapping Date: January 11, 2008

Projection: UTM Zone 17
Datum: NAD 83

Project: FCG10428
Prepared By: Z. Jake Jakop

Verified By: Henry Canten

NEEGAN BURNSIDE

X:\Project\Jobs\FC010428\Map\FC010428 Figure 3.3 Study Area Bathymetry.mxd

- Western Area (i.e. between the southwest corner of the island and Doyle Beach) – A major shoal formation extends over a significant part of this area, in places extending above the surface as the Sand Islands. The Sand Island Shoals have depths of less than 1.0 m. Nearer to the mainland the depths are also very shallow, in the order of 0.6 m, extending to the area adjacent to Sibbald's Point Provincial Park. An area of deeper channel exists in the central area between the Sand Island shoals and the mainland, and is thought to have depths of about 1.8 m.

- Existing Ferry Crossing Route – The bathymetric information shown pre-dates the dredging work completed in 2001 to accommodate the new ferry, and therefore it is recommended that updated soundings be obtained to confirm depths in this area. However based on the bathymetric information available, it can be assumed the depths within a 20 metre span would be in the order of 1.5 metres.

Due to the significant area of shoals to the south of Georgina Island in the study area, most cruising boats would travel to the north of Blackbird Point on the north tip of Georgina Island, rather than to follow a route to the south of the island. However there are a number of marinas located in Beaverton, Pefferlaw and Virginia Beach that service recreational boats, as well as cottages, homes and a Provincial Park along the shoreline that have docking facilities.

3.3 Designated Sites and Species Within the Study Area

A review of the NHIC, EC database and Official Plans revealed the following records within the study area:

Georgina Island

- One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science)
- Two Environmentally Sensitive Areas (ESAs) – Georgina Island and Big Shoal
- One Provincially Significant Wetland (PSWs) – Georgina Island Wetlands
- Vulnerable, Threatened or Endangered (VTE) species - as determined by the Committee on the Status of Species At Risk (COSSARO) and identified on the Natural Heritage Information Centre (NHIC) website. Georgina Island First Nation falls within a provincially "unidentified" zone, meaning no inventory or recommendation on species for that area exist.

Mainland

- One Area of Natural and Scientific Interest (ANSI) – Duclos Point Park Reserve (Life Science)
- Two Environmentally Sensitive Area (ESAs) – Duclos Point and Morning Glory Swamp
- One Provincially Significant Wetland (PSW) –Morning Glory Swamp
- One Nature Reserve - Duclos Point Provincial Nature Reserve
- One old growth forest (>100 years) – near Doyle Beach

- Mid-to-Late successional forest (> 4 ha) – near Doyle Beach
- Butternut (SARA, Schedule 1 species)
- Red-Shouldered Hawk (COSEWIC, Special Concern).

The following designated sites are located on the mainland in close proximity to the study area:

- two Environmentally Sensitive Areas (ESAs) - Virginia Beach and Mossington Park
- two Non-Provincially Significant Wetlands (NPSWs) - Mossington Park and Riverview Beach Wetlands
- one Provincial Park - Sibbald Point Provincial Park.

In accordance with Environment Canada's letter of March 6th 2007, there are also records of the following federally designated species (Table 3.1) located within the study area (mainland and island). There are no federally designated aquatic species within the study area.

Table 3.1: Designated Species

Species	Designation	Habitat Preference	Potential to be located within study area
Birds			
Least Bittern	SARA Schedule 1 Threatened	Nest in freshwater marshes, where dense tall aquatic vegetation is interspersed with clumps of woody vegetation and open water. They are most regular in marshes that exceed 5 ha in area.	Yes
Reptiles and Amphibians			
Spotted Turtle	SARA Schedule 1 Endangered	Found in ponds, ditches, streams, swamps, bogs and marshes. They generally prefer soft (muddy) substrate and some aquatic vegetation.	Yes
Blanding's Turtle	SARA Schedule 1 Threatened	Found in a variety of habitats, including lakes, ponds, marshes, low fields, ditches, creeks, river sloughs, and bogs. Within these habitats, the species is associated with shallow water where submergent or emergent plants occur.	Yes
Plants			
American Ginseng	SARA Schedule 1 Endangered	Grows in rich, moist, undisturbed and relatively mature deciduous woods in areas of neutral soil (such as over limestone or marble bedrock). The forest canopy is usually dominated by Sugar Maple, White Ash, Bitternut Hickory, and Basswood.	Yes

Table 3.1: Designated Species – Cont'd			
Species	**Designation**	**Habitat Preference**	**Potential to be located within study area**
Butternut	SARA Schedule 1 Endangered	Grows best in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone.	Yes
Branched Bartonia	SARA Schedule 1 Threatened	Occurs in open graminoid (grass-like vegetation) or low shrub sphagnum bog or fen habitat. It is usually found growing on a peat substrate, and is associated with Larch and Black Spruce	Yes

A summary of each of the ANSI, ESA, wetland and Park/Reserve designations, taken from the NHIC website, is provided in the following sections. Natural features are shown on Figure 3.4.

3.3.1 Areas of Natural Scientific Interest (ANSI) within the Study Area

Chippewas of Georgina Island First Nation

Chippewas of Georgina Island First Nation, which is located entirely on Georgina Island, is approximately 1,291 ha. The island supports a high diversity of 38 vegetation community types. These include 25 wetland communities, nine terrestrial communities and four human-influenced communities.

Most of the island is covered in broadleaf and mixed swamps with the mixed swamps largely confined to the southeast side of the island. The mixed swamps are dominated by White Birch and White Cedar as well as stands of Eastern Hemlock and Black Ash. In the northwestern portion of the island there are small mixed swamps of Black Ash and Green Ash, and Black Ash, Red Maple, White Cedar and occasionally Balsam Fir as secondary tree species.

The extensive broadleaf swamps are largely dominated by Silver Maple with smaller stands of Black Ash, Red Maple and Green Ash. Scattered among the swamps are small openings supporting cattail marshes and thicket swamps of Red-osier Dogwood, willow species and Speckled Alder.

1. Georgina Island ANSI
2. Duclos Point Park Reserve ANSI
3. Georgina Island ESA
4. Big Shoal ESA
5. Duclos Point ESA
6. Mossington Park ESA
7. Virginia Beach ESA
8. Georgina Island PSW
9. Morning Glory Swamp PSW
10. Mossington Park NPSW
11. Riverview Beach Wetlands NPSW
12. Sibbald Point Provincial Park

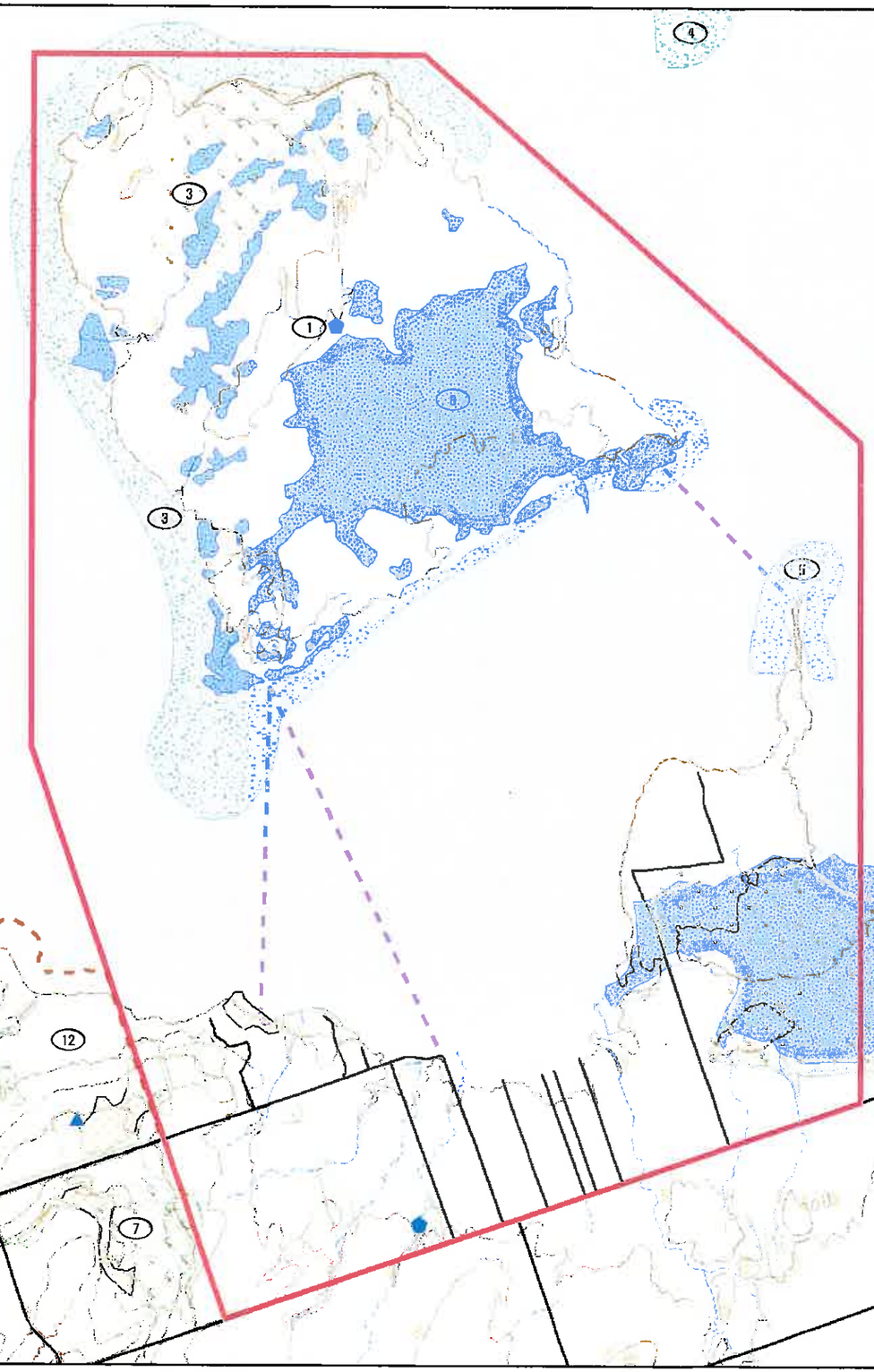

FIGURE 3.4

CHIPPEWAS OF GEORGINA ISLAND
REGION OF YORK, TOWN OF GEORGINA

PRELIMINARY EVALUATION OF ENGINEERING AND ENVIRONMENTAL ALTERNATIVES STUDY

NATURAL HERITAGE FEATURES

Legend

- River/Stream: Seasonal
- River/Stream: Permanent
- Study Area
- Road
- Lot
- Utility Line: Unspecified
- Waterbody
- Provincial Life Science ANSI
- Provincial Park
- Shoal ESAs
- Old Growth Forest (>100 Years)
- Mid-to-Late Successional Forest (>4 ha)
- Non-Provincial Significant Wetlands
- Provincial Significant Wetlands
- Biological ESAs
- Local Life Science Site
- Local Earth Science Site

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York Region, Town of Georgina Official Plan, Schedule B3, B4, B5, B6.

N

0 500 1,000 1,500 2,000 2,500 3,000
Meters

Scale: 1:40,000
Mapping Date: January 10, 2007

Projection: UTM Zone 17
Datum: NAD 83

Project: FC010428
Prepared By: B. Berry

Verified By: T. Radburn

BURNSIDE

X:\Project\Jobs\FC010428\Map\FC010428 Figure 3.4 Natural Heritage Features WD Routes.mxd

Cattail marshes are present on the south shores of Georgina Island with marshes of Water Sedge and Giant Bur-reed in the southeast portion. In the shallow waters of the south shore there are extensive emergent beds of Hard-stemmed Bulrush with submergent Slender Naiad and Tape Grass. In deeper waters, beds of Chara species, Tape Grass, Canada Waterweed and, in sheltered waters, Floating Pondweed are present. Close to shore, beds of Giant Bur-reed occur in association with Tape Grass and Common Coontail.

Upland forests on Georgina are largely found on the sloping north and eastern shores and on the northwest corner of the island. In the northwest, large broadleaf forests of Sugar Maple with Basswood and White Ash as secondary tree species are present. These forests occur over limestone bedrock with approximately 10 to 15 cm of sand loam or clay loam overburden. They have scattered shrubs of Bladdernut, Alternate-leaved Dogwood, and a rich understorey of Zig-zag Goldenrod, False Solomon's-seal, Large-flowered Bellwort, Early Meadow-rue, Wild Sarsaparilla, Peduncled Sedge and Wild Leek. Silver Maple swamps and White Cedar/Sugar Maple forests with Wild Sarsaparilla are present among the bedrock Sugar Maple forests. These bedrock forests are regionally significant in the Greater Toronto Area. The only other examples are found along the Niagara Escarpment in Halton and Peel and on Thorah Island in Durham.

The mixed upland forests occur predominantly along the northern and northeastern shores. On the northern shores, mixed forests of White Cedar scattered with Trembling Aspen are present on steep slopes capped by limestone cliffs with scattered herbs of Mackay's Fragile Fern, Divaricate Rock-cress and Herb Robert. Such limestone cliff communities are considered provincially rare (Bakowsky, 1996), with the only other examples in the Greater Toronto Area occurring along the Niagara Escarpment in Halton and Peel.

Post-glacial beach ridges in the northern embayment on the north shore supports a mature coniferous forest of Eastern Hemlock with White Cedar and a dense low shrub layer of Ground Yew with Wild Sarsaparilla.

Large stands of mixed and coniferous forests with a strong boreal element occur on the sloping northeast shores. White Cedar and Balsam Fir dominate with Trembling Aspen and White Birch as secondary tree species with a scattering of large White Spruce. Saplings of Balsam Fir are common in the understorey with Wild Sarsaparilla and Poison Ivy.

Low beach ridges along the south-central shore support mixed forests of Red Maple, White Ash and White Cedar with scattered tall shrubs of Mountain Maple and a low shrub layer of Ground Yew with Wild Sarsaparilla.

The former large agricultural lands on the eastern and northeastern side of the island are now regenerating fields, Staghorn Sumac thickets and young forests of White Ash and Trembling Aspen. In wetter areas young swamps of Trembling Aspen, Green Ash and White Elm have also developed (Varga et al., 1998).

Duclos Point Park Reserve ANSI

Duclos Point is characterized by a beach spit and backshore marsh and an extensive swamp extending inland from the storm beach. Two small unnamed streams empty into the east marsh. The park reserve represents 95 ha of the total 240 ha marsh-swamp wetland complex.

The Duclos Point Area of Natural and Scientific Interest illustrates a variety of different community types associated with wetland habitat. A progression of community types ranging from the open water of the lake and creeks to shallow marsh to deep marsh to thicket swamp and to deciduous and coniferous swamp forest occurs Moving inland from Lake Simcoe the vegetation pattern is as follows: Offshore sand bars are sparsely vegetated with bulrush (Scirpus americanus). A young forest of balsam poplar - willow - white birch - red ash - cedar is found on the lowlying wet beach bar. The west and east inlet marshes support cattail (Typha latifolia), bulrush, wild rice (Zizania aquatica) and water willow (Decodon verticillatus). These grade into reed (Phragmites australis) - blue joint grass (Calamagrostis canadensis) meadow and then into extensive alder, alder - red ash, silver maple - white birch, cedar and tamarack swamp. [Hanna 1984]

3.3.2 Environmentally Sensitive Areas (ESA) Life Science Sites within the Study Area

Georgina Island

This 363 ha Life Science Site is covered with second growth vegetation and overgrown orchards, as it was cultivated up until 20 – 30 years ago. Vegetation includes white birch, poplar, white cedar, black ash, hawthorn and red raspberry. In the north, a small area is covered with mature eastern hemlock, while the eastern side of the island contains limestone outcrops with a wide variety of sedges (Ecologistics Limited 1982).

Big Shoal

Big Shoal is a 109 ha Life Science Site located southwest of Thorah Island and northeast of Georgina Island. The shoal is nearly 2 km long with water depths ranging from 1 to 5 m, where substrate consists of cobbles and large gravel (Ecologistics Limited, 1982).

Duclos Point

Duclos Point is a 25 ha Life Science Site located south of Georgina Island on the south shore of Lake Simcoe between Sibbald Point Provincial park and the mouth of Pefferlaw Brook (Ecologistics Limited, 1982). The beach is generally pebbly turning rocky further out. Aquatic plants are not present due to heavy wave action in the area.

Virginia Beach Relict

The Virginia Beach Relict is a 52 ha Life Science Site located south of Sibbald Point Provincial Park off of Highway 48. This low-lying, damp area consists of a remnant of the old Lake Simcoe shoreline with large rocks and rocky patches including prominent features such as open damp meadows created by the retreat of the shoreline. This beach relict is surrounded by a solid wall of cedars on the east and west sides with a shrubby strip in the north (Ecologistics Limited, 1982). Vegetation includes scouring rushes with a variety of grasses, sedges and dwarfed white cedar, and thus is fen-like in appearance (Ecologistics Limited, 1982).

Morning Glory Swamp

Morning Glory Swamp is a 353 ha Life Science Site located South of Duclos Point and northwest of Pefferlaw on Lake Simcoe (Ecologistics Limited 1982). The eastern portion of the swamp is dominated by silver maple, with ground cover limited to drier hummocks around tree bases where standing water occurs during periods of abundant precipitation. Loesel's Twayblade is abundant in this community along with three-leaved false solomon's seal, tufted loosestrife, water hemlock and water parsnip. Groundnut was also found in this area near the lakeshore. Further west, the vegetation consists of round-leaved and red osier dogwood, and royal fern with red and black ash interspersed. Along the stream, sweet gale is the dominant species with speckled alder also being common (Ecologistics Limited, 1982).

Mossington Park

Mossington Park is a 32 ha Life Science Site located between Lake Drive and Black River Road half way between Jackson's Point and Sibbald Point. Black River is the western boundary of this site. This area is remnant of upland hardwood among cottage development (Ecologistics Limited, 1982). The hardwood forest adjacent to Black River is indented with a number of small ravines, each with characteristic swamp forest vegetation at the bottom. Very wet conditions occur along sections of the Black River in the form of alder thickets or open marsh. With the exception of the steeper slopes, most of the area has been logged.

3.3.3 Provincially and Non-Provincially Significant Wetlands within the Study Area

Georgina Island Wetlands

Georgina Island Wetlands is a 379 ha Provincially Significant Wetland, made up of 29 individual wetlands. This complex is composed of two wetland types including 93 percent swamp and 7.0 percent Marsh (Konecny et al., 1985). Dominant vegetation forms include 79 percent deciduous trees, 6.3 percent coniferous trees, 5.7 percent tall shrubs, and 2.3 percent low shrubs with 1 percent narrow leaved emergents, 4.5 percent robust-emergents and 1.2 percent submergent vegetation (Konecny et al., 1985). This wetland is located in an area that is 89 percent isolated with 11 percent lacustrine and

exposed to the lake. Soils within this PSW are 93 percent clay, loams or silts, with 5 percent organics and 2 percent undesignated.

Morning Glory Swamp

Morning Glory Swamp is a 345 ha, Provincially Significant Wetland, composed of two wetland types (88% swamp, 12% marsh) (Konecny et al., 1985), and is located in a 97.4 percent lacustrine area exposed to the lake and 2.6 percent riverine area. Dominant vegetation types include deciduous trees (43.1%), coniferous trees (2.7%), dead trees (0.8%), tall shrubs (46.6%), low shrubs (1.8%), narrow-leaved emergents (1.3%), robust emergents (3.1%), and submergent vegetation (0.7%). Soils consist mainly of organics (96%), clays, loams or mineral silts (2%), and undesignated (2%).

Mossington Park Wetlands

The Mossington Park Wetlands cover 3.62 ha and are classified as a non-provincially significant wetland complex made up of three individual wetlands and composed of two wetland types including swamp (84%) and marsh (16%) (Power et.al, 1984). Vegetation communities consist of deciduous trees (16%), tall shrubs (68%) and narrow-leaved emergents (16%). The Mossington Park Wetlands complex is located in an area classified as 84 percent riverine and 16 percent lacustrine in undesignated soils.

Riverview Beach Wetland

Riverview Beach Wetland Complex is a non-provincially significant wetland composed of four individual wetlands located in an area which is 80 percent riverine and 20 percent palustrine with permanent or intermittent outflow. This 33.7 ha complex consists of two wetland types including 95 percent swamp and 5 percent marsh (Dodge et al., 1985). Carex, Typha, and Boreal species are the dominant vegetation types including 70.36 percent deciduous trees, 24.67 percent tall shrubs, 3.05 percent herbs, and 1.92 percent robust emergents. Soils in this area are predominantly organic (97%) with 3 percent of the soils consisting of clays, loams, or silts. Vegetation includes mainly Typha, Carex, and Boreal species.

3.3.4 Provincial Parks/Reserves within the Study Area

Duclos Point Provincial Nature Reserve

Duclos Point Provincial Park is a 111 ha nature reserve located on the southeast shore of Lake Simcoe. Natural features include a swamp which is home to rare plants and bird species including the Marsh Wren, Osprey, and the Caspian Tern. Vegetation includes Silver Maple, Black Ash, cattails, bulrushes, wild rice and small pockets of thicket swamp. Offshore, there is also an extensive sand bar. There are no visitor facilities and camping is not permitted at this provincial park.

Sibbald Point Provincial Park

Sibbald Point Provincial Park is a 225 ha recreational park with facilities for tourists, campers, etc. Sibbald Point is also a major attraction with a beach area on Lake Simcoe. Vegetation in this area includes hardwood and cedar forests within the park.

3.4 Terrestrial Environment

A site reconnaissance was undertaken within the study area on November 24th 2006. During the site reconnaissance numerous ducks, predominately Mallards, were observed within the wetland located in the south west corner of the study area. The preliminary CEAA Screening prepared for the Capital Planning Study (Neegan Burnside 2005) also lists the following fauna present on the Island; moles, rabbits, hare, chipmunk, squirrel, beaver, coyote, fox, raccoon, deer and mice. Hepetofauna include newts, salamanders, toads, frogs, turtles and snakes.

Access to areas on the mainland was restricted due to land ownership constraints. The only fauna noted during the reconnaissance were white tailed deer on the mainland at the time of the survey. Photographs of the study area are provided in Appendix A.

A review of the Ontario Breeding Bird Atlas (OBBA) identified 110 bird species recorded in a 10 km square (17PK31) covering the project study area. The OBBA does not identify any species which are listed on Schedule 1 of the Species At Risk Act (SARA) in the study area. 106 species have a provincial (S-Rank) of S4-S5 (Apparently Secure-Secure). The Caspian Turn (Sterna caspia) is ranked as S3 (Vulnerable) and the Great Egret (Casmerodius albus), Trumpeter Swan (Cygnus buccinators) and Great Black-backed Gull (Larus marinus) are ranked as S2 (Imperiled).

EC confirmed in their letter of March 6, 2007 that one bird, three plants and two reptiles/amphibians (Table 3.1) listed on Schedule 1 of the Species at Risk Act, have the potential to be located within the study area.

A review of the NHIC Ministry of Natural Resources Website identified the Red-Shouldered Hawk (Buteo lineatus) as a species of special concern found near the southwestern perimeter of the project study area on the mainland. One threatened and two endangered unidentified sensitive species are listed on the island. The Butternut (Juglans cinerea) which is a SARA Schedule 1 species was also identified on the NHIC website within the study area. This species, which is located on the mainland in the south west of the study area, is also listed as endangered.

3.5 Aquatic Environment

Lake Simcoe Watershed

The Lake Simcoe watershed has a total land and water surface area of 3,303 km^2, of which the lake occupies about 20 percent or 722 km^2. Lake Simcoe is part of the Trent

Severn Waterway connecting Lake Ontario to Georgian Bay and is southern Ontario's largest body of water (excluding the Great Lakes).

The land portion of the watershed is approximately 2,581 km^2 and is drained by 35 tributary rivers, with five major tributaries accounting for over 60 percent of the total area. Most of these rivers originate along the southern boundary of the watershed in the prominent physiographic feature known as the Oak Ridges Moraine. These rivers then drain in a northerly direction before discharging to Lake Simcoe.

Lake Simcoe is approximately 30 km long, 25 km wide and roughly 725 km^2 with an average depth of 15 m, a maximum depth of 41 m and a water volume of 11.6 km^3. The Lake extends to Kempenfelt Bay on the west, Cook's Bay to the south, and Lake Couchiching on the north.

The fish population within the lake has shifted from coldwater species like lake trout, whitefish and herring to species preferring warmer water such as perch, bass and sunfish. These changes relate in part to changes in nutrient cycling and in dissolved oxygen concentrations, siltation over spawning sites, shifts in available food items, and the invasion of non native species. Several initiatives, including: the State of the Lake Simcoe Watershed 2003, the Lake Simcoe Environmental Management Strategy, the Lake Simcoe Conservation Foundation and the Lake Simcoe Region Conservation Authority are making efforts to rectify the lake environment.

Lake Simcoe is the most intensely fished inland lake in Ontario. Most of this fishing occurs during the winter fishery and is targeted towards yellow perch, lake trout and lake whitefish. Lake Simcoe fish have one of the highest 'safe-to-eat' rates in the province (MOE Contaminant Testing Program).

Table 3.2 indicates the four fish species that are provincially designated in the Lake Simcoe watershed.

Table 3.2: Designated Species in Lake Simcoe Watershed

Fish Species	Common Name	Provincial Rank (SRANK)	COSEWIC	MNR
Clinostomus elongatus	Redside Dace	S3	Special Concern	Threatened
Coregonus clupeaformis sp., (AFCHAO1200)	Lake Simcoe Whitefish	-	Threatened	
Etheostoma blennioides	Greenside Darter	S4 (Uncommon)	Special Concern	
Hybognathus regius	Eastern Silvery Minnow	S2	NAR	

Table 3.2: Designated Species in Lake Simcoe Watershed – Cont'd

- **S2 - Very rare** in Ontario; usually between 2 and 20 occurrences in the province or with many individuals in fewer occurrences; often susceptible to extirpation.
- **S3 - Rare to uncommon** in Ontario; usually between 20 and 100 occurrences in the province; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances. Most species with an S3 rank are assigned to the watch list, unless they have a relatively high global rank.
- **S4 - Common and apparently secure** in Ontario; usually with more than 100 occurrences in the province.
- **THR - Threatened.** A wildlife species likely to become an endangered species if nothing is done to reverse the factors leading to its extirpation or extinction.
- **SC - Special Concern (Formerly Vulnerable).** A species of special concern because it is particularly sensitive to human activities or natural events, but does not include an extirpated, endangered or threatened species.
- **NAR - Not At Risk.** A species that has been evaluated and found to be not at risk.

Fish

A total of 58 fish species have been captured and recorded in the Lake Simcoe watershed, of which approximately 20 species have been captured in near shore environments south of Georgina Island by MNR Lake Simcoe Fisheries Assessment Unit (LSFAU). The LSFAU has conducted numerous sampling programs from 1965 to present in the study area. A summer index netting program was initiated that concentrated mainly on the species composition of the near shore community. Coldwater fish species of Lake Simcoe (Lake trout, Lake whitefish, Lake herring, Rainbow smelt) are frequently captured north of Georgina Island and are not typically observed in areas along the southern shoreline of Georgina Island. Based on previous catch efforts by LSFAU, coldwater species have been captured on the north east corner of the island, and on spawning shoals that encompass the north side of the island. Based on the average depths and fish species captured north of the mainland shoreline between Duclos point, south-west to Sibbald point and south of Georgina Island (southern portion of the Study area), a warm water to cool water fishery exists.

A review of the NHIC database for the study area did not reveal any fish species listed as endangered, threatened, or vulnerable. The Lake Simcoe whitefish *(Coregonus clupeaformis)* has been listed as threatened under Committee on the Status of Endangered Wildlife in Canada (COSEWIC) status for Lake Simcoe. Based on verbal communication with the MNR (pers comm., Jason Borwick), Lake whitefish and Lake trout use an area near the northeast corner of Georgina Island for spawning.

The species listed in Table 3.3 have either been captured or observed in the southern part (southern shore of Georgina Island to the mainland) of the Study area based on reviewed records from the MNR Aurora District Library. Capture methods in near shore environments consisted of 15 m seine netting and deeper areas sampled with trapnets and gill nets. A full fish species list for the Lake Simcoe watershed was provided by MNR and can be found in Appendix B – Correspondence.

Table 3.3: Fish Species Observed in the Study Area

Common Name	*Scientific Name*
Banded Killifish	Fundulus diaphanous
Iowa Darter	Etheostoma exile
Johnny Darter	Etheostoma nigrum
Spottail Shiner	Notropis hudsonius
Spotfin Shiner	Notropis spilopterus
Emerald Shiner	Notropis atherinoides
Longnose Dace	Rhinichthys cataractea
Bluntnose Minnow	Pimephales notatus
Brook Stickleback	Culaea inconstans
Yellow Perch	Perca flavescens
Log Perch	Percina caprodes
Rock Bass	Ambloplites rupestris
Largemouth Bass	Micropterus salmoides
Smallmouth Bass	Micropterus dolomieui
Pumpkinseed	Lepomis gibbosus
Mottled Sculpin	Cottus bairdi
White sucker	Catostomus commersoni
Rainbow Smelt	Osmerus mordax
Northern Pike*	Esox Lucius
Muskellunge*	Esox masquinongy

**Species known to exist in the study area but were not captured during sampling efforts by LSFAU.*

The main game species of fish encountered in both nearshore and shallow to mid-depth habitats consisted of White sucker, Brown bullhead, Rock bass, Pumpkinseed, Smallmouth bass, Yellow perch. Numerous non-game species (cyprinids) were captured in shoreline seine netting efforts along the southern shore of Georgina Island and the north shore of the mainland between Duclos and Sibbald point. A total of 17 non-game species were observed with minnow species being most predominant and possibly a key forage species for local game fish.

Fish Habitat

Georgina Island - Southern Shoreline

In 1996 a littoral zone study was initiated for the shoreline of Georgina Island. Site specific information was collected from Bald point southwest to the southern tip of the island. Information collected during the sampling included: location, water depth, substrate type, vegetation, fish species, number of fish captured or observed and collection methods used. Based on the information collected, the south shore of Georgina Island is predominately characterized by gently sloping shorelines of sand and gravel with occasional rubble and muck. Near shore macrophytes were not observed but reed beds were noted in some sampling locations. Shallow water environments were more predominant near the south west corner of the island. Young of the year (YOY) perch, rock bass, smallmouth and largemouth bass were captured in near shore seine nets. YOY capture could indicate nearby spawning areas and based on the information from LSFAU, the southern shoreline of Georgina Island is used by pike and bass for spawning during spring months (See Spawning Map for Georgina Island provided by MNR in Appendix B – Correspondence.

Communication with the LSFAU indicated that the southeast shoreline of Georgina Island is one of the best muskellunge nursery habitats in the lake and is used as a stocking site for the Lake Simcoe Muskellunge Restoration Program (pers. Comm. Jason Borwick, MNR Aurora). The restoration program was initiated in 2000 as a result to bring back the native Muskellunge population after years of over-harvest in the early 1900's. The Lake Simcoe Muskellunge Restoration Project is a ten-year program of stocking, habitat rehabilitation, and assessment. Marked fish will be stocked for the first five years and assessed through juvenile and adult stages to evaluate the success of stocking in rebuilding the population. Spawning and nursery habitat assessment, rehabilitation and creation will continue throughout the ten-year life of the project. The goal of the Lake Simcoe Muskellunge Restoration Project is to restore a self-sustaining muskellunge population to Lake Simcoe through a long-term restoration effort, including habitat enhancement and stocking. Muskies Canada and the Ministry of Natural Resources anticipate that this effort will restore the population to once again sustain an important sport fishery (Lake Simcoe Muskellunge Restoration Project, Muskies Canada).

Mainland Shoreline - Duclos Point to Sibbald Point

A littoral zone study (Lake Simcoe Littoral Zone Study) was conducted from 1986 to 1996 to characterize littoral zone and shoreline habitat conditions on Lake Simcoe to determine spawning and nursery habitats critical to the sustainable future of fish populations in Lake Simcoe.

Habitat information was collected during fish sampling efforts by LSFAU during spring and summer site visits. Shorelines in the study area between Duclos and Sibbald points are characterized as low to moderately sloped foreshore consisting of sandy substrate and occasional muck with mixed gravel to boulder depending on location. Aquatic macrophytes were observed freely floating and could have originated from wind and wave action dislodging plants from the root base. Areas of detritus at creek mouths and beaches were observed and provided micro habitat for invertebrates and small fish. Species of macrophytes observed included: coontail, wild celery, common elodea, water milfoil, clasping leaf pondweed, sago pondweed, ranunculus species and bushy pondweed.

A Summer Index Netting Program was conducted by the LSFAU from 1965 to 1981 to provide trend trough time data on relative abundance, distribution, size and age composition, growth, diet, sexual composition and age of maturity for species comprising the near shore community (MNR Aurora, LSFAU 1982). Trapnets and gill nets were set to sample depths ranging from 2.5 to 18 m from May 13 to September 3 from 1965 to 1981. Based on the catch records for areas south of Georgina Island it appeared that Brown bullhead, Rock bass, Pumpkinseed, and Yellow perch were to most common species captured and consist of mainly warm-water species.

3.6 Land Use and Social Environment

3.6.1 Land Ownership and Use

Georgina Island

In 1996 the Chippewas of Georgina Island entered into a Framework Agreement on First Nation Land Management with Her Majesty the Queen in Right of Canada. Under this arrangement, the Georgina Island Community voted, on February 5, 1997, to opt out of the land management provisions of the Indian Act and into their own land regime.

The Chippewas of Georgina Island First Nation includes Georgina Island (1,295 ha), Snake Island (133 ha), Fox Island (19 ha), Sand Island (4 ha) and Gravel Island (0.4 ha). The First Nation residents reside on Georgina Island, while Snake, Fox and Sand Islands are "surrendered lands" and are currently leased to cottagers (according to the First Nation web site there are about 227 cottage lots on Snake Island, and about 64 lots on Fox Island). The Land Ownership Plan for Georgina Island is included as Figure 3.5 and the Land Use Plan is included as Figure 3.6.

In addition, the First Nation territory includes the parcel of land (Part of Lot 24 and 25 and road allowance between Concessions 7 and 8) in Georgina Township that is occupied by the Virginia Beach Marina and the Ferry Dock. The Virginia Beach Marina includes a restaurant, boat storage and maintenance area and a boat refueling area.

The Land Ownership Plan for Virginia Beach Marina Parcel is included as Figure 3.7 and the Land Use Plan as Figure 3.8.

The majority of the community's homes and community buildings are located on the west side of the island, along Chief Joseph Snake Road. Approximately 92 homes were identified on the island based on information from 2002. Cottages occupy lots along the northwest, south and eastern portions of the island. There are approximately 330 cottagers on Georgina Island. FN community buildings are concentrated in the area of Root Road. The community centre, administration office, school, medical clinic, and water treatment plant are located along Chief Joseph Snake Road. The ferry dock, located in the southwest corner of the island, is the main access point for residents, cottagers and visitors.

The Virginia Beach Marina Parcel is located approximately 7 km east of the community of Sutton. Virginia Beach is the main access point via the ferry to Georgina Island and includes a restaurant operated by the First Nation. This area is approximately 0.4 ha not including the in water boat marina.

A Phase 1 and 2 environmental audit was undertaken in the study area by Neegan Burnside in 1998 and 2000. Three inactive landfills were identified on Georgina Island. An active landfill is located adjacent to the sewage lagoon. The sewage treatment system on Georgina Island consists of a two cell lagoon and raised tile bed. The system has been in operation since 1993. The sewage system is used to treat septage pumped from septic tanks and holding tanks. A water treatment plant is also located on the island.

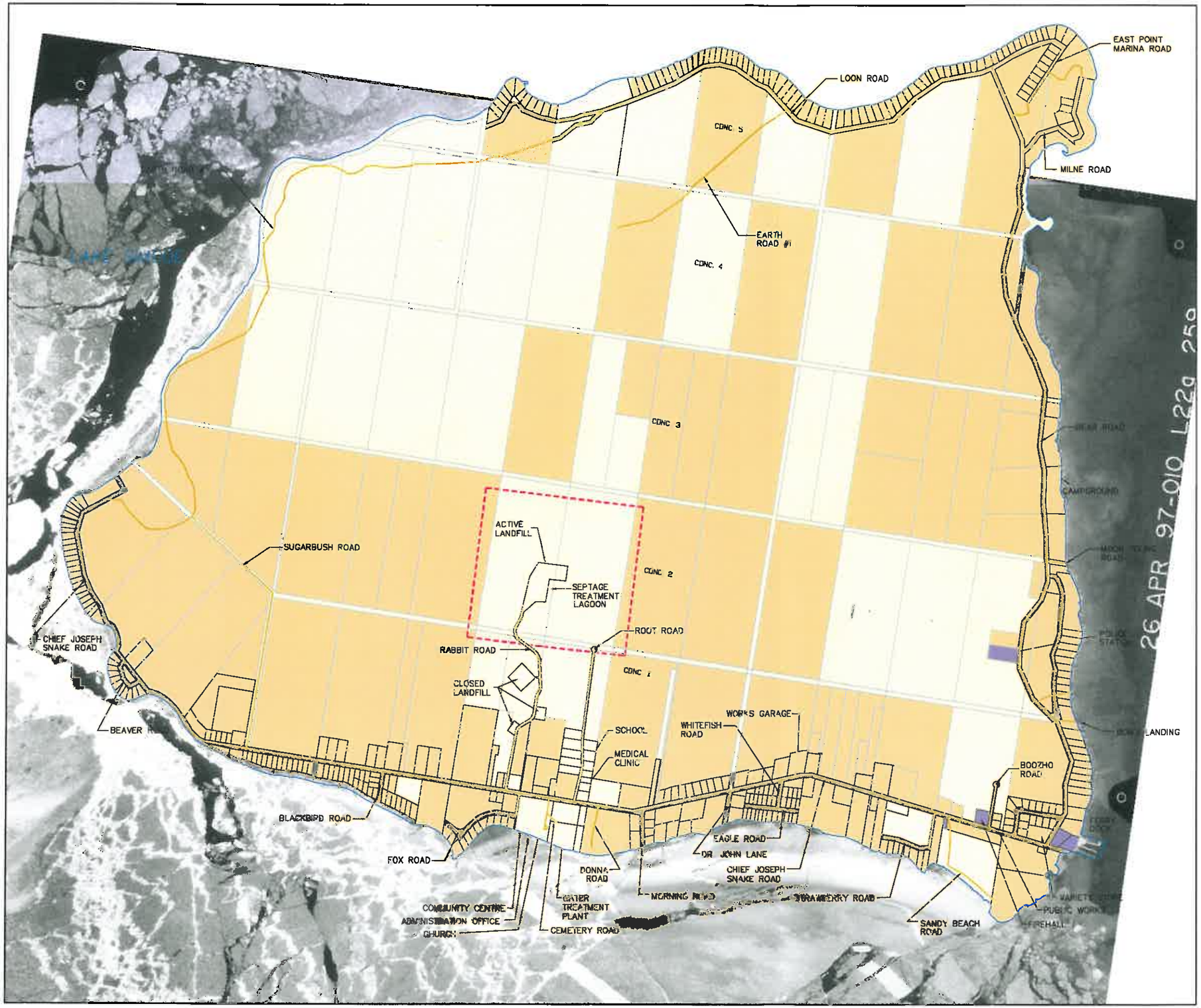


FIGURE 3.5

CHIPPEWAS OF GEORGIAN ISLAND FIRST NATION

PROPOSED FIXED LINK STUDY

GEORGINA ISLAND LAND OWNERSHIP

LEGEND

- CERTIFICATE OF POSSESSION
- BAND LANDS
- EXISTING ROAD

Note:
Land ownership for the community are estimated based on Community Servicing Feasibility Study (Lathem, 1989) and information received from First Nation (July 2002).

0 200 400 600 800 1000 1200 1400
Meters

1:17,500
August 2007
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds

Verified by: C. Jones

NEEGAN BURNSIDE

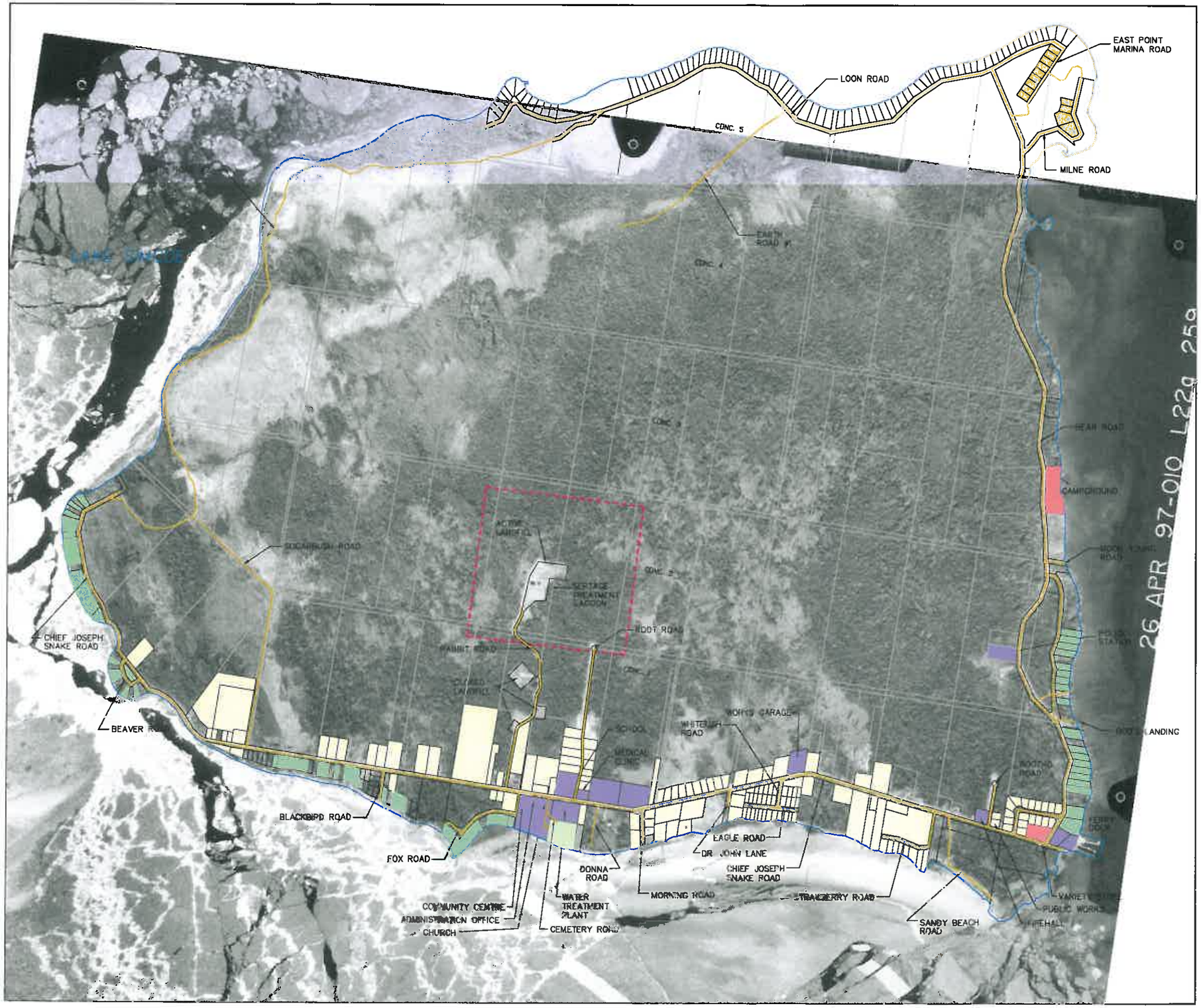
FCO10428 PFLS GEORGINA LO.DWG

FIGURE 3.6

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

PROPOSED FIXED LINK STUDY

GEORGINA ISLAND LAND USE PLAN



LAND USE LEGEND

- COMMUNITY BUILDINGS
- COMMERCIAL
- PARKS
- CEMETERY
- COTTAGES
- RESIDENTIAL
- EXISTING ROAD
- 300m BUFFER AROUND ACTIVE LANDFILL

Note:
Land classifications for community are estimated from the Community Servicing Feasibility Study (Lathem, 1989).

0 200 400 600 800 1000 1200 1400
Meters

1:17,500
December 2005
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds Verified by: C. Jones

NEEGAN BURNSIDE

FCO10428 PFLS GEORGINA LU.DWG



FIGURE 3.7

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
PROPOSED FIXED LINK STUDY

VIRGINIA BEACH LAND OWNERSHIP

LEGEND

- APPROXIMATE FIRST NATION BOUNDARY
- BAND LANDS (RESERVE NO. 33A)

N
W E
S

Airphoto Source:
Background 1999 airphoto obtained from Triathlon Inc.

0 10 20 30 40 50 60 70 80 90 100 110 120
Meters

1:1,500
August 2007
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds Verified by: C. Jones

NEEGAN BURNSIDE

FCO10428 PFLS VIRGINIA BEACH LO.DWG



FIGURE 3.8

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

PROPOSED FIXED LINK STUDY

VIRGINIA BEACH LAND USE PLAN

LEGEND

- APPROXIMATE FIRST NATION BOUNDARY
- COMMERCIAL

N
W E
S

Airphoto Source:
Background 1999 airphoto obtained from Triathlon Inc.

0 10 20 30 40 50 60 70 80 90 100 110 120
Meters

1:1,500
August 2007
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds Verified by: C. Jones

NEEGAN BURNSIDE

FCO10428 FCPS VIRGINIA BEACH LU.DWG

Mainland

The study area on the mainland is located within the Greenbelt Plan (November 2005), not including those on First Nation lands. The Greenbelt Plan identifies where urbanization should not occur in order to provide permanent protection to the agricultural land base and the ecological features and functions occurring on this landscape. The Greenbelt Plan includes lands within, and builds upon the ecological protections provided by, the Niagara Escarpment Plan (NEP) and the Oak Ridges Corridor Park Management Plan (ORMCP). Lands within the study area are designated as Protected Countryside/ Shoreline Areas Policy (4.1.3). The Protected Countryside lands identified in the Greenbelt Plan are intended to enhance the spatial extent of agriculturally and environmentally protected lands currently covered by the NEP and the ORMCP while at the same time improving linkages between these areas and the surrounding major lake systems and watersheds. The Greenbelt Plan builds upon the existing policy framework established in the Provincial Policy Statement (PPS), issued under section 3 of the Planning Act, and its implementation through municipal official plan policies and maps (Ministry of Municipal Affairs and Housing, 2006).

Land use within the study area is characterized in The York Region Official Plan (November 2005) and the Town of Georgina Official Plan.

The Regional Official Plan identifies Significant Natural Features, Significant Forest Resources and the Regional Greenland System (particularly around Georgina Island and Duclos Point) and Rural Policy Areas within the study area. The objectives of the Significant Natural Features and Forest Resources policies are to ensure that the features and functions are preserved, to ensure no loss of wetland function and to protect forested areas. The objective of the Rural Policy Areas is to retain the rural character of the lands and the viability of existing agricultural operations.

The Town of Georgina Official Plan identifies Environmental Protection Areas (1, 2 & 3), Core Conservation Lands and Waters, Lake Simcoe Shoreline and forest resources within the study area. The purpose of these policies is to identify and protect components of the Greenlands System.

3.6.2 Socio-Economic Profiles

According to information provided by the registration system for Indian and Northern Affairs Canada (INAC), the population of the Chippewas of Georgina Island First Nation grew by 1.94 percent per annum on-Reserve and 2.75 percent per annum off-Reserve between 1992 and 2002. In 2007, INAC data indicates that there were 190 First Nation members on-Reserve and 498 members off-Reserve, for a total of 688 members. The First Nation web-site lists the band population at 681 members. The Capital Planning Study for the Chippewas of Georgina Island First Nation recommended that on-Reserve population growth forecasts be based on a growth rate of 1.8 percent per annum (Neegan Burnside Engineering and Environmental Ltd, May 2006). The data in the Capital

Planning Study has been updated with 2003 to 2007 data. The recent on reserve growth rate (experienced from 1992 to 2007) is approximately 1.96%. The total population (including on and off reserve members) has increased at a rate of 2.12%. Population projections can be found in Appendix G. Therefore, for the purposes of this study, a growth rate of 1.96% percent per annum has been used for on-Reserve population growth. In addition a growth rate of 2.12% percent per annum has been used for the growth in population that may return to the Reserve and a growth rate of 2.0 percent per annum has been used for growth in cottage development.

For comparative purposes, information collected by the Statistics Canada in the 2001 and 2006 census provides the following data for Chippewas of Georgina Island First Nation (Table 3.4).

Table 3.4: Census Data for Chippewas of Georgina Island First Nation

Item	1996	2001	2006
Population (on-Reserve)	201	273	353
Percent change in population from previous census	-	35.8% (6.3% per annum)	29.3% (5.3% per annum)
Private dwellings	-	123	548
Private dwellings occupied by usual resident	-		129
Population density	-	18.8 /km^2	14.55 /km^2
Land Area	-	14.55 km^2	14.55 km^2

The Census data shows a higher population on-Reserve than the numbers provided by INAC as well as significantly higher population growth rates. Since the INAC data is collected directly by Georgina Island First Nation, we have used the population data from their figures for the population projections.

From the Census data it can be inferred that there are about 129 permanent dwellings on Georgina Island and about 128 seasonal dwellings (i.e. 548 – 129 – 227 (Snake Island) – 64 (Fox Island)). Data provided on the First Nation website indicate that there are about 98 houses and 200 leasing properties on Georgina Island, which is higher than the Census data indicates. The housing data provided by the First Nation has been used for the purposes of this present study.

There are a number of commercial/recreational facilities on the island including the following:

- Georgina Island craft store
- Georgina Campground
- island convenience store
- extensive hiking trails
- island arcade and volleyball court

- a number of small privately-owned businesses (e.g. winter ice-fishing huts, summer cabins, etc.).

About two-thirds of the labour force on the island is involved in government services, with about one-sixth in service industries and also some work in construction. The First Nation employs individuals through the Band office, the Marina, Restaurant and ferry/shuttle service. In addition the Band owns and operates the day-care centre, community hall, the water plant and the landfill site. The First Nation charges non-member cottagers for garbage disposal, policing, fire protection, road maintenance and water services on a cost-recovery basis.

Various economic initiatives have been investigated in the past by the First Nation including:

- a First Nation owned store
- a resort/recreation complex
- a golf course facility
- a conference centre and business facility
- a radio station
- a residential subdivision
- a community arena
- island based energy generation via wind farm.

These initiatives may be completed under direct First Nation ownership and control or through sponsorship by outside development corporations. In addition First Nation entrepreneurs have indicated they have considered various small business opportunities such as:

- gas station
- garage and auto repair
- laundromat
- tourism initiatives
- convenience/video store
- water taxi or shuttle boat
- craft shop, motel or hotel
- bakery
- community farming or green houses
- internet based virtual enterprises.

Many of the above noted initiatives are not presently viable due to the added expense and uncertainty associated with the existing transportation and isolation situation. During winter freeze-up and spring thaw, transportation is often suspended for weeks at a time.

Some forestry potential exists on Georgina Island and a fish hatchery has been previously identified as a possible future development project, subject to investment capital being available. There is also a partnership with Sibbald Point Provincial Park to allow for day camping for Provincial Park campers at the Georgina Island Youth Camp.

3.6.3 Cultural Environment Factors

Discussion with the First Nation (meeting of January 25, 2007) revealed that recreational fishing occurs within the study area. There are also some culturally significant/medicinal plants which are located along the southern shore of the island. These include Sweet Flag (heart remedy) and Pepper Weed (colds/congestion), however these are not actively harvested. The First Nation confirmed that there are no cultural resources/sacred places/burial sites within the study area. The First Nation has a community forest strategy for developing the trails on the island, with a program to teach traditions and historic activities of the Chippewa community.

There currently is no commercial fishing industry at Georgina Island. There is, however, a recreational winter fishery industry.

4.0 Pre-Consultation

The opportunity for public and stakeholder input is an important element of this proposed project and would be expected to be provided throughout the course of the project. At this point of the project planning process, pre-consultation has been initiated such that issues and recommendations from stakeholders can be addressed from the onset. Consultation will be undertaken in accordance with the formal EA process once an appropriate path forward has been identified from this study. A summary of all correspondence associated with pre-consultation is provided in the following sections. A copy of all correspondence is provided in Appendix B - Correspondence.

4.1 First Nation and Public Consultation

4.1.1 First Nation Committee Meetings

Meetings were held with Chippewas of Georgina Island First Nation Committee Members on the following dates:

- November 1, 2006
- January 25, 2007
- April 30, 2007.

The purpose of the eight-person committee from the First Nation was to help reflect the community thought process on the project, provide insight on matters from a resident point of view, and provide a group to the Neegan Burnside team to answer questions about the local environment and social structure.

4.1.2 Town of Georgina Meeting

A meeting was also held with the Town of Georgina on February 21, 2007. Copies of all meeting minutes are provided in Appendix B – Correspondence.

This meeting was held at the request of the Town of Georgina and in the interest of maintaining good relations between the Town and Georgina Island, was agreed to by the study team. As evidenced by the meeting minutes, it was successful in allowing the Town of Georgina to better understand the current project.

4.1.3 Community Survey Results

A questionnaire was also sent to First Nation community members, questionnaires were returned on March 9, 2007. A summary of the main comments received are presented below. A full summary of results is included in Appendix D. Copies of the completed comment forms are available on request in CD format.

A total of 80 questionnaires were returned (54 from on-Reserve residents and 26 from off-Reserve residents).

Respondents identified that the main reason they travel to the mainland is for shopping and going to the doctor or dentist (50% or respondents).When asked how many times they use the ferry and ice road when it is operational, 44 percent of on-Reserve respondents confirmed they use the ferry daily, while 78 percent use the ice road daily. This difference is potentially related to the convenience of using the ice road at any time and the cost of using the ferry. Alternative forms of transportation include private boat, ATV and snowmobile. Respondents noted average lost school days of ten days per year due to downtimes or inaccessible periods for the current transportation and 11 lost work days.

Respondents were asked to rank their three most preferred alternative solutions (listed in Section 6.3). The most preferred alternative was road link through bridge followed by road link through tunnel, followed by improve existing ferry and ice road.

Respondents were asked to indicate if they had a preference for alternative crossing route locations 1 (Duclos point), 2 (Doyle Beach), or 3 (Existing ferry route). The majority of on-Reserve respondents preferred location 2, followed by location 3. Off-Reserve respondents preferred location 3, followed by location 1.

Respondents were asked on a scale of 1 (none) and 10 (strong) how much they supported the idea of a fixed link, 67 percent on-Reserve and 66 percent off-Reserve strongly supported a fixed link (with a rank of 10), and 82 percent and 83 percent scoring it an eight or better.

The main advantages to a fixed link were identified as convenience (41%), safety (34%), medical/emergencies (33%), and economic development (14%). Disadvantages identified included none (20%), unwelcome guests (20%), traffic (11%), and a potentially increased crime rate (11%). When asked about potential use of the fixed link, 78 percent on-Reserve and 100 percent off-Reserve responded that they would go to the mainland more if a fixed link was available. 87 percent of on-Reserve respondents see the fixed link as increasing employment opportunities for local residents due to convenience and reduced costs. 84 percent of on-Reserve respondents see the fixed link as increasing education opportunities. Seventy-seven percent of on-Reserve respondents and 80 percent of off-Reserve respondents thought that people would move back to the island if a fixed link was provided.

It is apparent from the survey results that a majority of members support a more permanent link for the community. It is also apparent that doing so will change the culture of the island, though to what degree is uncertain.

4.2 Department/Agency Consultation

A request for baseline information was sent to the following agencies on November 20, 2006. A summary of responses received is provided in the following table. It should be noted that the correspondence sent to the agencies indicated this was a pre-feasibility study, and that once the feasibility study was underway, a formal consultation process would take place. The minimum response anticipated at this time from most of these agencies was a request to continue to be included in the process.

Table 4.1: Department/Agency Consultation Results

Department/Agency	Response
Ministry of Environment, Central Region Office	No response received to date
Ministry of Environment, York - Durham District Office	Requested that they receive a copy of future correspondence.
Ministry of Natural Resources - Aurora District Office	Invited Neegan Burnside to their office/library to make copies of relevant information. Provided wetland and greenbelt mapping. Stated that project may trigger reviews and/or approval requirements pursuant to provincial legislation such as the Public Lands Act, Environmental Assessment Act and the Planning Act. Stated that they would welcome the opportunity to participate in a meeting.
Lake Simcoe Region Conservation Authority	Forwarded information request to DFO. Stated MNR could provide information. Other issues will be dealt with as part of the LSRCA Permit process
Ministry of Transportation, Transportation Planning and EA Unit	No response received to date
Ministry of Transportation, Provincial and Environmental Planning Office	No response received to date
Ministry of Transportation Corridor Management Section	Any work done on a provincial highway will require an Encroachment Permit and any work done within MTO permit control will require a Building Land Use Permit. Ministry permit control is identified as 45 m from MTO ROW and a 400 m radius from the intersection point of a highway.
Ontario Realty Corporation	No response received to date
Environment Canada	Does not expect to have any obligations as an RA under CEAA. Provided recommendations with respect to surface water quality, wildlife and wildlife habitat and air quality issues. Would like to be kept informed about the project.
Department of Fisheries and Oceans	Confirmed that they would like to be kept informed about the project and would be available to participate in project meetings. Stated that they may be an RA within the federal EA process. DFO require additional information with regard to the type of crossing structure before they can provide additional comments. DFO stated that LSRCA and MNR will hold fisheries data within the study area.
Transport Canada - Marine	Provided Navigable Waters Protect Act (NWPA) guidelines.

Department/Agency	Response
Transport Canada - Ontario Region, Canadian Coast Guard Central & Arctic Region HQ	Confirmed that Transport Canada is responsible for the administration of the Navigable Waters Protection Act. If any of the related project elements or activities cross or affect a potentially navigable waterway we are requested to prepare and submit an application.
Health Canada	No response received to date
Town of Georgina	Confirmed that the Town would like to participate in the project. Requested a meeting to provide information and learn about the study process. Provided follow-up preliminary comments from meeting. Concerned with regard to impact on municipal roads. Both Black River Road and Hadden Road are under the jurisdiction of the Town. Requested that a traffic study be provided based on the ultimate use of the Island to enable the Town to determine the impact on roads. A significant increase in traffic volume may require road improvements and may trigger a Municipal Class EA. If the Island was to support a major tourist attraction as a result of the bridge/causeway, concerned with regard to potential pressure to locate ancillary or other types of uses on the main land. Would like to ensure that planning land use issues will be kept in mind.
York Region	Referred to maps 2-4 of the Official Plan. Stated that potential 'landing locations' are located within the Rural Policy Area. Also listed Shoreline Area Policy/Greenbelt Plan.
Ministry of Culture	Identified that the project may have the potential to impact archaeological sites. Recommended that a cultural resource assessment (land and marine) is undertaken once the preferred alternative has been determined. The assessment should included the ROW, construction impacts, detours, access roads, storage and staging areas etc
Ministry of Tourism and Recreation – Central Area	No response received to date
Canada Coast Guard, Central Region	No response received to date.

5.0 Transportation Assessment

5.1 Existing Ferry Operations

The existing ferry, named the Aazhaawe, meaning "to go across", was built in 1999 by Hike Metal of Nova Scotia and transported in sections through the Trent-Severn system for ultimate assembly at Georgina Island. The ferry is approved by Transport Canada and regularly inspected by the Coast Guard. The ship and crew meet Canadian Coast Guard Specifications and requirements. Data related to the ferry operations are summarized as follows:

- ferry capacity of 99 passengers and 15 vehicles; total weight capacity of 70 tons.
- existing ferry in operation since 2001
- between 10 and 17 Round Trips (RT) per day with 12 RT Monday and Wednesday, 15 RT Tuesday, Thursday and Saturday, 17 RT on Friday, and 10 RT on Sunday. This translates to 96 RT per week
- ferry service is only available from 6:15 a.m. (9:00 a.m. on Sundays) to 7:00 p.m. (Monday and Wednesday), 10:30 p.m. (Tuesday, Thursday, Saturday), 11:30 p.m. (Friday) and 9:00 p.m. (Sundays)
- ferry service is available between nine months (39 weeks) and 10 months (44 weeks) per year, depending on weather and ice formation. This means there are between 3740 and 4220 trips per year.
- passes are available for 20 round trips at a cost of $200 for First Nation members, and $540 for non-members
- $15 per round trip for cars/pickups for First Nation members and $30 per round trip for non-First Nation members. Oversized vehicles (i.e. 18 wheelers) are charged $120 per round trip, while tandems, dump trucks, concrete trucks, large hydro and Bell trucks are charged $70 for a round trip. Adult passengers are charged $3 per round trip, with reduced rates for children and seniors/disabled passengers
- a one way crossing takes approximately 15 to 20 minutes to complete
- total round trips on the ferry by passenger vehicles from April 7, 2006 to January 11, 2007 = 26,593, buses = 343, oversized vehicles = 461
- ferry operations tend to start mid to late March, and end in early to mid-January
- between April 7, 2006 and January 11, 207, the ferry was out of service for 12 days, due to mechanical problems (8 days) and inclement weather (4 days). An undetermined amount of days were affected by a reduced schedule due to similar problems.

Under the Canada Shipping Act, 2001, the ferry is classified as a "sheltered waters voyage", since the ferry is never further than one nautical mile from the closest shore. In addition this designation applies for the full calendar year period, since ice or weather (e.g. fall storms or dropping water temperatures) are not considered to be a significant factor that would require a risk assessment for operations during the higher risk periods.

Historically, the following negative impacts have been noted due to inadequate transportation service:

- economic development (commercial, recreational etc.) of the island is hindered due to additional development costs, resulting from the cost of transporting goods by ferry or barge. Generally this results in a lower standard of living due to loss of revenues and personal income. The long-range development plans for the island focuses on enhancing tourism
- students are required to use the ferry, or alternate crossing methods, to access schools on the mainland. Some students opt to board on the mainland during the winter periods due to transportation constraints (i.e. school buses require the ferry to be operative)
- hardships for the commuters (cost, lost time etc.) between the island and the mainland
- delays for seasonal users of the island facilities (e.g. cottagers)
- disruption of some social services
- difficulties in delivering services such as construction deliveries
- poor emergency service. Emergency travel service is normally provided by the ferry. Medical care is provided on the island via regular visitations from mainland physicians. Police and fire protection are provided by on-island forces, although their numbers are limited
- safety concerns regarding the hazardous conditions associated with the ferry, scoot and ice road operations. For example, as recently as March 16, 2007 a car traveling on the ice in the area of Virginia Beach went through the ice. In addition, there have been three drowning deaths on Lake Simcoe ice so far in the 2007/08 winter season. While the Ministry of Natural Resources recognizes the variability of ice conditions as evidenced by their March 15 deadline for ice hut removal, there are no restrictions in place on personal use via vehicle from the island to the mainland.

5.2 Existing Roads and Infrastructure

5.2.1 Georgina Island

The ferry terminal on Georgina Island connects to Chief Joseph Snake Road, which directs traffic to other local perimeter roads on the island (e.g. Bear Road). There are about 24 km of perimeter main roads on the island, many of which are gravel, plus a number of gravel local roads. The First Nation has some gravel reserves on their lands, but is unable to develop a commercial gravel crushing enterprise due to the costs associated with transporting gravel off of the island.

Bear Road has been developed as a paved local road having poor alignment, deficient right of way width and poor visibility in many locations. In addition, Bear Road presently traverses a Provincially Significant Wetland, with associated muck soils, along part of its length. Outside of this wetland area the soils are silty sand, underlain by limestone bedrock at depths of about 1.4 to 2.7 m.

General policing services to Georgina Island, Snake Island and Fox Island, as well as emergency response on the water and ice of Lake Simcoe, are provided by the Georgina Island Police, under the First Nation Policing Program administered by the Ontario Provincial Police. The police station is located at 217 Bear Road and there are three uniform officers and one civilian employee on staff.

The fire department is located at the corner of Chief Joseph Snake Road and Hello Road, and is equipped with a Fort Gary pumper truck and an ambulance. There is one full-time firefighter on staff, as well as trained volunteer fire fighters.

Members must be transported off by boat, scoot, or snowmobile in an emergency situation; off-Reserve response teams will not travel on the ice road. Air transport by helicopter requires excessive time and monetary cost.

The Georgina Island School is located on the east side of Chief Joseph Road and provides Junior Kindergarten through Grade 5 in two classrooms, a music/language room and two full-time teachers under the jurisdiction of the York Region District School Board. A library is part of the school. The language room is used for teaching in the native Ojibway language.

Currently, teaching staff travels from off-Reserve to the island, resulting in lost school days when transportation is not possible.

Students are bussed to Sutton on the mainland for Grades 6, 7 and 8, while Secondary school students are bussed to Pefferlaw. Some students board on the mainland during the winter periods when the ferry and bussing is not available.

Discussions with the First Nation revealed that as of November 2006 approximately 25-28 children travel to the mainland for social activities (hockey, dances etc). However, recreation activities must be limited to times which match ferry scheduling, and participants cannot guarantee 100 percent attendance due to the transportation situation. A number of First Nation members have moved off-Reserve as a result of having to travel on the ferry.

A medical building is located adjacent to the school and monthly visits are provided by doctors from the mainland.

5.2.2 Mainland

The ferry terminal on the mainland is on a parcel of land owned by the First Nation and connects to Black River Road, an east/west paved collector road under the jurisdiction of the Town of Georgina. A road connection is provided from Black River Road to the south to Highway 48 via Hadden Road. Hadden Road is also a paved collector road, under the

jurisdiction of the Town of Georgina, with a distance of about 1.5 km from the ferry terminal to Highway 48. This area is shown in Figure 5.1.

A second connection to Highway 48 can be made via Virginia Boulevard, a paved local road under the jurisdiction of the Town of Georgina, with a distance of about 1.6 km from the ferry terminal to Highway 48. The areas along Hadden Road and along Virginia Boulevard are part of the hamlet of Virginia. Some residential development has occurred along the north end of Hadden Road, but the route is primarily undeveloped (i.e. agricultural fields) to the south of this area along this route. Residential strip development has occurred along the majority of the Virginia Boulevard route. The area surrounding the north part of Hadden Road and Virginia Boulevard is designated as Corridors (EPA 2) in the Georgina Greenlands System (Town of Georgina Official Plan). Also the area in the northwest quadrant at the intersection of Virginia Boulevard and Highway 48 is designated as Core Conservation (EPA 1) (i.e. mid to late successional forest and a local life science ANSI). There are no ESA areas or areas of endangered, threatened, vulnerable or sensitive wildlife habitats along the Hadden Road or Virginia Boulevard connecting links.

Black River Road also connects to the community of Sutton, about 7.0 km to the west of the ferry terminal. Highway 48, via the Hadden Road, connects to the community of Pefferlaw, about 6.5 km from the ferry terminal.

The existing ferry/marina operations include a boat storage and maintenance area and a boat refueling area, including two active underground gasoline storage tanks, one above ground diesel fuel tank, a waste oil tank and a number of propane tanks. The proximity of these facilities to Lake Simcoe makes it very important that proper maintenance and operations be followed in order to protect against environmental impacts.

A large parking lot is also utilized at the marina location for day visitors to the island, as well as for community residents that do not wish to transport their vehicle repeatedly across the lake. This means some Georgina Island residents maintain two vehicles, one on the island, one off, expressly to avoid paying for the vehicle ferry service.

On the mainland, Duclos Point is presently connected to Highway 48 via Duclos Point Road and other local roads, an overall distance of about 5.5 km. These roads also presently serve the existing estate lot subdivision that is located on the Point. The roads traverse areas designated as Core Conservation (EPA 1), Corridor (EPA 2) and EPA 3 , with one location noted as being in proximity to endangered, threatened, vulnerable and sensitive wildlife habitat. The roads are in the area of a Class 2 wetland (Morning Glory Swamp), a mid to late successional forest, a Provincial Life Science ANSI, a Local Earth Science ANSI and a biological ESA. The road has a number of sharp bends and areas of poor visibility.



FIGURE 5.1

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
PROPOSED FIXED LINK STUDY

VIRGINIA BEACH LOCAL MAINLAND ROADS

LEGEND

APPROXIMATE FIRST NATION BOUNDARY

N
W E
S

Airphoto Source:
Background 1999 airphoto obtained from Triathlon Inc.

0 10 20 30 40 50 60 70 80 90 100 110 120
Meters

1:1,500
August 2007
Project Number: FCO10428

Prepared by: C. Sheppard, C. Reynolds Verified by: C. Jones

NEEGAN BURNSIDE

FCO10428 FCPS VIRGINIA BEACH LMR.DWG

5.3 Transportation Demands/Needs

Passenger and vehicle demands for 2006 are shown in Table 5.1 and are based on ferry receipt data.

Table 5.1: Summary of Existing Ferry Demands (April 2006 to January 2007)

Month	Passengers (Total 527)	Percent of Year (%)	Total Vehicles* (Total 27,397)	Percent of Year (%)
April (7 – 30)	40	7.6	2,471	9.0
May (1 – 31)	82	15.6	3,260	11.9
June (1 – 30)	108	20.4	3,734	13.6
July (1 – 31)	138	26.1	4,308	15.7
August (1 – 31)	70	13.3	4,398	16.1
September (1 – 30)	17	3.2	2,705	9.9
October (1 – 31)	46	8.7	2,168	7.9
November (1 – 30)	12	2.3	2,084	7.6
December (1 – 31)	12	2.3	1,746	6.4
January 1 - 11	2	>0.1	523	1.9

** includes passenger vehicles, buses, and oversized vehicles.*

As shown in the table, the maximum monthly usage of the ferry occurs in the summer with a maximum of 4,398 vehicles and 138 passengers in a month.

The number of vehicle trips utilizing the ferry link is significantly less than the number that would be expected to utilize a proposed fixed link, due to the cost and time constraints imposed by the ferry link. In a survey conducted as part of this study, only about 43 percent of the respondents indicated that they presently use the ferry at least once a day (1 trip out and 1 trip back, for a total of 2 daily trips), as compared to the typical vehicular trip rate of 4 to 10 trips per day for residential developments. It is noted that when a vehicular linkage is established (i.e. via the ice road), about 67 percent of the respondents indicated that they use such a connection on a daily basis. Over 90 percent of the residents surveyed indicated that they would access the mainland more often if a fixed link were provided. The incidence of car ownership is also expected to grow if a year-around vehicular linkage is established, since over 10 percent of survey respondents indicated that they presently do not own a car under the existing linkage conditions.

Operation and maintenance cost, directly attributable to the ferry was estimated in the 2001 Ferry Operation Business Plan in the order of $640,000 for 2006, escalating from a base of $590,000 in 2001. Fluctuating gas prices have likely increased this in the past years. There are also numerous indirect costs that are not quantifiable such as student boarding costs and risk factors such as ice road safety, poor off-Reserve emergency team response ability, and lack of economic opportunity.

Direct revenues from the fares amounted to approximately $570,000 for the period we received data, based on the current fees charged. The deficit between revenues and costs is provided through an agreement with INAC.

The winter passenger demands are met by a scoot service, an enclosed air propelled boat which can operate on broken ice, and open water. No data was available on usage or costs of this operation. In addition to the scoot service, residents utilize their own vehicles (cars, trucks, ATV's, etc.) to cross the ice.

This current system of switching the First Nation owned operation from the ferry service to the scoot service in the winter results in employee hours being reduced in the winter, due to the lesser demands of the scoot service.

On a daily basis, the existing ferry can accommodate the peak daily vehicular and passenger demands. However demands vary significantly, on a weekly, daily and hourly basis, with the result that some runs are over-subscribed during peak operational periods and users may need to wait for a subsequent ferry to be accommodated. The existing ferry schedule provides for a ferry departure about every hour at each of the terminals (i.e. half hour crossing/loading/unloading sequence). Since there is only one ferry in operation, and the crossing/loading and unloading time is already maximized, there is little flexibility to add additional runs beyond those presently provided, in order to address the capacity constraints at peak usage times. In addition there is no redundancy available to address periods when the ferry is out of service for repairs.

5.4 Potential Fixed Link Operations

5.4.1 Existing Development Conditions

The potential residential and cottage traffic to and from the island, under existing development conditions and including potential First Nation residents returning to the island, has been estimated based on the trip rate information contained in the Institute of Transportation Engineers Trip Generation Manual (7th Edition). The resulting data is summarized in the following table:

Table 5.2: Estimated Existing Residential and Cottage Traffic Potential For Fixed Link

Period	Type*	Trip Generation**	In	Out	Total	Total Per Period
AM Peak Hour	Residential	0.30/unit	13 vph	39 vph	52 vph	
	Cottage	0.16/unit	21 vph	11 vph	32 vph	84 vph
PM Peak Hour	Residential	0.404/unit	44 vph	26 vph	70 vph	
	Cottage	0.26/unit	21 vph	31 vph	52 vph	122 vph
Daily	Residential	3.828 /unit	329 vpd	329 vpd	658 vpd	
	Cottage	3.16/unit	316 vpd	316 vpd	632 vpd	1,290 vpd

* *based on 98 residential units and 200 cottage units existing on the island, and 132 people returning to the reserve after the establishment of the fixed link (i.e. equivalent to 74 residential units at 1.8 ppu).*

** *assumes a residential trip generation rate that is 40% of the ITE residential rate, to reflect the exclusion of trips internal to the island and the generally longer separation distance between origin/destination trips (i.e. to outside communities). Toll charges have not been considered as a factor in trip generation, since it is assumed that a yearly pass would be purchased by residents.*

As noted in the above table the short term demand on the fixed link is forecasted to be about 1,290 vehicles crossing the link per day, with about 84 vehicles crossing during the a.m. peak hour and about 122 vehicles crossing during the p.m. peak hour. The traffic volumes calculated account for only the residential/cottage traffic and would apply to the peak demand summer season, since cottage usage is expected to be much lower in the winter season. Commercial, development or business trips would be additional to this residential traffic. It is further assumed that any toll charges applied to the crossing would not prohibitively influence trip generation rates.

5.4.2 Future Conditions

A horizon period of 25 years has been chosen for traffic analysis of future conditions.

Table 5.3: Estimated Future Residential and Cottage Traffic Potential For Fixed Link (Year 2032)

Period	Type*	Trip Generation**	In	Out	Total	Total Per Period
AM Peak Hour	Residential	0.30/unit	23 vph	67 vph	90 vph	
	Cottage	0.16/unit	35 vph	17 vph	52 vph	142 vph
PM Peak Hour	Residential	0.404/unit	76 vph	45 vph	121 vph	
	Cottage	0.26/unit	35 vph	50 vph	85 vph	206 vph
Daily	Residential	3.828 /unit	572 vpd	572 vpd	1,144 vpd	
	Cottage	3.16/unit	518 vpd	518 vpd	1,036 vpd	2,180 vpd

* *based on 299 residential units (1.96 %/annum on-Reserve growth and 2.0%/assume off-Reserve growth) and 328 cottage units (2.0%/annum growth) on the island.*

** *assumes a residential trip generation rate that is 40% of the ITE residential rate, to reflect the exclusion of trips internal to the island and the generally longer separation distance between origin/destination trips (i.e. to outside communities). Toll charges have not been considered as a factor in trip generation, since it is assumed that a yearly pass would be purchased by residents.*

As noted in the above table the long term demand on the fixed link is forecasted to be about 2,180 vehicles crossing the link per day, with about 142 vehicles crossing during the a.m. peak hour and about 206 vehicles crossing during the p.m. peak hour. These volumes account for only the residential/cottage traffic and would apply to the peak demand summer season. Commercial, development or business trips would be additional to this residential traffic and would depend upon the type of development that is facilitated on the island by the fixed link connection. It is further assumed that any toll charges applied to the crossing would not prohibitively influence trip generation rates.

5.4.3 Commercial Development

The above analysis does not include any allowance for existing, or proposed, commercial development on the island. While the existing commercial development on the island is relatively minor presently, due to the restrictions imposed by the ferry connection, a fixed link will facilitate additional commercial development. The traffic generated by commercial development will depend on the type of development, however traffic volumes can be significant. For example the development of an 18 hole golf course may generate another 240 vpd utilizing the bridge during the golfing season, and 30 to 40 additional crossings during the peak hour periods. The table below outlines additional potential commercial developments and their estimated impact on daily traffic.

Table 5.4: Estimated Future Traffic Potential for Commercial Development

Period	Type	Trip Generation	In	Out	Total
Daily	9 Hole Golf Course*	20	20	20	40
Daily	18 Hole Golf Course*	60	60	60	120
Daily	Resort Development – 40 Rooms**	.25/unit	10	10	20
Daily	Resort Development – 80 Rooms**	.25/ unit	20	20	40
Daily	Arena**	5	5	5	10
Daily	Trailways**	5	5	5	10
Daily	Additional Tourism**	10	10	10	20

* *assume course is in operation from early April to Mid October (200 days)*

** *occupancy is averaged over the year*

5.4.4 Assessment of Traffic Linkages

A two-lane fixed link connection should be able to carry over 10,000 vpd without problem or congestion, although its capacity (i.e. under congested operating conditions, Level of Service E) may be more in the order of 15,000 vpd. On either side of the fixed link, the connecting roads serve the dual purpose of providing direct access to adjacent development and accommodating through traffic from the link. Under these conditions, these connecting roads are expected to function as a Class 2 Collector roadway, with a capacity in the order of 10,000 vpd as a two-lane facility. Therefore all roads within the

study area will function adequately as two-lane facilities, after the implementation of a fixed link. From a road surface perspective, typical practice is to utilize an asphalt surface for roads that experience traffic volumes exceeding 400 vpd, and therefore asphalt surfacing is recommended for all roads within the study area. Given the volume of traffic forecasted, it is also recommended that the connecting roads in the study area be upgraded to a collector road standard.

The majority of the traffic generated by the fixed link will ultimately connect to the Provincial Highway arterial road system (i.e. Highway 48) at either the intersection of Hadden Road /Highway 48 or at the intersection of Duclos Point Road / Highway 48. Both of these intersections are presently stop controlled. Highway 48 is classified as an Intermediate Recreational Route, which experiences intermediate seasonal variations in traffic volumes. The average traffic volumes on Highway 48 are about 60 percent higher in the summer months than in the winter months, and the weekend traffic is about 15 percent higher than weekday traffic, due to the recreational nature of the traffic in this area. Summer average daily traffic (two-way) on Highway 48 is in the order of 15,000 vpd in the study area, and growth in traffic has been very low in the past 10 years (i.e. about 0.5 percent per annum). Based on the volume of traffic on Highway 48, and the forecasted volume of traffic that may be generated by a fixed link connection, it is possible that traffic signals would be required at the connecting intersection with the Highway (i.e. Hadden Road or Duclos Point Road, depending on the route chosen) within the horizon period considered in this study. The Ministry of Transportation requires that signal warrant criteria be met, based on the heaviest eight hours of traffic on an average day, before traffic signals are installed at an intersection with a Provincial Highway. Further site specific review of turning movements at the connecting intersection would be required, as part of the detailed design work, to confirm the warrants and timing for traffic signal installation at this location.

6.0 Evaluation of Alternative Solutions

6.1 Approach

Steps involved in the identification of the preferred alternative solution included:

- definition of issues
- identification of conceptual alternatives to address the issues
- review of existing conditions to define potential constraints
- First Nation, Agency and public pre-consultation to define issues and concerns
- general effects assessment
- evaluation of alternatives based on environmental and engineering considerations and preference of the First Nation community
- identification of overall preferred alternative solution.

6.2 Constraints

In order to identify general planning alternatives, constraint factors were considered within the general study area. Key constraint features included:

- natural heritage features (terrestrial and aquatic)
- existing recreational activities (fishing boats and ice fishing)
- property holdings/land acquisitions
- existing road system
- existing built up areas (particularly on mainland)
- geomorphology and geology
- public safety
- engineering limitations.

6.3 Effects Evaluation

Through preliminary site assessments and review of existing conditions the following general alternative solutions were considered:

- do nothing – maintain the status quo
- improve existing ferry and ice road operations - larger ferry (capacity), improved ferry schedule (frequency), use of ice breakers and/or bubble system (bottom-lying pipe used to release air bubbles along the length of the passage) etc.
- existing ferry and/or hovercraft – maintain existing ferry service and/or use hovercraft as alternative transport mode
- existing Ferry and/or Helicopter - maintain existing ferry service and/or use helicopter as alternative transport mode
- existing ferry and cable car – maintain existing ferry service and use a passenger cable car system as an alternative transportation mode

- road link (tunnel) – fixed link via a tunnel under Lake Simcoe
- road link (bridge and/or causeway combination) – Fixed Link via a pontoon or piered bridge structure and/or causeway combination.

The general effects evaluation is presented in Table 6.1.

6.3.1 Do Nothing

The evaluation concluded that the '*do nothing*' alternative was not considered to be acceptable as it does not adequately address the transportation needs of the Chippewas of Georgina Island First Nation (a reliable all-weather transportation link from Georgina Island to the mainland which will provide positive benefits in health and safety, economic development, tourism and employment for the community) and therefore does not address the purpose/rationale for the project.

6.3.2 Improve Existing Ferry and Ice Road Operations

The '*improve existing ferry and ice road operations (larger ferry, schedule, ice breakers, bubble system)*' alternative was not considered a preferred alternative. It was determined that due to the ice conditions in the channel (thickness of between 150 mm and 600 mm) that a high ice-breaking capacity would be required. A vessel would require a significant increase in power and structural capacity. As well, the draft requirements would exceed the depth available. In addition, ice is extremely mobile in the passageway between the island and the mainland. Pack ice and corridor movement would present an ongoing problem. Also, no system exists which could better institute the ice road system. Due to ice conditions and the depth of the channel a bubble system is not feasible. Therefore this alternative is not technically feasible and has potential impacts on aquatic habitat and existing recreation. This alternative does not fully address the purpose/rationale for the project.

6.3.3 Existing Ferry and/or Hovercraft

The '*existing ferry and/or hovercraft*' was not considered a preferred alternative. Hovercraft can operate over both water and land, including ice, and would be able to provide year-round service, however hovercraft have limited combined passenger and vehicle capacity (assumes relatively minimal additional infrastructure requirements). The provision of a hovercraft passenger service is usually only economically viable on high demand routes where travel speed is important. This mode of transportation includes extremely high capital and specialized operations and maintenance staff that are not available to Georgina Island. Therefore this alternative is not technically or financially feasible and may have potential impacts on the natural aquatic environment.

	TABLE 6.1: ALTERNATIVE SOLUTIONS EVALUATION						
CRITERIA FOR EVALUATING ALTERNATIVES	**Do Nothing**	**Improve Existing Ferry and Ice Road Operations (larger ferry, schedule, ice breakers, bubble system etc)**	**Existing Ferry and/or Hovercraft (assume same route and minor infrastructure improvements)**	**Existing Ferry and/or Helicopter**	**Existing Ferry and Cable Car**	**Road Link (Tunnel)**	**Road Link (Bridge/Causeway)**
A Natural Environment *Rating:*	**Preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**
1 Designated Sites & Species	No impact over existing conditions.	No impact over existing conditions.	Increased noise/wake from hovercraft has potential to impact designated species, such as nesting water fowl and water birds.	Construction and operation of helicopter pad will impact designated sites and species.	Construction and operation of cable car will impact designated sites and species.	Construction and operation of road and tunnel will impact designated sites and species.	Construction and operation of road and bridge/causeway will impact designated sites and species. Potential for increased mortality from vehicle strikes.
2 Water Quality and Quantity	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	Potential temporary impacts on soils and surface water quality as a result of construction of helicopter pad.	Potential impacts on soils and surface water quality as a result of construction and operation.	Potential temporary impacts on soils and surface water quality as a result of construction activities. Potential groundwater impacts.	Potential temporary impacts on soils and surface water quality as a result of construction activities.
3 Floodplain Lands	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	Construction activities will occur within the floodplain of Lake Simcoe.	Construction activities will occur within the floodplain of Lake Simcoe.	Construction activities will occur within the floodplain of Lake Simcoe.	Construction activities will occur within the floodplain of Lake Simcoe.
4 Terrestrial Habitat	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	Potential habitat loss associated with the construction of a helicopter pad and associated infrastructure.	Potential habitat loss associated with the construction of the cable car system and associated infrastructure.	Potential habitat loss associated with the construction of a tunnel and associated infrastructure.	Potential habitat loss and fragmentation associated with the construction of a bridge/causeway.
5 Aquatic Habitat	No impact over existing conditions.	Potential impact on aquatic habitat as a result of ice breakers and bubble system.	Increased wake may impact aquatic vegetation and nesting water fowl.	Potential temporary impact on aquatic habitat as a result of construction activities.	Potential impact on aquatic habitat as a result of construction and operation activities.	Potential temporary impact on aquatic habitat as a result of construction activities.	Potential temporary impact on aquatic habitat as a result of construction activities.
B Socio-economic/Cultural Environment *Rating:*	**Not preferred from a social/cultural environment perspective**	**Not preferred from a social/cultural environment perspective**	**Not preferred from a social/cultural environment perspective**	**Not preferred from a social/cultural environment perspective**	**Not preferred from a social/cultural environment perspective**	**Preferred from a social/cultural environment perspective**	**Not preferred alternative from a social/cultural environment perspective**
1 Existing recreation	No impact over existing conditions.	Increased boat traffic may negatively impact recreational boating and fishing on the lake. Ice breakers may impact ice fishing.	Increased boat traffic may negatively impact recreational boating and fishing on the lake.	May impact existing recreational land uses depending on location of helicopter pad.	May impact existing recreational land uses depending on location of infrastructure.	No impact on existing recreational land uses (boating/fishing).	No impact on existing recreational land uses, such as boating/fishing, assuming navigation is maintained.
2 Supports local economic growth and development (community development)	No.	Partial support.	Partial support.	Partial support.	Partial support.	Supports local economic growth and development.	Supports local economic growth and development.
3 Heritage Resources /Traditional lands (archaeological features, built heritage, and cultural heritage landscapes)	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	Potential impact on heritage resources within the study area.	Potential impact on heritage resources within the study area.	Potential impact on heritage resources within the study area.	Potential impact on heritage resources within the study area.

Understanding the Rating System:

- Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion
- Increase in preference
- Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

	TABLE 6.1: ALTERNATIVE SOLUTIONS EVALUATION						
CRITERIA FOR EVALUATING ALTERNATIVES	**Do Nothing**	**Improve Existing Ferry and Ice Road Operations (larger ferry, schedule, ice breakers, bubble system etc)**	**Existing Ferry and/or Hovercraft (assume same route and minor infrastructure improvements)**	**Existing Ferry and/or Helicopter**	**Existing Ferry and Cable Car**	**Road Link (Tunnel)**	**Road Link (Bridge/Causeway)**
4 Nuisance Impacts/Air quality & Noise/Aesthetics	No impact over existing conditions. However existing ferry is relatively noisy.	No impact over existing conditions. However existing ferry is relatively noisy.	Potential impacts on air quality, dust emissions) and noise as a result of construction and operation activities.	Potential impacts on air quality, dust emissions) and noise as a result of construction and operation activities.	Potential impacts on air quality, dust emissions) and noise as a result of construction and operation activities.	Potential impacts on air quality, dust emissions) and noise as a result of construction activities.	Potential impacts on air quality, dust emissions) and noise as a result of construction activities. Aesthetic changes following construction.
5 Land Acquisition	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	Land acquisition may be required.	Land acquisition may be required.	Land acquisition may be required.	Land acquisition may be required.
6 Public Safety (emergency response)	No impact over existing conditions.	No impact over existing conditions.	Minor improvements to emergency response capabilities due to higher speeds of hovercraft.	No impact over existing conditions – helicopter is currently used for emergency situations.	No impact over existing conditions – cable car would be a passenger service only and will therefore not provide the opportunity for improved response times.	Provides opportunity for EMS vehicles to directly access the island and reduces response times.	Provides opportunity for EMS vehicles to directly access the island and reduces response times.
7 Community Character	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.	Potential to change the character of the island. The island would effectively become an extension of the mainland. With that change comes changes to the amount of traffic, the amount of vehicles and the amount of isolation that community residents have.	Potential to change the character of the island. The island would effectively become an extension of the mainland. With that change comes changes to the amount of traffic, the amount of vehicles and the amount of isolation that community residents have.
C Financial Factors *Rating:*	**Preferred from a financial perspective**	**Not preferred from a financial perspective**	**Not preferred from a financial perspective**	**Not preferred from a financial perspective**	**Not preferred from a financial perspective**	**Not preferred from a financial perspective**	**Not preferred from a financial perspective**
1 Estimated Capital Costs and Total Estimated Cost (25 year planning horizon)	No impact over existing conditions.	Relatively low expense.	Moderate-High expense.	Moderate-High expense.	Moderate expense	Extremely High expense.	High expense.
2 Estimated Operation & Maintenance Costs (25 year planning horizon)	No impact over existing conditions.	Low-moderate expense - Would require operation and maintenance of improved existing ferry.	High - Would require operation and maintenance of existing ferry and/or hovercraft.	High - Would require operation and maintenance of existing ferry and/or helicopter.	High - Would require operation and maintenance of existing ferry and cable car.	Moderate - Would require operation and maintenance of roadway and tunnel (air exchanges, lighting, emergency access secondary tunnels).	Moderate - Would require operation and maintenance of roadway (ploughing, sanding, salting, repairs to roadway and structure(s) and resurfacing).
D Transportation/Technical Factors *Rating:*	**Not preferred from a technical perspective**	**Not preferred from a technical perspective**	**Not preferred from a technical perspective**	**Not preferred from a technical perspective**	**Not preferred from a technical perspective**	**Not preferred from a technical perspective**	**Preferred alternative from technical perspective**
1 Accommodates Transportation Needs (Capacity etc)	Does not accommodate future growth.	Partial accommodation of future growth.	Partial accommodation of future growth.	Partial accommodation of future growth.	Does not accommodate future growth.	Fully addresses needs.	Fully addresses needs.
2 Addresses Transportation Technical Safety Concerns/Strategies	No.	No.	Minor improvements to safety concerns.	Minor improvements to safety concerns.	No.	Opportunity to address safety concerns. Concerns regarding safety during construction.	Opportunity to address safety concerns.

Understanding the Rating System:

● Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion

◕ ↑ ◑ Increase in preference

◔ Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

	TABLE 6.1: ALTERNATIVE SOLUTIONS EVALUATION						
CRITERIA FOR EVALUATING ALTERNATIVES	**Do Nothing**	**Improve Existing Ferry and Ice Road Operations (larger ferry, schedule, ice breakers, bubble system etc)**	**Existing Ferry and/or Hovercraft (assume same route and minor infrastructure improvements)**	**Existing Ferry and/or Helicopter**	**Existing Ferry and Cable Car**	**Road Link (Tunnel)**	**Road Link (Bridge/Causeway)**
RECOMMENDED SOLUTION	Not Carried Forward	Not Carried Forward	Not Carried Forward	Not Carried Forward	Not Carried Forward	Not Carried Forward	Carried Forward

Understanding the Rating System:

● Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion

◕ ↑ ◑ Increase in preference

◔ Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

6.3.4 Existing Ferry and/or Helicopter

The '*existing ferry and/or helicopter*' was not considered a preferred alternative. Helicopter can provide year round service however has limited passenger capacity and no vehicle capacity. The provision of helicopter passenger service is very expensive due to the high capital and operating/maintenance costs. Therefore this alternative is not technically or financially feasible and may have potential impacts on the natural environment as a result of additional infrastructure requirements. As this alternative has no vehicle capacity it does not fully address the purpose/rationale for the project.

6.3.5 Existing Ferry and Cable Car

The '*existing ferry and cable car*' was not considered a preferred alternative. Although the cable car can provide year round service it has no vehicle capacity and the speed of transportation is relatively slow. The provision of a cable car service is expensive due to the high and specialized operating/maintenance costs. Therefore this alternative is not technically or financially feasible and may have potential impacts on the natural environment as a result of infrastructure requirements. As this alternative has no vehicle capacity it does not fully address the purpose/rationale for the project

6.3.6 Road Link (Tunnel)

The '*road link (tunnel)*' was not considered a preferred alternative. The provision of a Fixed Link through a tunnel to the island is very expensive due to the extremely high capital costs. Therefore this alternative is not financially feasible and may have potential impacts on the natural environment.

6.4 Road Link (Bridge and/or Causeway Combination)

The '*road link (bridge and/or causeway combination)*' was considered the ***preferred alternative*** which has been carried forward. This is based on the preliminary technical evaluation and was the preferred option gathered from the community survey. The provision of a Fixed Link through a bridge/causeway combination fully addresses the technical needs of the First Nation and would be financially viable. As well, this option requires minimal specialization for operations. With the implementation of appropriate mitigation measures this alternative will have limited impacts on the natural, socio-economic/cultural environment.

7.0 Preliminary Evaluation of Alternative Routes/Corridors

7.1 Approach

Steps involved in the identification of the preferred alternative routes/corridors included:

- definition of issues
- identification of conceptual alternatives to address the issues
- review of existing conditions to define potential constraints
- First Nation, Agency and public pre-consultation to define issues and concerns
- general effects assessment
- evaluation of alternatives based on environmental and engineering considerations
- identification of overall preferred alternative route/corridor.

7.2 Constraints

In order to identify alternative routes/corridors, constraint factors were considered within the general study area. Key constraint features included:

- natural heritage features (terrestrial and aquatic)
- existing recreational activities (fishing boats and ice fishing)
- property holdings/land acquisitions
- existing road system
- existing built up areas (particularly on mainland)
- geomorphology and geology
- public safety
- engineering limitations.

7.3 Effects Evaluation

Through preliminary site assessments and review of existing conditions the following general alternative routes/corridors were considered for the proposed road link (bridge and/or causeway combination), Figure 7.1.

- **Alternative 1** - South East Georgina Island to Duclos Point

  This option was investigated because it offered the shortest physical route from the island to the mainland, within the study area.

- **Alternative 2** - South West Georgian Island to Doyle Beach/Virginia

  This option was investigated because it offered the shallowest route between the island and mainland, and may lend itself to a causeway option.

1. Georgina Island ANSI
2. Duclos Point Park Reserve ANSI
3. Georgina Island ESA
4. Big Shoal ESA
5. Duclos Point ESA
6. Mossington Park ESA
7. Virginia Beach ESA
8. Georgina Island PSW
9. Morning Glory Swamp PSW
10. Mossington Park NPSW
11. Riverview Beach Wetlands NPSW
12. Sibbald Point Provincial Park

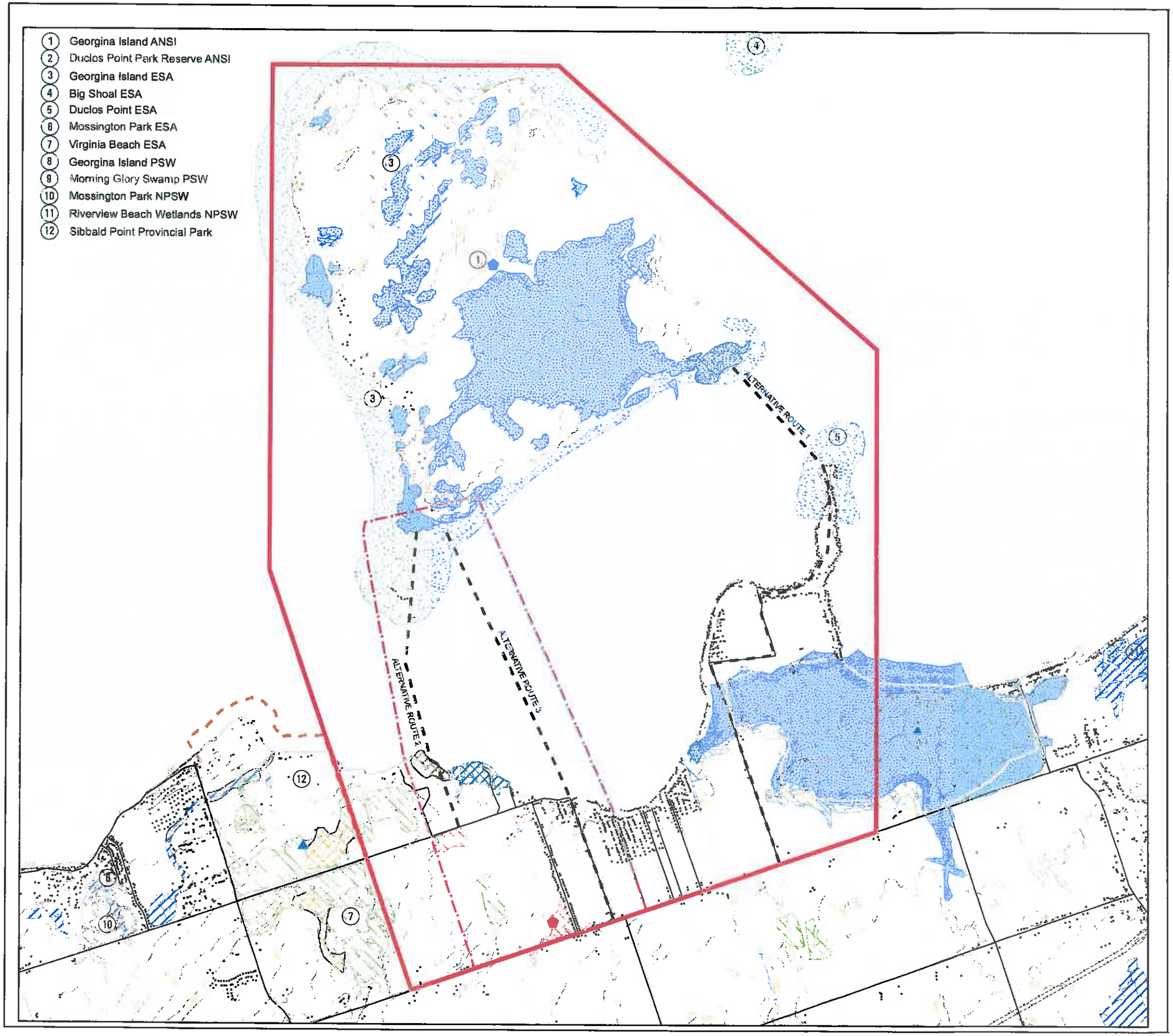


FIGURE 7.1

CHIPPEWAS OF GEORGINA ISLAND
REGION OF YORK, TOWN OF GEORGINA

PRELIMINARY EVALUATION OF ENGINEERING AND ENVIRONMENTAL ALTERNATIVES STUDY

PROPOSED ROUTES

Legend

- River/Stream: Seasonal
- River/Stream: Permanent
- Study Area
- Area Identified for Additional Studies
- Road
- Lot
- Utility Line: Unspecified
- Waterbody
- Provincial Life Science Areas of Natural and Scientific Interest (ANSI)
- Provincial Park
- First Nation Owned Land
- Shoal Environmentally Significant Areas (ESA)
- Old Growth Forest (>100 Years)
- Mid-to-Late Successional Forest (>4 ha)
- Non-Provincial Significant Wetlands (NPSW)
- Provincial Significant Wetlands (PSW)
- Biological ESAs
- Local Life Science Site
- Local Earth Science Site
- Buildings

Produced using information provided by the Ministry of Natural Resources, Copyright © Queen's Printer, 2007.
York Region, Town of Georgina Official Plan, Schedule B3, B4, B5, B6.

N

0 500 1,000 1,500 2,000 2,500
Meters

Scale: 1:40,000
Mapping Date: January 24, 2007

Projection: UTM Zone 17
Datum: NAD 83

Project: FC010428
Prepared By: B. Berry

Verified By: T. Redburn

NEEGAN BURNSIDE

X:\Project\FJobs\FC010428\Map\FC010428 PROPOSED ROUTES 7.1.MXD

- **Alternative 3** - South West Georgina Island to Virginia Beach (existing ferry route)

  This option was chosen because it is the current travel route and the land on both sides of the crossing belongs to Georgina Island.

The general effects evaluation is presented in Table 7.1.

7.3.1 Alternative 1 - South East Georgina Island to Duclos Point

After our review, Alternative 1 was not considered a preferred alternative. There are no practical connection points for a Fixed Link on the island or the mainland at this location. A private residential development is located on Duclos point and a private marina is located on the Island. The public resistance to this option would be extreme. Although this location is the shortest crossing point it has the deepest water which would potentially result in high capital costs. This alternative also has the potential to affect a large number of designated sites and species, particularly on the mainland.

A new road connection would be required from the shore to Bear Road, a distance of about 0.5 km, and the route would need to work around the existing marina and cottage development in that area. Since the primary area of development on Georgina Island is presently along the west side of the island, a major upgrading of Bear Road would be required to accommodate the additional traffic, from the relocated connection westerly to Chief Joseph Snake Road, a distance of about 3.5 km. A major upgrading of Duclos Point Road would also be required to accommodate the additional traffic if the connection point is relocated to Duclos Point.

In addition, land would need to be purchased on Duclos Point for access development, as well as a possible parking lot. The potential for ill feelings amongst the mainland private landowners is high for this option.

Therefore this alternative was not considered to be feasible from a natural environment, or technical perspective.

7.3.2 Alternative 2 - South West Georgian Island to Doyle Beach/Virginia

Alternative 2 was considered a **preferred alternative** which has been carried forward for further assessment. This alternative route/corridor fully addresses the technical needs of the First Nation and would appear to be financially attainable.

CRITERIA FOR EVALUATING ALTERNATIVES	TABLE 7.1: ALTERNATIVE ROUTES/CORRIDORS EVALUATION		
	Alternative 1 **South east Georgina Island to Duclos point**	**Alternative 2** **South west Georgian Island to Doyle Beach/Virginia**	**Alternative 3** **South west Georgina Island to Virginia Beach (existing ferry route)**
A Natural Environment *Rating:*	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Preferred from a natural environment perspective**
1 Designated Sites & Species	Potential to effect following designated sites: Georgina Island • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science) • One Environmentally Sensitive Area (ESA) – Georgina Island • One Provincially Significant Wetland (PSW) – Georgina Island Wetlands Mainland • One Area of Natural and Scientific Interest (ANSIs) – Duclos Point Park Reserve (Life Science) • One Environmentally Sensitive Area (ESA) – Duclos Point • One Provincially Significant Wetland (PSW) –Morning Glory Swamp Potential to effect the following designates species: • VTE (SARA Schedule 1) species on Georgina island	Potential to effect following designated sites/species: **Georgina Island** • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science) • One Environmentally Sensitive Area (ESA) – Georgina Island • One Provincially Significant Wetland (PSW) – Georgina Island Wetlands **Mainland** • Old growth forest (>100 years) Potential to effect the following designates species: • Butternut (SARA, Schedule 1) on Mainland • Red-Shouldered Hawk (Special Concern) on Mainland • VTE (SARA Schedule 1) species on Georgina Island	Potential to effect following designated sites/species: Georgina Island • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science) • One Environmentally Sensitive Area (ESA) – Georgina Island • One Provincially Significant Wetlands (PSW) – Georgina Island Wetlands Potential to effect the following designates species: • VTE (SARA Schedule 1) species on Georgina Island
2 Water Quality and Quantity	Greatest water depth 3.0 m. Potential impacts on soils/sediments and surface water quality as a result of construction and operation.	Water depth 1.8 m. Potential impacts on soils/sediments and surface water quality as a result of construction and operation.	Water depth 2.0 m. Potential impacts on soils/sediments and surface water quality as a result of construction and operation.
4 Terrestrial Habitat	Potential habitat loss and fragmentation on Island and Mainland	Potential habitat loss and fragmentation on Island and Mainland	Some habitat loss and fragmentation associated with upgrading existing infrastructure, however terrestrial habitat is already relatively disturbed.
5 Aquatic Habitat	Potential aquatic habitat loss and fragmentation, although this would be the shortest crossing (1.4 km) point	Potential aquatic habitat loss and fragmentation, also affects islands and associated aquatic habitat off the south west tip of Georgina Island	Potential aquatic habitat loss and fragmentation, longest crossing point (3.0 km). Existing ferry route is already relatively disturbed due to dredging activities in ferry channel
B Socio-economic/Cultural Environment *Rating:*	**Not preferred from a social/cultural environment perspective**	**Preferred from a social/cultural environment perspective**	**Preferred from a social/cultural environment perspective**
1 Existing recreation (boating, fishing, beaches, ice fishing etc.)	Navigation will be maintained to facilitate recreational boat traffic, however relocation of marina on Georgina Island will need to occur.	Navigation will be maintained to facilitate recreational boat traffic.	Navigation will be maintained to facilitate recreational boat traffic. However relocation of marina on Mainland and Island will need to occur. This may impact the ability to launch recreational boats
2 Land use consistency	None	None	Partial
3 Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes)	Potential impacts on heritage resources	Potential impacts on heritage resources	Potential impacts on heritage resources
4 Aesthetics	Potential aesthetic impacts	Potential aesthetic impacts	Potential aesthetic impacts
5 Land Acquisition and Residential/Business Displacements	Land required (Mainland) and potential for residential displacements.	Land required (Mainland) but no displacement of existing development.	None

Understanding the Rating System:

● Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion

◕ ↑ ◑ Increase in preference

◔ Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

CRITERIA FOR EVALUATING ALTERNATIVES	TABLE 7.1: ALTERNATIVE ROUTES/CORRIDORS EVALUATION		
	Alternative 1 **South east Georgina Island to Duclos point**	**Alternative 2** **South west Georgian Island to Doyle Beach/Virginia**	**Alternative 3** **South west Georgina Island to Virginia Beach (existing ferry route)**
C Technical Factors *Rating:*	**Not preferred from a technical perspective**	**Preferred from a technical perspective**	**Not preferred from a technical perspective**
1 Technical Feasibility	Shortest crossing point (1.4 km) Greatest water depth (3.0 m). Would impact existing marina on Georgian Island and residential development on Duclos point	Medium length crossing point (2.4 km) Shallowest water depth (1.8 m) Moderate impact to existing development	Longest crossing point (3.0 km) Medium water depth (dredged for existing ferry operations) Moderate impact to existing development
2 Traffic and Pedestrian Circulation	Circuitous route between major points of origin and destination (existing or potential development areas and emergency services)	Relatively direct route between major points of origin and destination (existing or potential development areas and emergency services)	Relatively direct route between major points of origin and destination (existing or potential development areas and emergency services)
3 Road Connections	Major upgrading required on both Island and Mainland (7.3 km); Areas of organic soils and flooding potential along existing road connections; Existing development constrains the upgrading of the road geometrics (horizontal alignment, sight lines) to meet minimum standards	Requires establishment of new road corridor on Mainland (0.8 km); Increases potential for traffic impacts (noise, dust etc.) on existing Provincial Park	Existing ferry road connections (Hadden Road, Virginia Boulevard) are in place to connect to Highway 48.
4 Marine Navigation	To be maintained through bridge section	To be maintained through bridge section	To be maintained through bridge section.
5 Impact On Existing Infrastructure (water intakes, sewage outfalls, servicing corridors)	Locations of existing infrastructure and utilities to be confirmed in future feasibility study work and fixed link designs to mitigation impacts to such existing facilities	Locations of existing infrastructure and utilities to be confirmed in future feasibility study work and fixed link designs to mitigation impacts to such existing facilities	Locations of existing infrastructure and utilities to be confirmed in future feasibility study work and fixed link designs to mitigation impacts to such existing facilities
6 Geotechnical Considerations (rock, swamp, stability of marine bed, impact on coastal processes etc.)	Preliminary geotechnical investigation to be completed as part of future feasibility study work to confirm geotechnical constraints. New road connection crosses about 0.4 km of provincially significant wetland on Georgina Island (organic soils) and road upgrading crosses about 1.0 km of provincially significant wetland on the mainland (organic soils).	Preliminary geotechnical investigation to be completed as part of future feasibility study work to confirm geotechnical constraints. New road connection crosses about 0.2 km of provincially significant wetland on Georgina Island (organic soils).	Preliminary geotechnical investigation to be completed as part of future feasibility study work to confirm geotechnical constraints.
7 Operational Constraints (wave impacts, wind impacts, snow, ice, fog)	Design to address operational constraints.	Design to address operational constraints.	Design to address operational constraints.
D Cost Factors *Rating*:	**Preferred from a financial perspective**	**Preferred from a financial perspective**	**Not preferred from a financial perspective**
1 Construction/Operation/Maintenance	Moderate	Moderate – High	High
RECOMMENDED SOLUTION	Not Carried Forward	Carried Forward for Additional Study	Carried Forward for Additional Study

Understanding the Rating System:

- Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion
- Increase in preference
- Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

If the connection between Georgina Island and the mainland is relocated to Doyle Beach, the road linkage on the island would require a new road connection of about 0.3 km to connect from the shore to Chief Joseph Snake Road. The new road would traverse a Provincially Significant Wetland in this area, but the effects are mitigatable. On the mainland, a new road connection would be required from the shore to Black River Road, a distance of about 1.0 km, over lands that are presently privately owned. Preliminary communication with the Town of Georgina has indicated that this road would probably not be a municipal road, but if it were to be constructed as a municipal road that it would require the completion of a Class Environmental Assessment (Class EA) under the requirements of the Environmental Assessment Act. The location of this connection should also recognize the constraint imposed by the relatively small area of Old Growth Forest in this area.

The Town of Georgina has requested that a traffic study be provided to assess the impacts on the Town's roads that may result from a fixed link and ultimate development on the island. They have also noted that the potential for impacts on land use planning on the mainland should be considered, especially if major tourist facilities are anticipated that may put pressure to locate ancillary or other types of uses on the mainland.

With the implementation of appropriate mitigation measures this alternative should have limited impacts on the natural, socio-economic/cultural environment; however additional studies/inventories are required as part of the Feasibility Study in order to accurately determine potential effects and mitigation measures (refer to Section 10).

7.3.3 Alternative 3 - South West Georgina Island to Virginia Beach (existing ferry route)

Alternative 3 was also considered a ***preferred alternative*** which has been carried forward for further assessment. This alternative route/corridor fully addresses the technical needs of the First Nation and appears to be comparatively financially viable. Minimal land acquisition would be required for this alternative. This route is also relatively disturbed environmentally due to existing ferry activities/infrastructure, therefore this alternative would result in relatively limited effects to the natural environment. Based on DFO's "no net loss" policy for fish habitat, Alternative 3 would have the lowest potential loss to fish habitat based on existing access on both mainland and island access point to the existing ferry.

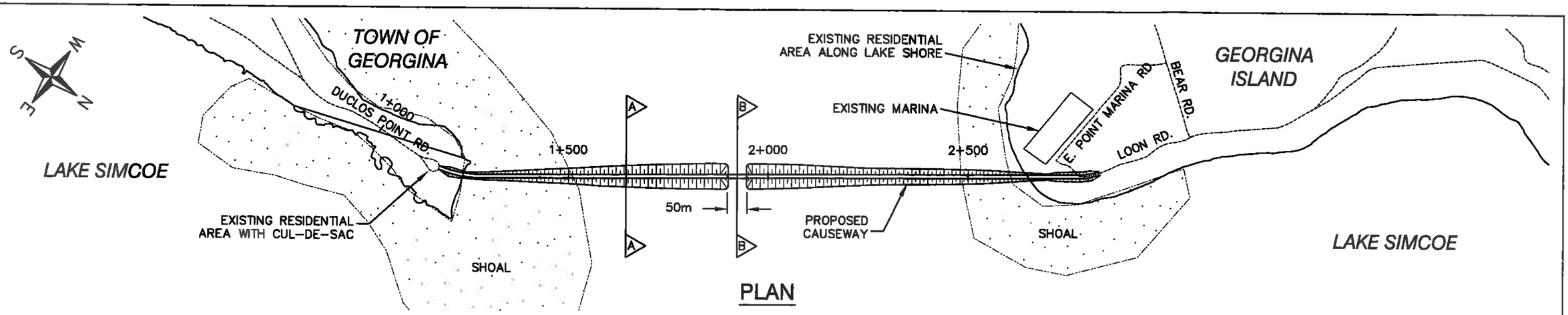
As stated above, the Town of Georgina has requested that a traffic study be provided to assess the impacts on the Town's roads that may result from a fixed link and ultimate development on the island. They have also noted that the potential for impacts on land use planning on the mainland should be considered, especially if major tourist facilities are anticipated that may put pressure to locate ancillary or other types of uses on the mainland.

With the implementation of appropriate mitigation measures this alternative will have limited impacts on the natural, socio-economic/cultural environment. However, additional studies/inventories are required as part of the Feasibility Study in order to accurately determine potential effects and mitigation measures (refer to Section 9).

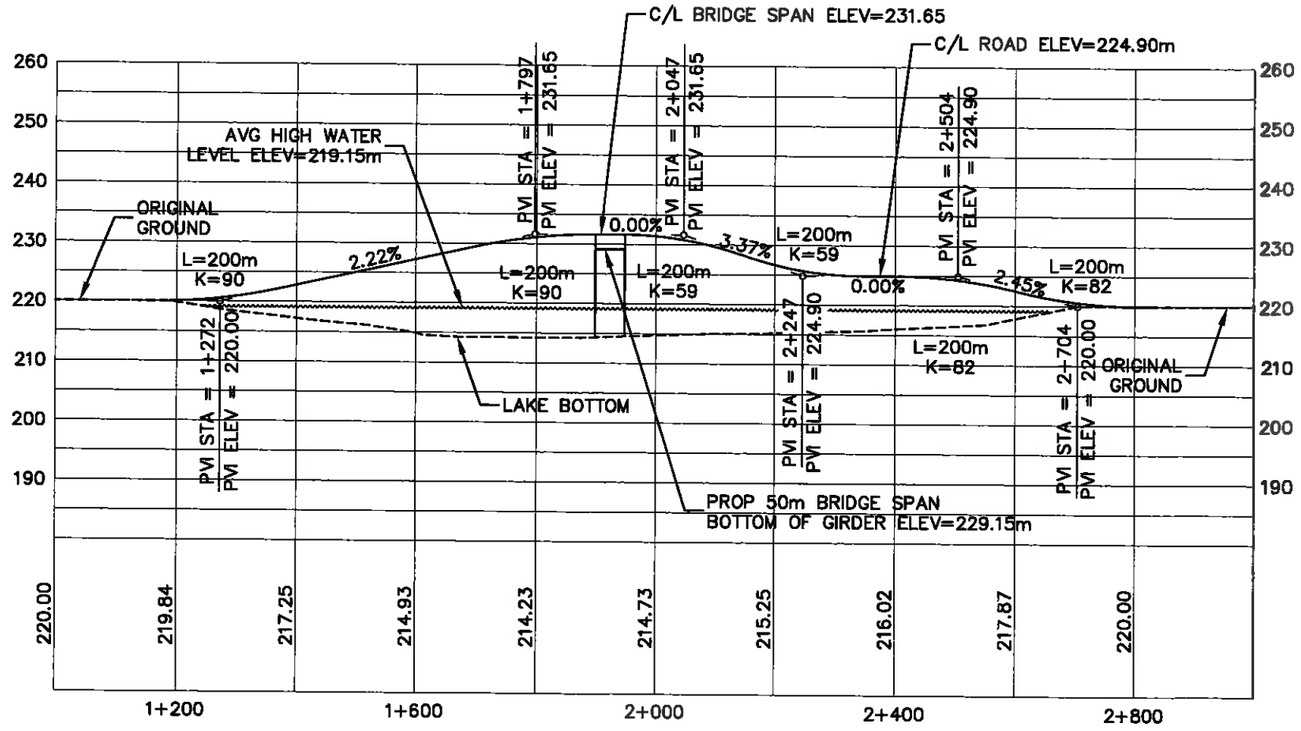
7.4 Preliminary Profiles For Alternative Crossings

Based on the above design considerations, a preliminary plan and profile has been established for each the preferred alternative routes being considered, as shown on Figure 7.2 to Figure 7.7. Figure 7.2 and 7.3 relate to Alternative Route 1. Figures 7.4 and 7.5 relate to Alternative Route 2. Figures 7.6 and 7.7 relate to Alternative Route 3. The bridge structure to accommodate marine navigation is located approximately in the centre of each crossing, with the ultimate connections to the mainland and the island being made by either a causeway or a lower bridge. It should be confirmed, as part of the detailed designs, whether additional waterway openings (e.g. culverts) are required through the causeway section, to address water flow requirements or fish migration requirements.

Preliminary discussions with Transport Canada (personal communication, Rebecca Earl, Environmental Officer, Transport Canada), indicate that final clearance requirements can not be provided until the exact location of any bridge structure had been established. However, at a minimum, Transport Canada has indicated that the structure would require a clearance of 6.7 m (22 ft.) above the normal high water level. In order to fully assess the proposed works, Transport Canada will require a navigation study to be conducted. This study would consist of identifying the types of vessels and the clearances already in place. Based on these preliminary discussions, and for the purposes of this study, we have assumed that a minimum bridge clearance of about 7 m and span of 50 m would be required to accommodate the marine traffic in this area. Considering the annual average high water mark in Lake Simcoe as being 219.15 m asl, a fixed link structure would require a clearance elevation of approximately 226.15 m. These assumptions are subject to verification as part of the Feasibility Study.



PLAN



PROFILE

NOTE:

SEE FIGURE 8.1 FOR TYPICAL CROSS SECTIONS

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Client: CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

Drawing/Project Title: PLAN & PROFILE
ROUTE 1 OPTION A – CAUSEWAY

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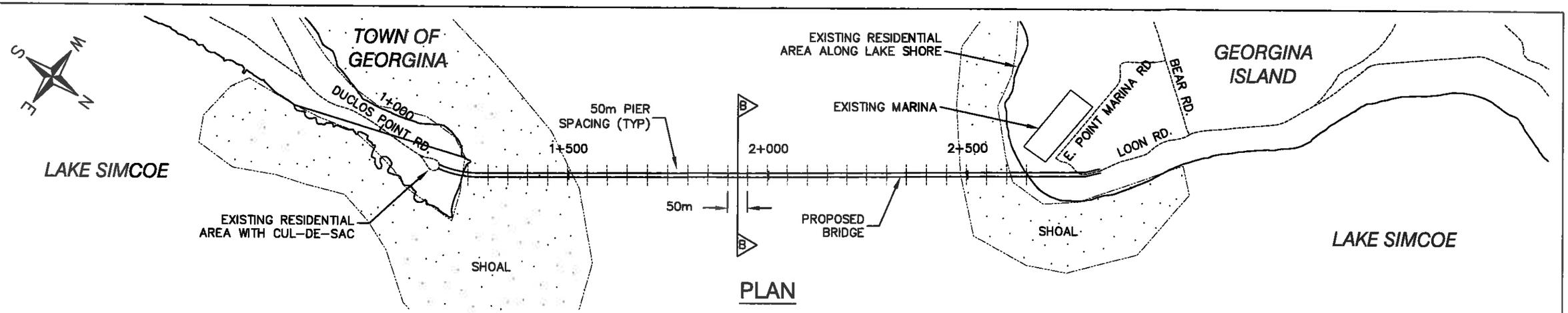
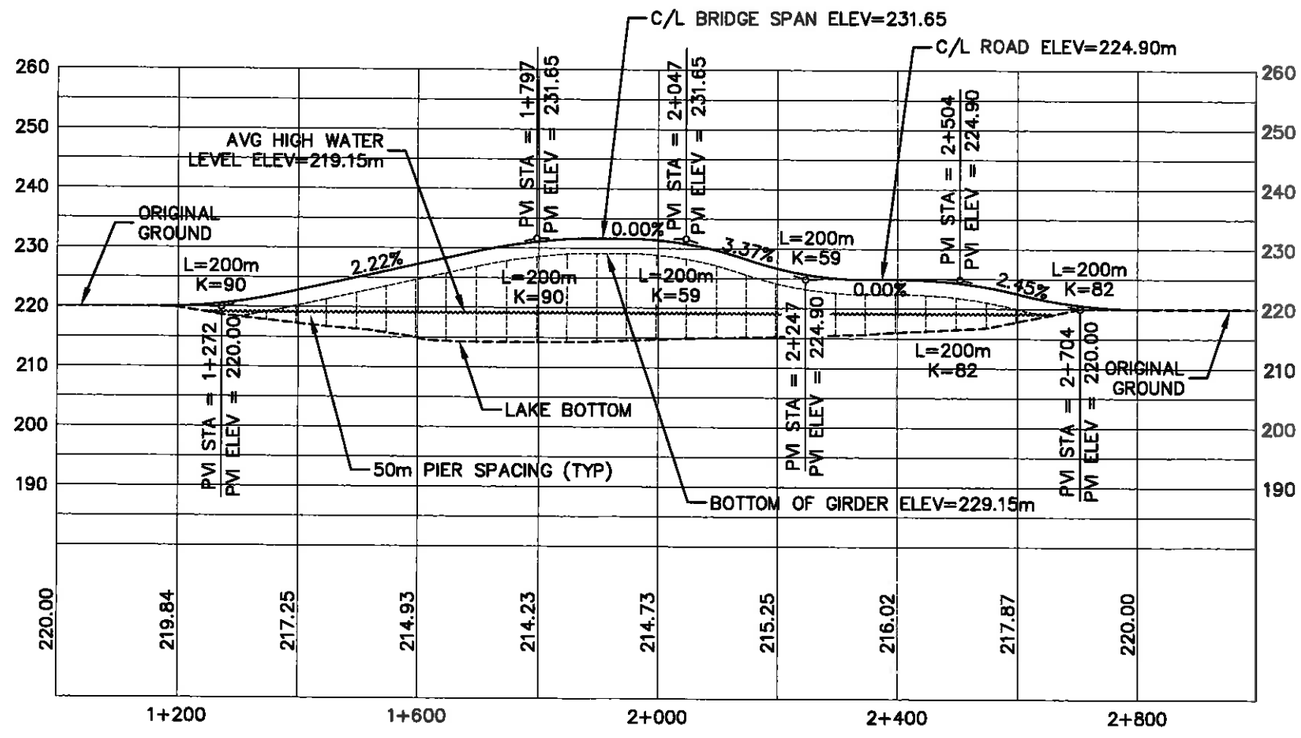
Drawn By	Checked By	Figure No.
B. Jensen	H. Centen	7.2
Scale: 1:10,000 H 1:1,000 V	Project No.: FCO-10428	

FC010428P1A.DWG



PLAN



PROFILE

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Client: CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

Drawing/Project Title: PLAN & PROFILE
ROUTE 1 OPTION B – BRIDGE

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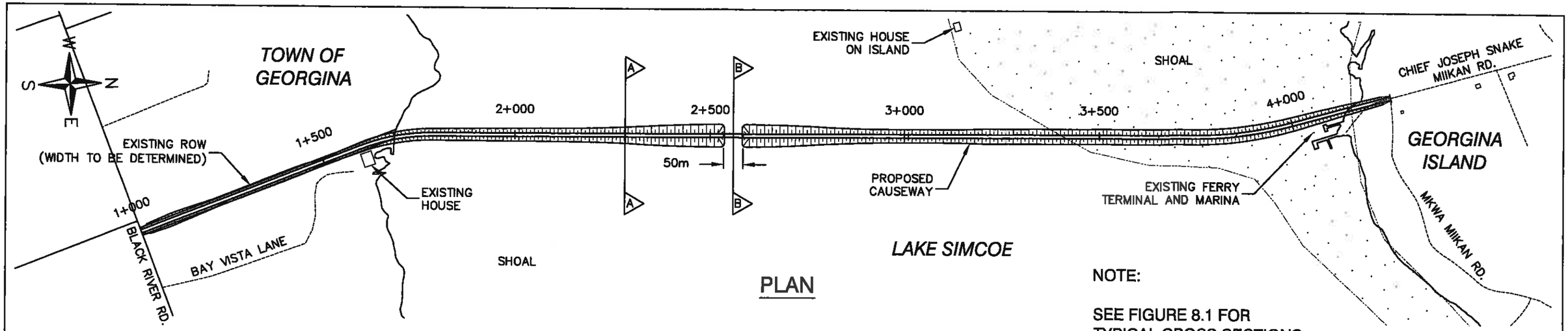

PLAN

NOTE:

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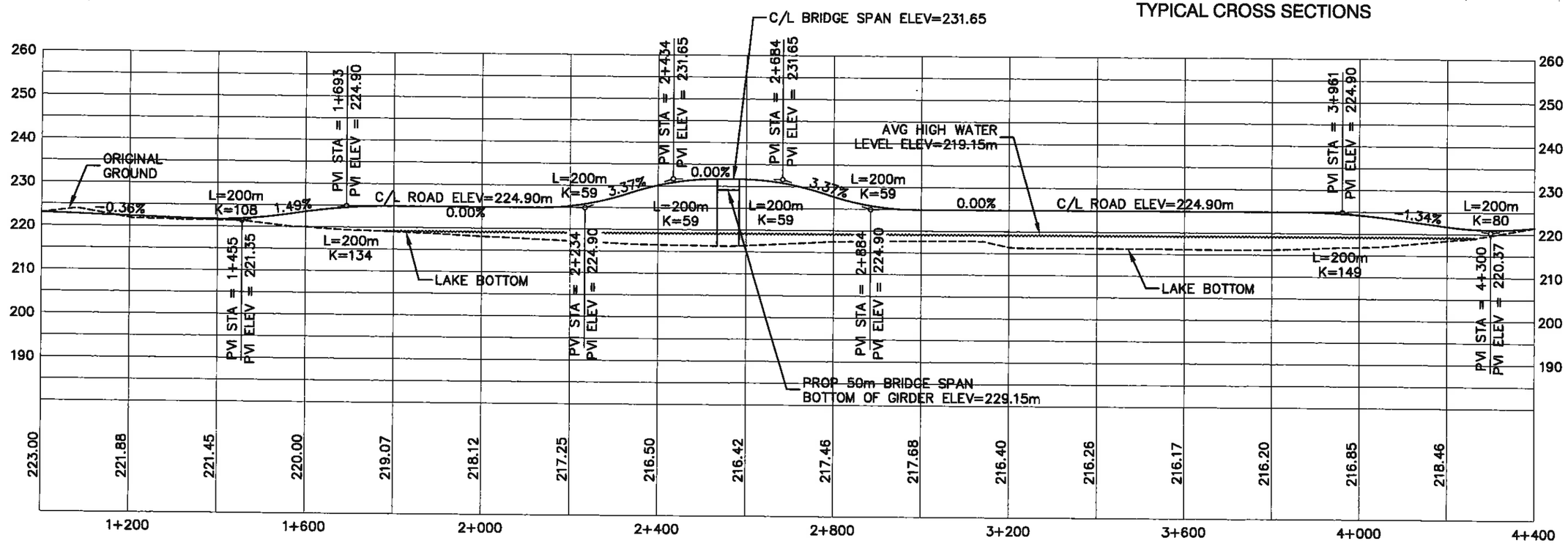

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Client
CHIPPEWAS OF GEORGINA ISLAND
PROPOSED FIXED LINK STUDY – STAGE 1

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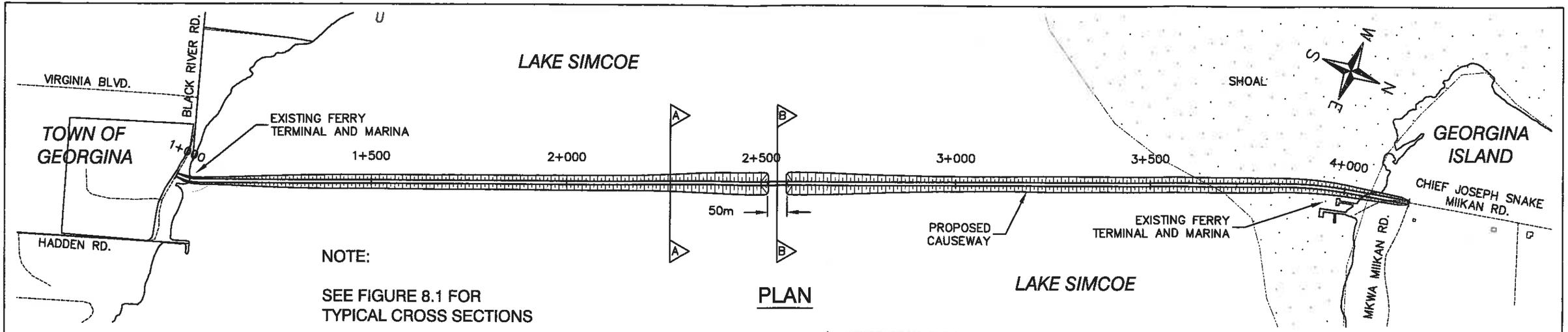
Drawing/Project Title
PLAN & PROFILE
ROUTE 2 OPTION A – CAUSEWAY

Drawn By	Checked By	Figure No.
B. Jensen	H. Centen	7.4
Scale: 1:10,000 H 1:1,000 V	Project No.: FCO-10428	

FCO10428P2A.DWG



NOTE:

SEE FIGURE 8.1 FOR TYPICAL CROSS SECTIONS

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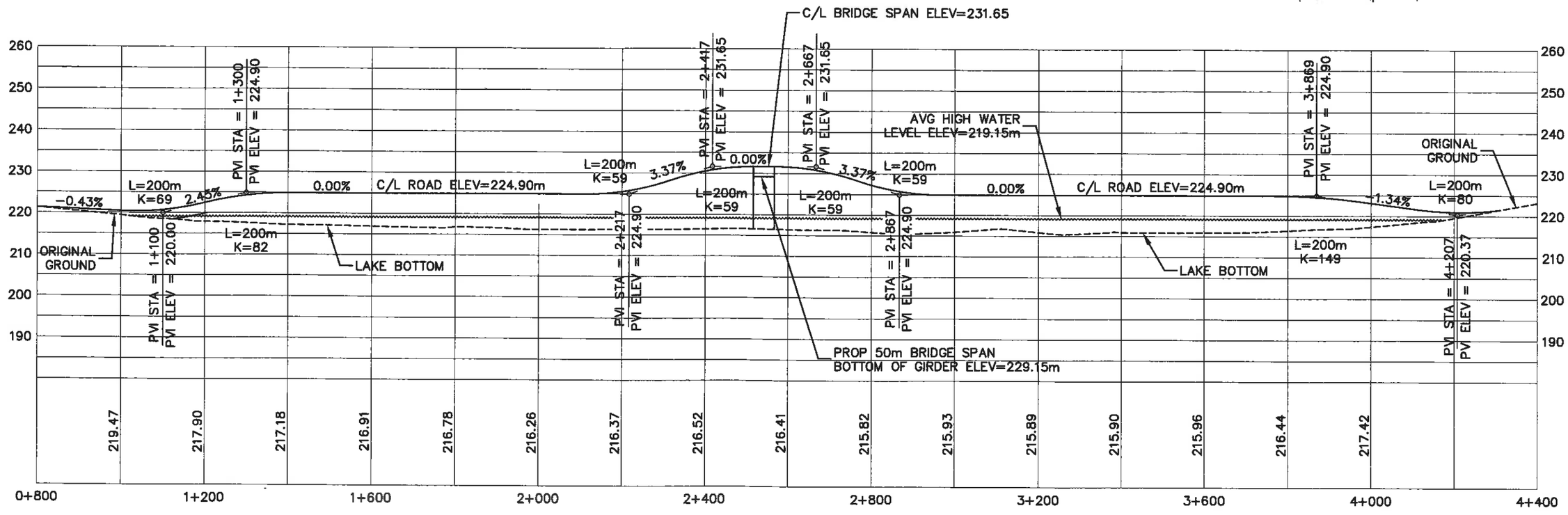

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Client
CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

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Drawing/Project Title
PLAN & PROFILE
ROUTE 3 OPTION A – CAUSEWAY

Drawn By	Checked By	Figure No.
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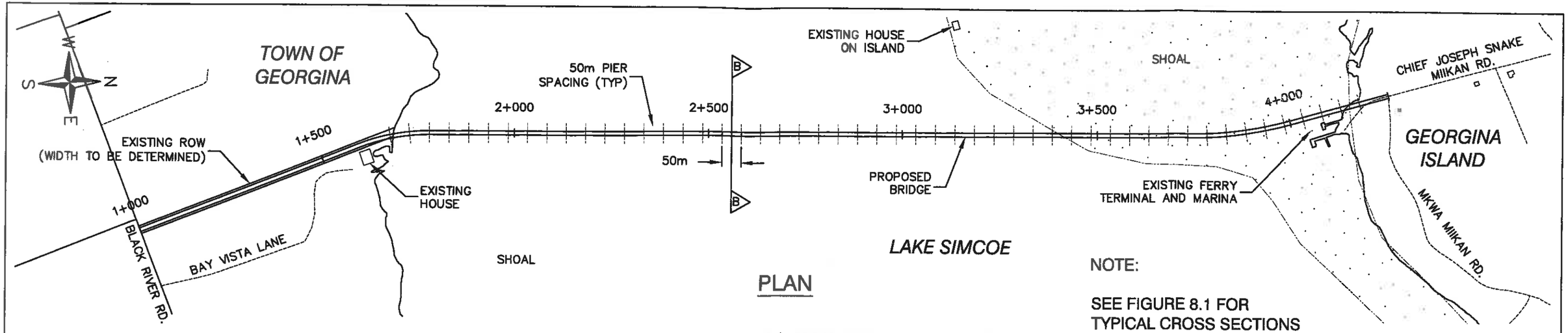
Scale: 1:10,000 H 1:1,000 V	Project No.: FCO–10428	

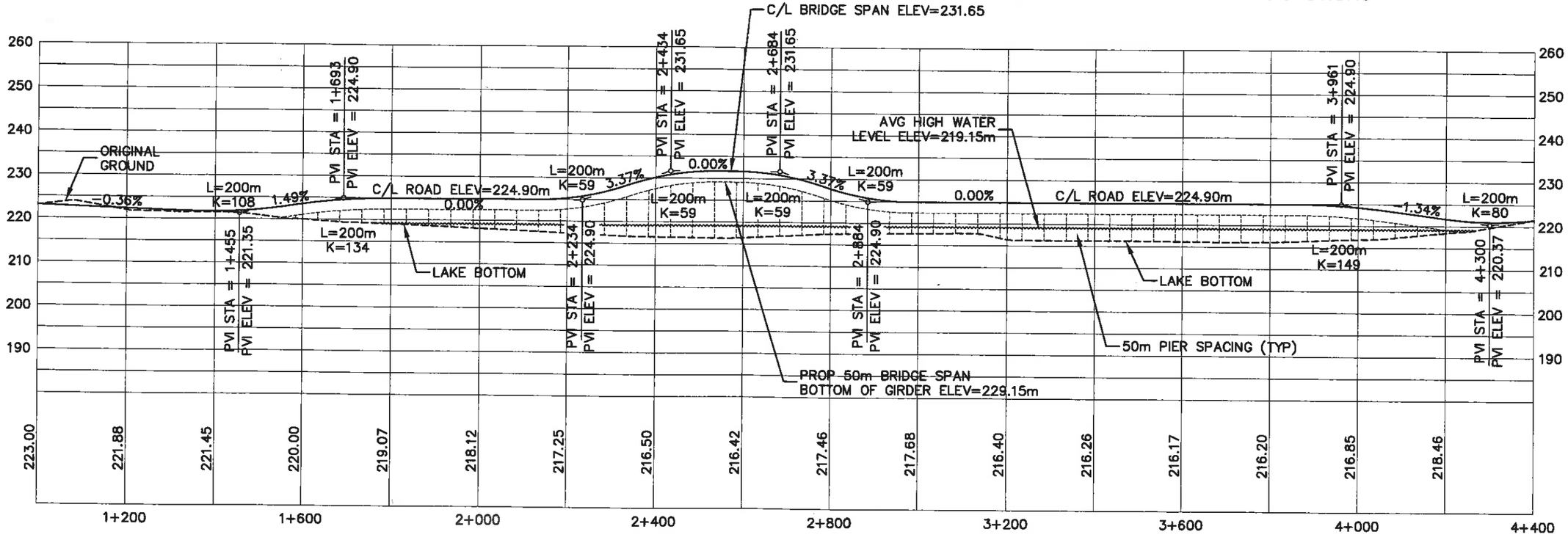
FCO10428P3A.DWG



PLAN

NOTE:

SEE FIGURE 8.1 FOR TYPICAL CROSS SECTIONS



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Client
CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

Drawing/Project Title
PLAN & PROFILE
ROUTE 2 OPTION B – BRIDGE

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Scale: 1:10,000 H 1:1,000 V
Project No.: FCO–10428
Figure No.: 7.5

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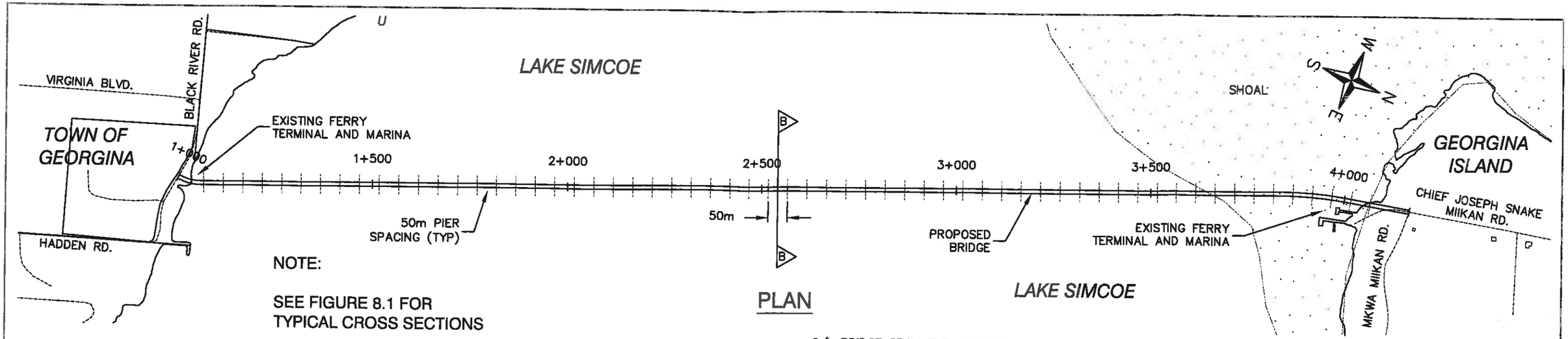
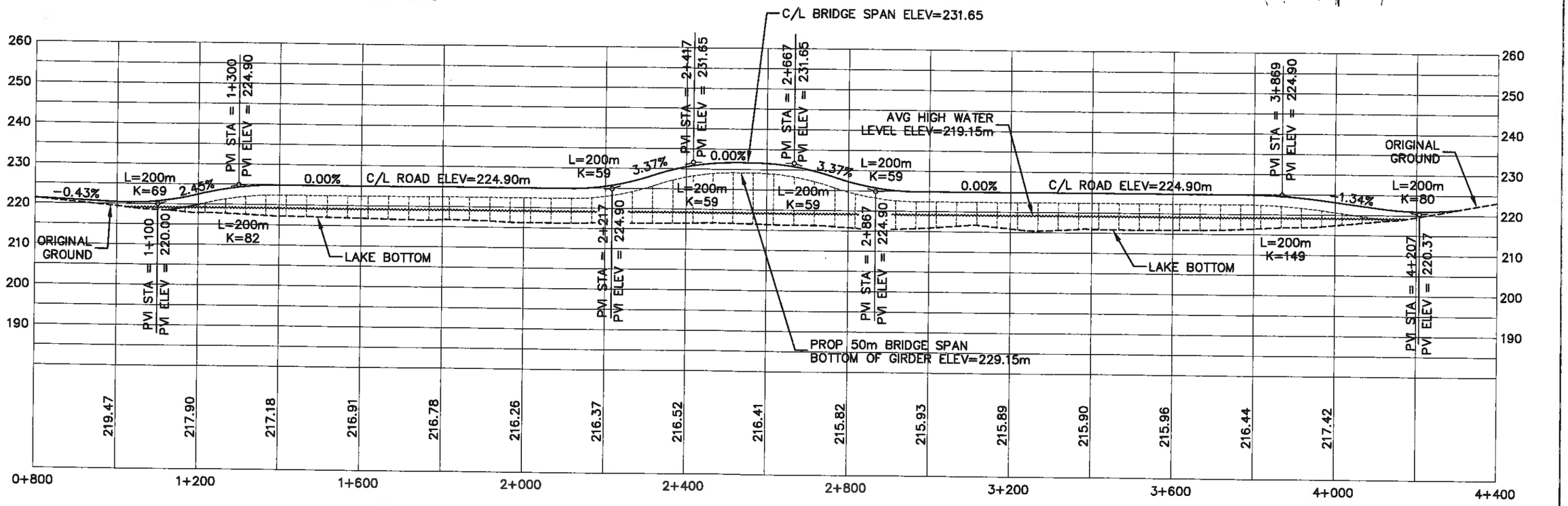


NOTE:

SEE FIGURE 8.1 FOR TYPICAL CROSS SECTIONS

PLAN



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Client
CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

Drawing/Project Title
PLAN & PROFILE
ROUTE 3 OPTION B – BRIDGE

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Drawn By	Checked By	Figure No.
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Scale: 1:10,000 H 1:1,000 V	Project No.: FCO-10428	

FCO10428P3B.DWG

8.0 Preliminary Evaluation of Alternative Designs

8.1 Approach

Steps involved in the identification of the preferred preliminary designs included:

- Definition of issues
- Identification of conceptual designs to address the issues
- Review of existing conditions to define potential constraints
- General effects assessment
- Evaluation of alternatives based on environmental and engineering considerations
- Identification of overall preferred alternative design.

8.2 Constraints

In order to identify general design alternatives, constraint factors were considered within the general study area. Key constraint features included:

- natural heritage features (terrestrial and aquatic)
- existing recreational activities (fishing boats and ice fishing)
- property holdings/land acquisitions
- existing road system
- existing built up areas (particularly on mainland)
- geomorphology and geology
- public safety
- engineering limitations.

8.3 Alternative Designs

Through preliminary site assessments, review of existing conditions and technical design considerations the following general alternative designs were considered for the proposed road link (bridge and/or causeway combination).

- Pontoon Bridge – Structure floats on the surface of the water
- Piered Bridge – Bridge piers/footings are located within the water, creating a spanning structure
- Bridge/Causeway – Spanning structure and causeway combination. The causeway would consist of a road located onto of an elevated bank located above shallow water. The bridge structure would be located, as necessary, over deeper water.

8.4 Effects Evaluation

The general effects evaluation is presented in Table 8.1.

TABLE 7.1: ALTERNATIVE ROUTES/CORRIDORS EVALUATION

CRITERIA FOR EVALUATING ALTERNATIVES	Alternative 1 South east Georgina Island to Duclos point	Alternative 2 South west Georgian Island to Doyle Beach/Virginia	Alternative 3 South west Georgina Island to Virginia Beach (existing ferry route)
A Natural Environment *Rating:*	**Not preferred from a natural environment perspective**	**Not preferred from a natural environment perspective**	**Preferred from a natural environment perspective**
1 Designated Sites & Species	Potential to effect following designated sites: Georgina Island • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science) • One Environmentally Sensitive Area (ESA) – Georgina Island • One Provincially Significant Wetland (PSW) – Georgina Island Wetlands Mainland • One Area of Natural and Scientific Interest (ANSIs) – Duclos Point Park Reserve (Life Science) • One Environmentally Sensitive Area (ESA) – Duclos Point • One Provincially Significant Wetland (PSW) –Morning Glory Swamp Potential to effect the following designates species: • VTE (SARA Schedule 1) species on Georgina island	Potential to effect following designated sites/species: Georgina Island • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science) • One Environmentally Sensitive Area (ESA) – Georgina Island • One Provincially Significant Wetland (PSW) – Georgina Island Wetlands Mainland • Old growth forest (>100 years) Potential to effect the following designates species: • Butternut (SARA, Schedule 1) on Mainland • Red-Shouldered Hawk (Special Concern) on Mainland • VTE (SARA Schedule 1) species on Georgina Island	Potential to effect following designated sites/species: Georgina Island • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science) • One Environmentally Sensitive Area (ESA) – Georgina Island • One Provincially Significant Wetlands (PSW) – Georgina Island Wetlands Potential to effect the following designates species: • VTE (SARA Schedule 1) species on Georgina Island
2 Water Quality and Quantity	Greatest water depth 3.0 m. Potential impacts on soils/sediments and surface water quality as a result of construction and operation.	Water depth 1.8 m. Potential impacts on soils/sediments and surface water quality as a result of construction and operation.	Water depth 2.0 m. Potential impacts on soils/sediments and surface water quality as a result of construction and operation.
4 Terrestrial Habitat	Potential habitat loss and fragmentation on Island and Mainland	Potential habitat loss and fragmentation on Island and Mainland	Some habitat loss and fragmentation associated with upgrading existing infrastructure, however terrestrial habitat is already relatively disturbed.
5 Aquatic Habitat	Potential aquatic habitat loss and fragmentation, although this would be the shortest crossing (1.4 km) point	Potential aquatic habitat loss and fragmentation, also affects islands and associated aquatic habitat off the south west tip of Georgina Island	Potential aquatic habitat loss and fragmentation, longest crossing point (3.0 km). Existing ferry route is already relatively disturbed due to dredging activities in ferry channel
B Socio-economic/Cultural Environment *Rating:*	**Not preferred from a social/cultural environment perspective**	**Preferred from a social/cultural environment perspective**	**Preferred from a social/cultural environment perspective**
1 Existing recreation (boating, fishing, beaches, ice fishing etc.)	Navigation will be maintained to facilitate recreational boat traffic, however relocation of marina on Georgina Island will need to occur.	Navigation will be maintained to facilitate recreational boat traffic.	Navigation will be maintained to facilitate recreational boat traffic. However relocation of marina on Mainland and Island will need to occur. This may impact the ability to launch recreational boats
2 Land use consistency	None	None	Partial
3 Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes)	Potential impacts on heritage resources	Potential impacts on heritage resources	Potential impacts on heritage resources
4 Aesthetics	Potential aesthetic impacts	Potential aesthetic impacts	Potential aesthetic impacts
5 Land Acquisition and Residential/Business Displacements	Land required (Mainland) and potential for residential displacements.	Land required (Mainland) but no displacement of existing development.	None

Understanding the Rating System:

● Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion

◕ ↑ ◑ Increase in preference

◔ Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

TABLE 7.1: ALTERNATIVE ROUTES/CORRIDORS EVALUATION

CRITERIA FOR EVALUATING ALTERNATIVES	Alternative 1 South east Georgina Island to Duclos point	Alternative 2 South west Georgian Island to Doyle Beach/Virginia	Alternative 3 South west Georgina Island to Virginia Beach (existing ferry route)
C Technical Factors *Rating:*	**Not preferred from a technical perspective**	**Preferred from a technical perspective**	**Not preferred from a technical perspective**
1 Technical Feasibility	Shortest crossing point (1.4 km) Greatest water depth (3.0 m). Would impact existing marina on Georgian Island and residential development on Duclos point	Medium length crossing point (2.4 km) Shallowest water depth (1.8 m) Moderate impact to existing development	Longest crossing point (3.0 km) Medium water depth (dredged for existing ferry operations) Moderate impact to existing development
2 Traffic and Pedestrian Circulation	Circuitous route between major points of origin and destination (existing or potential development areas and emergency services)	Relatively direct route between major points of origin and destination (existing or potential development areas and emergency services)	Relatively direct route between major points of origin and destination (existing or potential development areas and emergency services)
3 Road Connections	Major upgrading required on both Island and Mainland (7.3 km); Areas of organic soils and flooding potential along existing road connections; Existing development constrains the upgrading of the road geometrics (horizontal alignment, sight lines) to meet minimum standards	Requires establishment of new road corridor on Mainland (0.8 km); Increases potential for traffic impacts (noise, dust etc.) on existing Provincial Park	Existing ferry road connections (Hadden Road, Virginia Boulevard) are in place to connect to Highway 48.
4 Marine Navigation	To be maintained through bridge section	To be maintained through bridge section	To be maintained through bridge section.
5 Impact On Existing Infrastructure (water intakes, sewage outfalls, servicing corridors)	Locations of existing infrastructure and utilities to be confirmed in future feasibility study work and fixed link designs to mitigation impacts to such existing facilities	Locations of existing infrastructure and utilities to be confirmed in future feasibility study work and fixed link designs to mitigation impacts to such existing facilities	Locations of existing infrastructure and utilities to be confirmed in future feasibility study work and fixed link designs to mitigation impacts to such existing facilities
6 Geotechnical Considerations (rock, swamp, stability of marine bed, impact on coastal processes etc.)	Preliminary geotechnical investigation to be completed as part of future feasibility study work to confirm geotechnical constraints. New road connection crosses about 0.4 km of provincially significant wetland on Georgina Island (organic soils) and road upgrading crosses about 1.0 km of provincially significant wetland on the mainland (organic soils).	Preliminary geotechnical investigation to be completed as part of future feasibility study work to confirm geotechnical constraints. New road connection crosses about 0.2 km of provincially significant wetland on Georgina Island (organic soils).	Preliminary geotechnical investigation to be completed as part of future feasibility study work to confirm geotechnical constraints.
7 Operational Constraints (wave impacts, wind impacts, snow, ice, fog)	Design to address operational constraints.	Design to address operational constraints.	Design to address operational constraints.
D Cost Factors *Rating:*	**Preferred from a financial perspective**	**Preferred from a financial perspective**	**Not preferred from a financial perspective**
1 Construction/Operation/Maintenance	Moderate	Moderate – High	High
RECOMMENDED SOLUTION	Not Carried Forward	Carried Forward for Additional Study	Carried Forward for Additional Study

Understanding the Rating System:

- ● Most preferred; fully responds to, and/or has fewest impacts in, evaluation criterion
- ◕ ↑ ◑ Increase in preference
- ◔ Least preferred; largely does not respond to, and/or has potential for unacceptable impacts in, evaluation criterion

8.4.1 Pontoon Bridge

The Pontoon Bridge was not considered a preferred alternative. As navigation needs to be maintained the Pontoon Bridge is not a feasible option. A pontoon structure may also not endure a significant amount of wave action or ice flows.

8.4.2 Piered Bridge

The Piered Bridge was not considered a preferred alternative. Although this would fully address the technical needs of the First Nation and may have relatively limited effects on the natural environment it is not considered to be financially viable. For comparison purposes, a Class 'D' life cycle cost analysis has been prepared for each preferred alternative. Cost tables are located in Appendix E and are based on a bridge spanning the entire distance on 50 metre sections.

8.4.3 Bridge/Causeway

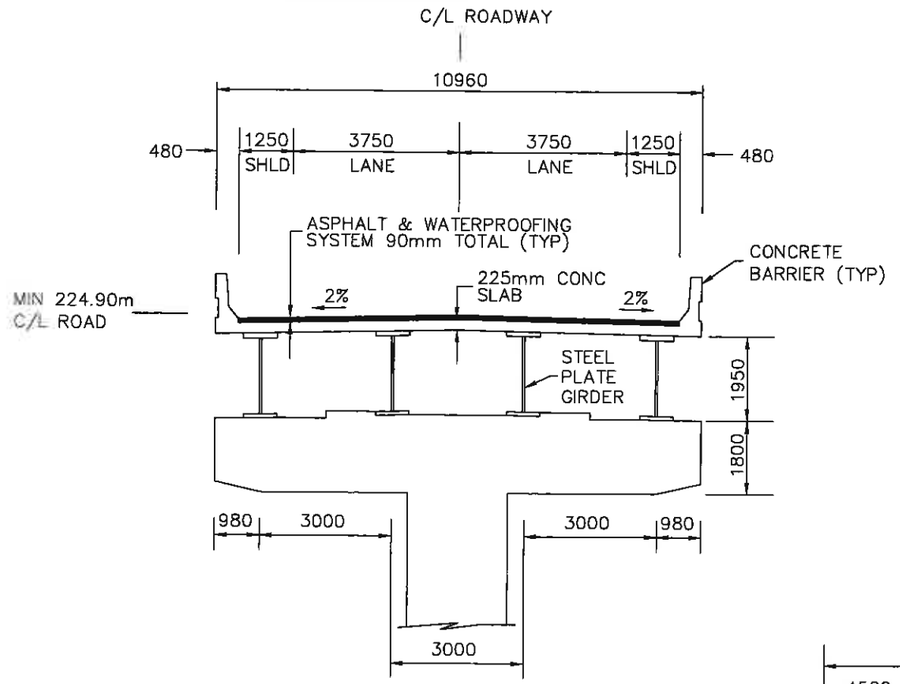
The Bridge/Causeway Alternative was considered a preferred alternative which has been carried forward for further assessment. This alternative fully addresses the technical needs of the First Nation and would be financially viable. With the implementation of appropriate mitigation measures this alternative should have limited impacts on the natural, socio-economic/cultural environment. For comparison purposes, a Class 'D' life cycle cost analysis has been prepared for each preferred alternative. Cost tables are located in Appendix E and are based on utilizing a causeway for the entire span, with a single 50 metre bridge span.

8.5 Fixed Link (Causeway/Bridge) Design Criteria

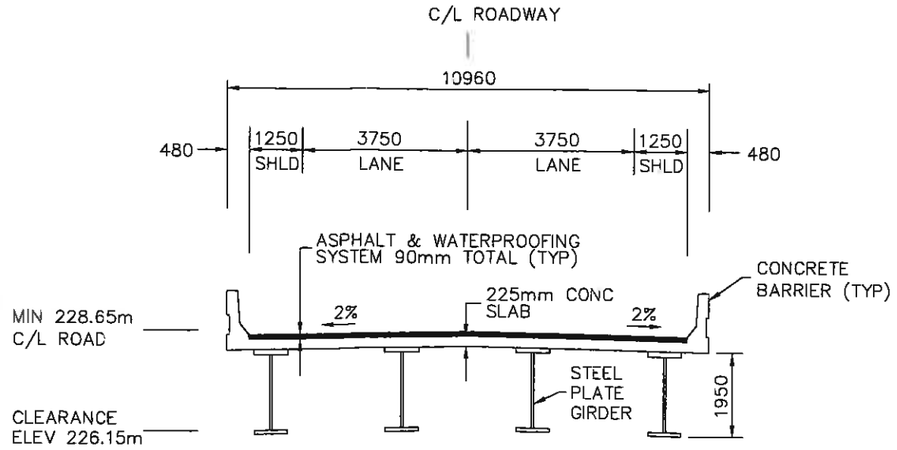
Operational and Transportation Design Criteria

Two preliminary cross sections for the causeway, marine navigation bridge and water flow bridge are shown in Figure 8.1 and 8.2. The cross sections will accommodate single lane closures (while permitting one way traffic) for emergency or maintenance road closures. Figure 8.2 shows the alternative of including a pedestrian walkway along the length of the structure. A design speed of 90 km/h has been assumed, corresponding to a 70 km/h posted speed. Accordingly, the fixed link options have been based on the following criteria:

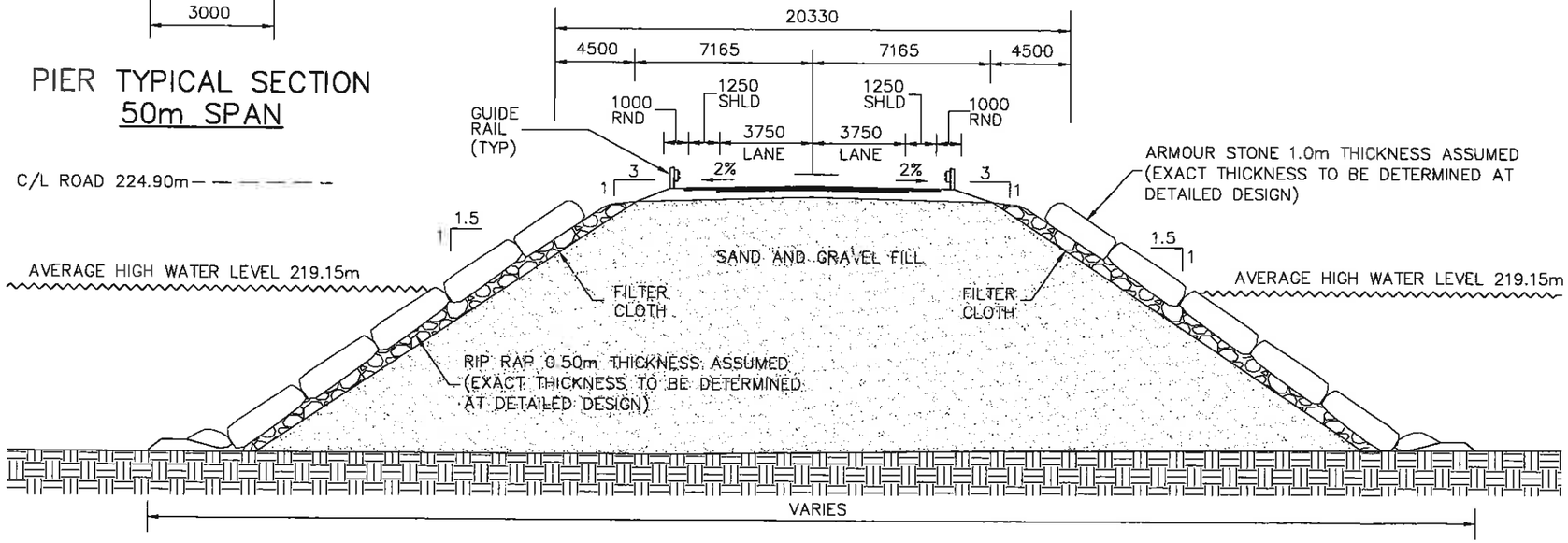
- road classification – RAU 90
- minimum stopping sight distance – 160 m
- equivalent minimum "K" factor (crest/sag) – 50/40
- maximum grade – 6%
- minimum radius – 340 m
- pavement width (for two lanes) – 7.5 m (3.75 m per lane)
- outside shoulder width – 1.25 m.



PIER TYPICAL SECTION
50m SPAN



SPAN TYPICAL SECTION
50m SPAN



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Client
CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

Drawing/Project Title
TYPICAL ROAD AND BRIDGE
CROSS SECTIONS

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Drawn By	Checked By	Figure No.
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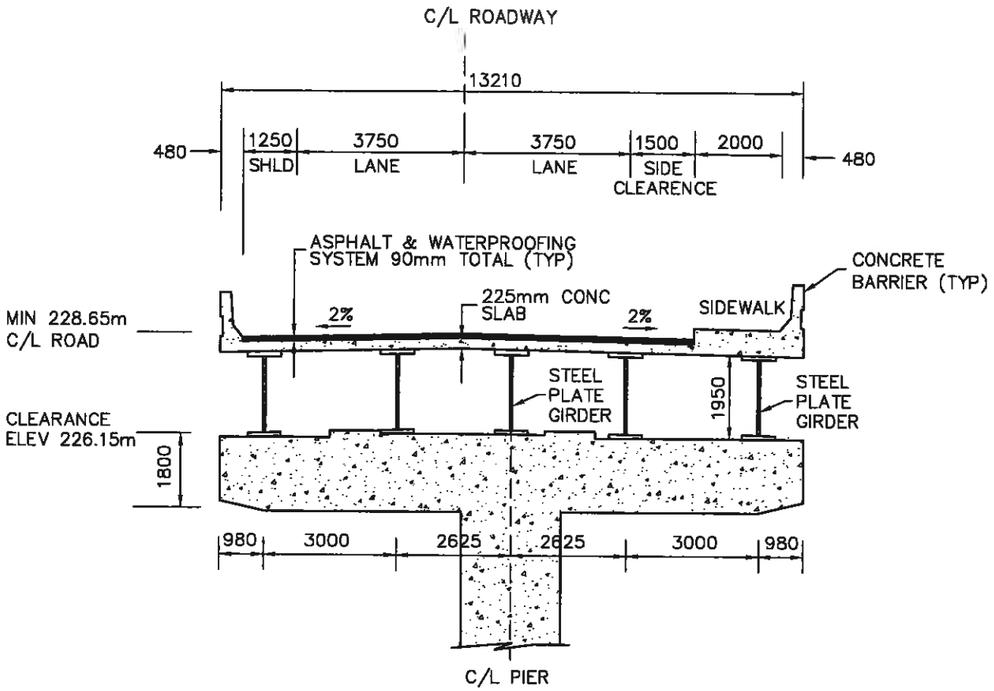
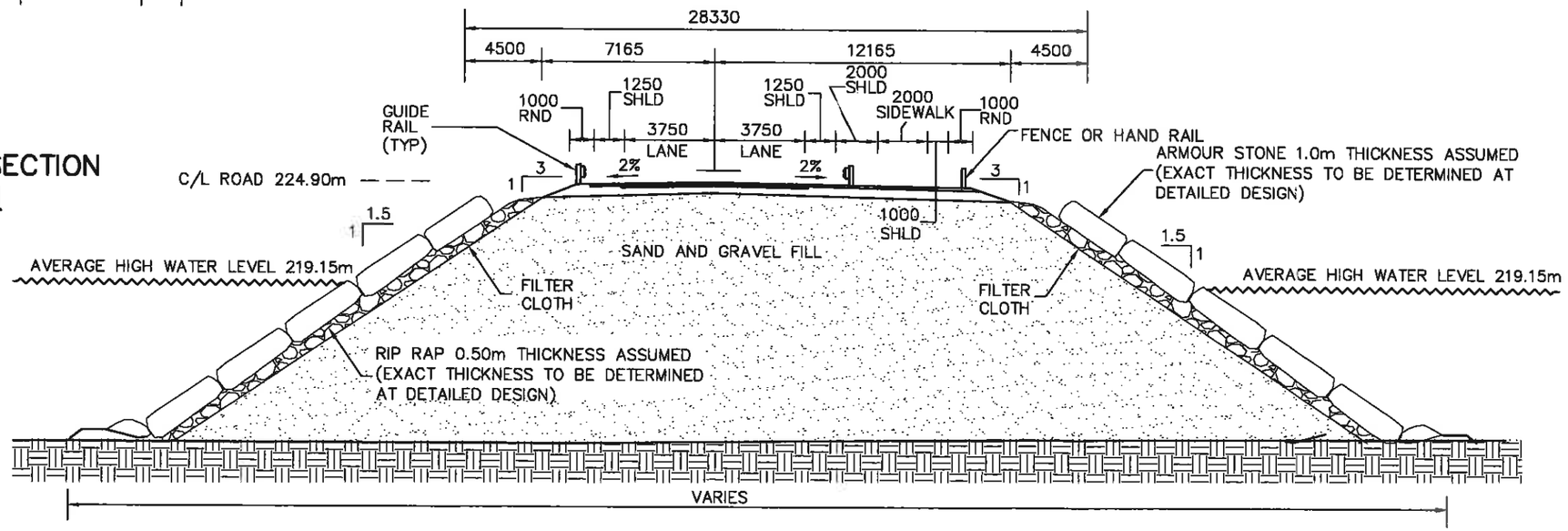
Scale: 1:10,000 H 1:1,000 V	Project No.: FCO-10428	

FC010428-TYPICAL-SECTIONS.DWG



SPAN TYPICAL SECTION
50m SPAN



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No.	Issue / Revision	Date
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Client
CHIPPEWAS OF GEORGINA ISLAND

PROPOSED FIXED LINK STUDY – STAGE 1

Drawing/Project Title
TYPICAL ROAD AND BRIDGE CROSS SECTIONS WITH SIDEWALK

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Drawn By	Checked By	Figure No.
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Scale: 1:10,000 H 1:1,000 V	Project No.: FCO–10428	

FCO10428–TYPICAL–SECTIONS.DWG

Water Levels and Wave Climate

The fixed crossing will be exposed to waves approaching from the northeast and from the west, and designs must take into account the extreme wave conditions to which the structure will be subjected. No wind or wave analysis has been carried out as part of this assignment, but this work is required as part of the preliminary and final design phases for this crossing. However the following general observations can be made with respect to the wave climate in this area:

- The prevailing winds are from the west in this area and the greatest reach of adjacent open water in Lake Simcoe also lies to the west. These factors would indicate that wave impacts would be greater for Alternatives No. 2 and 3, than they would for Alternative No. 1, which is relatively shielded by the island.

- The wave heights will be limited by the relatively shallow nature of the crossing sites, with the shallow water inducing breaking of the waves. Waves that experience breaking conditions may be in the order of 3.0 m in height, while waves near to the breaking conditions may be in the order of 5.0 m high.

For the purposes of this study, a preliminary causeway elevation has been assumed to be 224.15 m, based on the following:

- annual high water mark – 219.15 m
- allowance for waves, seiching etc. – 5.0 m

Since it is possible that waves may still overtop the structure during extreme high water levels, the design of causeway should accommodate this potential. A cost/benefit assessment should be included with the detailed designs to assess the elevation requirements and the impacts on the structural designs.

As shown in Figure 8.1, a preliminary causeway design may include the following:

- a two lane, paved roadway built on interior fill of sand and gravel, which is contained between stone fill dykes
- maximum dyke sideslopes of 1.5:1.0, protected with armour stone (10 tonnes average). Type 1 armour stone erosion protection should be placed on the west side (i.e. side of prevailing winds) and type 2 armour stone erosion protection placed on the east side slopes.

As also shown in Figure 8.1, a preliminary bridge design may include the following:

- a concrete slab deck on steel plate girders with a total width of 10.96 m, with spans of approximately 50 m. The structural depth (vertical thickness of the concrete deck slab and steel plate girders) will be about 2.4 m.

The above noted designs are preliminary only, and for comparative purposes in this present study. Geotechnical and hydrotechnical assessments will be required to confirm the required designs as part of the detailed design work.

8.6 Summary of Costs

Costs for the bridge option and causeway option along each of the Alternative Routes are included as Table 8.2. Alternative Routes 2 and 3 have been developed and are summarized below. For this project planning document, we have limited the analysis as follows:

- costs are considered 'Class D' life cycle analysis is based on a 50 year period
- the bridge option uses a bridge structure over 100 percent of the water crossing span
- the causeway option anticipates only one bridge span, with the remainder as causeway
- estimates include the walkway portion for planning purposes, if it was deleted, cost would be reduced by approximately 10%.

For comparison purposes, a 50 year LCC has been developed for the ferry operation, based on replacement on a 20 year cycle at a cost of $25,000,000 and available O & M estimates.

This translates to a $47,957,012 cost. All capital and life cycle costs are available in Appendix E. Note however that the service provided by maintaining the existing system is much lower than providing a fixed link.

8.6.1 Effective Interest Rates

To ensure that cost comparisons are done on an equal basis, it is important to adjust costs to a base year figure. This is done by reviewing anticipated escalation rates and applying it to future expenditures to convert the cost to the base year.

INAC provides indices in their 2005 Cost Reference Manual. These values are summarized in Table 8.3.

By analyzing these numbers, an expected annual interest rate of 1.87% appears to be anticipated by INAC. To further investigate possible escalation, we have compared the interest rate to the calculated interest rates provided from the Bank of Canada Consumer Price Index and the Commodity Price Index.

The Consumer Price Index is the base measure of inflation and change of costs of goods in Canada, while the Commodity Price Index is similar but based on commodities such as fuel and minerals.

After review, it was noted the Consumer Price Index and INAC rates were similar. It was decided to analyze the 50 year LCC with both to review the range difference between both. Bank of Canada data on Consumer and Commodity Price Indices is included in Appendix H.

Table 8.2

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates - SUMMARY

						50 Year Life Cycle Cost	
						INAC Indices	Consumer Price Indices
Description	Meets Service Requirements?	Capital	Design and Management Costs	Total	Annual O&M	1.87%	2.02%
Option 1A - Georgina Island to Duclos Point via Causeway Structure	YES	$52,413,300	$8,753,200	$61,166,500	$277,904	$67,781,178	$67,651,388
Option 1B - Georgina Island to Duclos Point via Bridge Structure	YES	$86,781,125	$14,492,700	$101,273,825	$536,163	$114,035,578	$113,785,172
Option 2A - Georgina Island to Black River Road via Causeway Structure	YES	$62,706,324	$10,472,200	$73,178,524	$324,156	$80,894,097	$80,742,705
Option 2B - Georgina Island to Duclos Point via Bridge Structure	YES	$144,267,900	$24,092,900	$168,360,800	$781,334	$186,958,121	$186,593,212
Option 3A - Georgina Island to Virginia Beach Marina via Causeway Structure	YES	$72,575,200	$12,120,400	$84,695,600	$348,247	$92,984,577	$92,821,934
Option 3B - Georgina Island to Virginia Beach Marina via Bridge Structure	YES	$168,691,825	$28,171,900	$196,863,725	$777,439	$215,368,352	$215,005,262
Maintaining Ferry Option*	NO	Varies	$0		$590,000	$49,155,182	$47,957,012

*Note - this option has been included only for monetary comparisons. It must be noted however that it Provides a much lower level of service compared to the FIXED LINK options provided

Table 8.3

Effective Interest Rate Investigation
Chippewas of Georgina Island First Nation
Evaluation of Environmenatl and Engineering Alternatives for a Fixed Link

	INAC Indices*		Consumer Price Index**		Commodity Price Index***	
Year	**Base Value**	**Effective Interest**	**Base Value**	**Effective Interest**	**Base Value**	**Effective Interest**
1994 / 1995	82.9		88		106.17	
1995 / 1996	84.3	1.69%	89.7	1.93%	110.25	3.84%
1996 / 1997	85.9	1.90%	90.5	0.89%	106.22	-3.66%
1997 / 1998	87.1	1.40%	91.6	1.22%	89.97	-15.30%
1998 / 1999	88.2	1.26%	93.6	2.18%	96.02	6.72%
1999 / 2000	88.9	0.79%	96.6	3.21%	113.71	18.42%
2000 / 2001	91.7	3.15%	97.2	0.62%	107.85	-5.15%
2001 / 2002	93.9	2.40%	101.5	4.42%	101.45	-5.93%
2002 / 2003	95.7	1.92%	103.1	1.58%	121.82	20.08%
2003 / 2004	98.6	3.03%	105.6	2.42%	146.82	20.52%
2004 / 2005	100	1.42%	107.7	1.99%	180.7	23.08%
2005 / 2006	101.4	1.40%	109.4	1.58%	193.16	6.90%
2006 / 2007	**103.2**	**1.78%**	111.9	**2.29%**	**208.75**	**8.07%**
2007 / 2008	105.3	2.03%				
2008 / 2009	107.4	1.99%				
2009 / 2010	109.5	1.96%				
Annual Geometric Interest Rate:	1.87%		2.02%		5.80%	
Average Annual Interest Rate:		1.87%		2.03%		6.47%

* Information obtained from DIAND Cost Reference Manual, July 2005 Edition
** As quoted from November data, Bank of Canada website
*** As quoted from annual data, Bank of Canada website

9.0 Preliminary Economic Analysis

At this time, a full economic analysis is beyond the scope of this report. The impacts of the introduction of a fixed link to the economies of the island and the mainland will also need to be further investigated. At this stage however, it is prudent to look at current usage and revenue generated, and develop some preliminary future revenue generation numbers for discussion purposes.

9.1 Current Revenue Generation

Our first step is to look at the current usage of the ferry, and the revenue generated. The table below shows the usage data from April 7, 2006 to January 11, 2007, a span of 279 days, during which the ferry ran for 264 days.

Table 9.1: 2006 Ferry Usage

Date	Cash	Pass	Bus	Oversized	Passenger
April 7 – 30	787	1,636	29	19	40
May 1 – 31 (down May 5/6)	746	2,393	62	59	82
June 1 – 30 (down June 19)	854	2,716	47	117	108
July 1 – 31	1,234	2,983	36	55	138
August 1 – 31	1,222	3,155	0	21	70
September 1 – 30	637	1,966	52	50	17
October 1 – 31 (down Oct.16, 17, 26, 27)	430	1,627	39	72	46
November 1 – 30 (down Nov. 6 – 10)	347	1,644	48	45	12
December 1 – 31 (down Dec. 26, 29, 30)	308	1,395	28	15	12
January 1 – 11	137	376	2	8	2
Total: (264 running days)	**6,702**	**19,891**	**343**	**461**	**527**
Daily Average	25.4	75.3	1.30	1.75	2.0

Georgina Island provides fares based on a trip basis, or members and non-members can buy 20 trip passes at reduced rates. Member rates ($15 per single round trip, $200 per pass) are also lower than non-member rates ($30 single round trip, $540 per 20 trip pass). The data received does not differentiate between member and non-member usage. Given this, it is difficult to pinpoint the exact revenue from current usage. To do so, it was estimated that 60 percent of the pass users were First Nation members, and 75 percent of the single round trips were non-members.

Table 9.2: 2006 Revenue (Estimated)			
Fare Type	**2006 Data**	**Fare Price**	**Revenue Generated**
Pass	19,891	$18	$358,038
Single Round Trip	6702	$26.25	$175,927.50
Over Sized Vehicles	461	$70	$32,270
Passengers	527	$2	$1,054
		Total:	**$567,289.50**

To further investigate the revenue of a year round fixed link, the usage data was prorated from a 264 day total to a 365 total, and revenue potential reviewed.

Table 9.3: 2006 Revenue (365 Day Pro Rated)			
Fare Type	**2006 Data**	**Fare Price**	**Revenue Generated**
Pass	27,500	$18	$495,000
Single Round Trip	9266	$26.25	$243,233
Over Sized Vehicles	637	$70	$44,615
Passengers	729	$2	$1,458
		Total:	**$784,306**

This suggests that if a vehicle system was in place for the entire year, it could generate significant revenue and use.

9.2 Future Revenue Generation

At this time, it is expected that the fixed link option would be a toll variety, given that the existing system operates in that fashion. Alternatives to that situation and alternative funding would need to be further investigated as part of the Final Feasibility Study. For this report, we have developed preliminary revenue numbers, based on current and future potential use.

The implementation of a permanent link would lend itself to a change in the way tolls are generated. Currently, each trip is paid for through use of a multiuse pass or a single trip pass. If this policy is adhered to, the convenience of the fixed link becomes less valuable to the users. We would suggest going to a timed pass, such as daily, weekly and monthly, with fees similar to the current rates.

Table 9.4: Year 1 Fixed Link Usage (Estimated)				
Pass Type	**Number Sold/ Month**	**Cost/ Pass**	**Monthly Revenue**	**12 Month Revenue**
Monthly Member Pass	100	$225	$22,500	$270,000
Monthly Non-Member	15	$600	$9,000	$108,000
Weekly Member Pass	25	$60	$1,500	$18,000
Weekly Non Member Pass	75	$160	$12,000	$144,000
Daily Member Pass	10	$15	$150	$1,800
Daily Non-Member Pass	100	$35	$3,500	$42,000
Oversized Vehicles	50	$70	$3,500	$42,000
		Total:	**$52,150**	**$625,800**

It is expected that permanent residents of the island will more often purchase a long term pass, while visitors will prefer shorter term passes. It has also been assumed that each household will purchase one monthly pass per month, per year on average.

The population is forecasted at 331 residents for the year 2032, 25 years from now. This has been based on the recent historical population growth of 1.96%. The remaining numbers have been adjusted to anticipate an increase in non-member use as well, based on the same growth rate.

Table 9.5: Year 25 Fixed Link Usage (Estimated)				
Pass Type	**Number Sold/ Month**	**Cost/ Pass**	**Monthly Revenue**	**12 Month Revenue**
Monthly Member Pass	162	$225	$36,450	$437,400
Monthly Non-Member	24	$600	$14,400	$172,800
Weekly Member Pass	41	$60	$2,460	$29,520
Weekly Non Member Pass	122	$160	$19,520	$232,240
Daily Member Pass	16	$15	$240	$2,880
Daily Non-Member Pass	162	$35	$5,670	$68,040
Oversized Vehicles	81	$70	$5,670	$68,040
		Total:	**$84,410**	**$1,012,920**

These figures include only regular traffic and make no allowances for potential commercial development on the island. The complete table is located in Appendix F.

The potential revenue generated in conjunction with financing and rate of return on investment of the project will need to be investigated further during the feasibility stage.

9.3 Future Revenue Generation – Commercial

In section 5.4, average daily traffic counts for some generic commercial developments were provided. The same traffic counts are provided below, but with potential revenue shown based on the daily cost of $35/trip for a vehicle. Note that it is assumed either a 9 hole golf course OR an 18 hole course would be developed, not both. As well, it is assumed either a 40 room or an 80 room resort development would be put in place.

Table 9.6: Commercial Development Revenue Generation

	Daily Round Trips	Daily Revenue @ $35/ trip	Estimated Usage (days)	Revenue
9 Hole Golf Course	20	$700	180	$126,000
18 Hole Golf Course	60	$2,100	180	$378,000
Resort Development - 40 Rooms	10	$350	365	$127,750
Resort Development - 80 Rooms	20	$700	365	$255,500
Arena	5	$175	180	$31,500
Trailway System	5	$175	270	$47,250
Additional Tourism	10	$350	365	$127,750

It can be seen from the table that commercial usage of the fixed link could generate significant revenue. For example, an 18-hole golf course and an 80 room resort could theoretically generate $632,000 per year in link tolls alone. Commercial development will need to be further investigated as part of the Feasibility Study.

9.4 Other Economic Considerations

Throughout this study, we have been involved in discussions regarding other projects with the First Nation. One endeavour being investigated is a potential wind farm. This would be greatly aided if a fixed link were in place for both the transmission of material, but also for connection of power transmission. The possibility of combining the projects should be further investigated.

9.5 Economic Analysis Summary

There appears to be a good potential for revenue generation from the installation of a fixed link. Preliminary analysis suggests revenue in year 1 of $620,000 and future revenue possibilities of $1,012,920 for residential/ cottage use and as much as $700,000 in annual commercial revenue. This will need to be further investigated by an economic analysis to identify development trends in the area, and better solidify the future revenue and costs of instituting a fixed link.

10.0 Additional Investigations/Approval Requirements

In accordance with INAC requirements, a Preliminary CEAA Environmental Screening Report has been provided in Appendix C. The Screening has been conducted in accordance with the requirements of the Canadian Environmental Assessment Act. The environmental assessment will be finalized following the development of the project (additional studies/inventories and design information). An EA is required for this project as the project will require federal funding and may require federal approvals.

The final Environmental Assessment may include the future completion of a multi-jurisdictional EA, given that the preferred alternative may involve lands in both the province, as well as lands within the First Nation (Alternative 2). The province has a bilateral agreement with the federal government on the harmonization of EAs when such EAs affect both jurisdictions. The principle of each of these agreements is that one EA can be conducted and written in compliance with all the jurisdictions' requirements. Indian and Northern Affairs (INAC) would be the Responsible Authority (RA) for such a project under the Canadian Environmental Assessment Act. The Canadian Environmental Assessment Agency may be involved at the implementation stage, assisting INAC and the First Nation as the 'one window' through which all project-related EA matters with federal agencies is coordinated. Several other departments/agencies are also expected to be involved in the review and any future EA, particularly a multi-jurisdictional EA, including the Department of Fisheries and Oceans (DFO), Environment Canada, The Canadian Wildlife Service, Transport Canada, Ministry of Natural Resources etc. If the preferred alternative is solely located on First Nation land (Alternative 3) an EA will be undertaken in accordance with federal CEAA requirements.

The following is a list of additional site survey work which will be required at an appropriate time of year as part of a Final Feasibility Study, leading into Final design.

Survey	Date	Approximate Cost	Comments
Terrestrial Fieldwork:			
Ecological Land Classification (ELC)/ Vegetation Inventory Wetland survey (if required) Butternut Tree Inventory (if required) Bird surveys – Roadside call surveys, Breeding/migratory birds Amphibian/reptile surveys	Multi-seasonal (refer to comments column)	$25,000	*Spring* – vegetation community descriptions, botanical surveys, searches for snake wintering sites and documentation of habitat for snakes and turtles, spring amphibian surveys, early breeding birds such as waterfowl, shorebirds and raptors, woodland raptor nests, playback tapes *Summer* – search for turtle nesting sties, search for snakes above ground, document presence of any significant species, check for dragonflies and damselflies, breeding bird surveys, marsh monitoring tapes, summer botanical surveys

			Fall/Winter – winter site visits to document significant wildlife concentrations and habitat for wintering migratory birds Potential impacts of the undertaking on all identified features and functions will be identified. Particular attention will be paid to SARA species and migratory birds. Impacts will be identified and mitigation measures will be recommended. Liaise with agencies to ensure compliance with federal and provincial regulations.
Aquatic Fieldwork			
Fish and aquatic habitat assessment	Spring/ Summer	$15,000	Fish habitat assessment and fisheries inventory. Identify potential impacts on fisheries resources and contribute to design modifications and enhancements. Identify mitigation measures to protect fish and fish habitat. Liaise with regulatory bodes and obtain permits/authorizations
Other Studies			
Hydrogeological Study	Spring/ Summer/ Fall	$20,000	Soil, groundwater and bedrock conditions will be logged at regular intervals of depth for each borehole
Noise and Air Quality	Spring/ Summer	$10,000	Assessment of potential noise and air quality impacts and proposed mitigation and monitoring to address air pollution through dust and machinery and noise pollution.
Phase 1 Archaeology Survey		$5,000	A Phase 1 survey will be required to determine if a Phase 2 survey is necessary
Marine Study	One Year	$200,000	See Section 10.1
Legal Survey	Fall	$30,000	A legal survey would need to be completed at the final recommended location to determine property limits.

Stormwater Management Plan	Fall	$10,000	Utilizing information gained regarding design possibilities and considerations, a preliminary stormwater management plan will be developed.
Navigation Study		$10,000	At the request of Transport Canada, a study to determine constraints imposed by a fixed link to local marine traffic would be undertaken. The final result would be a recommendation on navigation lanes for the fixed link.
Geotechnical Survey	Summer	$250,000	See Section 10.2.
Traffic Impact Study	Summer	$6,000	Establish current and future traffic trends relating to the fixed link.
Socio-Economic Impact Study	One Year	$250,000	See Section 10.3.
Project Management			
On-going Agency and Stakeholder Consultation and Cordination	On-Going	$44,000	As part of the Environmental Review, coordination between stakeholders, consultants and Georgina Island First Nation will be necessary.
Consultant Management	On-Going	N/A	Included in individual study costs.
Cost Estimate	Spring 2009	$6,000	Based on information obtained throughout study, construction costs will be updated to Class 'C'.

A time table to complete the work of the Final Feasibility Study is shown in Table 10.1.

Following completion of the above inventory work and selection of the preferred alternative the following additional project components will be required:

- Preliminary/Detailed Designs (30%, 66%, 99%, 100%), cost estimates, drawings and specifications
- Environmental Assessment Report (CEAA Screening or Harmonized EA)
- Permits/Approvals (see below)
- Tender document preparation
- Contract administration and construction inspection
- Warranty period/post construction monitoring.

Key environmental authorizations, approvals and licenses that are anticipated to be required from the Federal government before the project can proceed include:

- Authorization for Works Affecting Fish Habitat, Fisheries Act, administered by the Department of Fisheries and Oceans
- Authorization for Works Affecting Navigable Waters, *Navigable Waters Protection Act*, administered by Transport Canada. A formal application will need to be submitted for Transport Canada's approval including the following information:
  –location plan
  –survey plan showing adjacent property ownerships
  –plan view of the proposed crossing including dimensions measured from the high water mark and showing the average water depths
  –profile view of the proposed crossing including the height, width, ordinary high water mark (O.H.W.M.), high water mark (H.W.M.), contours, height above the bed of the waterway, construction material etc.
- Authorization under the *Species at Risk Act*, administered by Environment Canada

Key provincial permits should be determined during the federal co-ordination process but may include:

- Authorization for works under, *Lakes and Rivers Improvement Act* and *Public Lands Act* administered by Ministry of Natural Resources
- MOE – Permits/C of A, depending on alternative recommended
- Authorization for works under the *Generic Regulation*, administered by Lake Simcoe Region Conservation Authority
- MTO - Any work done on a provincial highway will require and Encroachment Permit and any work done within MTO permit control will require a Building Land Use Permit.

Table 10.1

Georgina Island Proposed Fixed Link
Estimated Time/ Cost To Prepare Feasibility Study

Description	Estimated Study Cost	Spring			Summer			Fall			Winter			Spring			Summer		
		March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August
Terrestrial Field Studies																			
Ecological Land Survey	$25,000	Timing is intermittent over the span of 4 seasons.																	
Vegetation Inventory Wetland Survey																			
Bird Surveys																			
Amphibian/ Reptile Surveys																			
Aquatic Fieldwork																			
Fish and Aquatic Habitat Assessment	$15,000																		
Assessment Studies																			
Noise and Air Quality	$10,000																		
Phase 1 Archaeology Study	$5,000																		
Traffic Impact Study	$6,000																		
Navigation Study	$10,000																		
Hydrogeological Study	$20,000																		
Stormwater Management Study	$10,000																		
Planning Studies																			
Legal Survey	$30,000																		
Marine Study	$200,000																		
Geotechnical Survey	$250,000																		
Socio-Economic Impact Study	$250,000																		
Agency and Stakeholder Consultation																			
Ongoing throughout project development process	$44,000																		
Updated Cost Estimate	$6,000																		

10.1 Marine Study

As part of the feasibility study stage a Marine Study will be required. The scope of work would include:

- investigate and determine existing flow and current patterns in Lake Simcoe between Georgina Island and the mainland. Limits to be determined as required (i.e. as far as the structure may affect such patterns)
- model through computer 3D analysis existing patterns in the study area
- provide analysis on two alternative locations and three construction configurations, including bridge, causeway, and causeway/bridge (lengths to be determined)
- data to include, but not limited to, scour around abutments, effects on sediment transportation and deposit, impacts of ice, ice velocities, and shoreline effects
- other data to be determined would be to verify local bathymetry data
- study to include recommendations for the final design configuration and include list of potential environmental impacts and mitigation techniques for consideration in CEAA screening document.

10.2 Geotechnical Survey Study

As part of the feasibility study, a geotechnical investigation will be necessary. The scope of work would be expected to include:

- a preliminary investigation of two alternative routes, including a desktop review of soil types and borehole testing, to a maximum of three in water per route, four total on land at approach locations
- develop a preliminary recommendation report based on analysis of findings for a preferred route, considering the possibility of utilizing a causeway or bridge
- after review of preliminary report, a recommendation on route will be determined by Project Team. Once preferred route is determined, a sampling program will be developed and sampling undertaken along the preferred route. It is anticipated that investigation will be required at pier locations (50 m c/c) and be extended to an average depth of 10 m. Sampling will be done via barge or at times when ice thickness allows rig direct access.
- develop Final Report providing recommendations for necessary design, including preferred design techniques, associated bearing capacities and if necessary, pile recommendations and capacities
- provide comment on environmental impacts of sampling work and mitigate appropriately.

10.3 Socio-Economic Impact Study

The development of a fixed link between Georgina Island and the mainland will change not only the physical appearance of the area, but will drastically change the economic and social opportunities of residents in the area. These impacts must be investigated further as part of the Feasibility Study. The scope of work for a Socio-Economic Impact Study would include, but not be limited to, the following:

Determination of a social "baseline" on the First Nation and in the area, including:

- current education opportunities
- current employment opportunities
- current travel trends and timing considerations
- health and safety concerns
- recreation opportunities

It is expected this would be developed through interviews, questionnaires, public meetings and existing document review.

- Once a baseline is determined, the study would investigate expected improvements and possible detriments if a fixed link was installed. The investigation must be based on data available and should be referenced appropriately.

- Determination of the economic situation on the island and in the area. This would provide base numbers for the area.

- Investigation of local economic trends and application to Georgina Island and the surrounding area with and without a fixed link in place. Trends reviewed would include:
  - Commercial Development
  - Industrial Development
  - Tourism Development
  - Recreation Development
  - Population Density.

- Once trends are determined, development of projections for use of a fixed link and associated economic models for the fixed link. Options to investigate would be:
  - toll or no toll and possible rates
  - financing models through possible funding services, private or government

- investigation of secondary economic impacts to the area, including tourism dollars and development spin-offs

- provide a report outlining all investigations and findings for inclusion in the feasibility study.

11.0 Conclusion

There is a need for a fixed link to Georgina Island, based on our preliminary review. Residents support it and it shows great potential to better the health, safety and opportunity of the island residents.

At this time, two alternatives (Route 2 and Route 3) should be considered for further analysis during completion of the Feasibility Study. The type of crossing will be a combination of bridge and causeway, but final configuration will be determined as the project progresses.

Our initial review shows the cost to be potentially high, but some may say 'ambitious'. Connecting the island to the mainland is an ambitious endeavour. Moving from this preliminary evaluation stage to the final Feasibility Stage will show how ambitious and rewarding for the residents this project can be.

Report Written by:

Signature _____ Date Jan 17/08
Fiona Christiansen, M.Sc.
Senior Environmental Assessment Specialist
Neegan Burnside Ltd.

Report Written by:

Signature _____ Date JAN 17/08
Henry Centen, P.Eng.
Project Engineer
Neegan Burnside Ltd.

Draft Report Reviewed and Approved by:



Signature _____ Date _____
Cory Jones, P. Eng.
Project Manager
Neegan Burnside Ltd.

12.0 References

1. Neegan Burnside Ltd. May 2006. *Chippewas of Georgina Island Capital Planning Study Final Report.*

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6. Environment Canada, 2007. Database and Official Plan (via correspondence).

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Appendix A
Photographs

Georgina Island Preliminary Evaluation of Engineering and Environmental Alternative for a Fixed Link
Study Photos – Nov 24, 2007



Photo 1 – Cattails and Wetland



Photo 2 – Georgina Island Marina



Photo 3 – Georgina Island Ferry Terminal, Looking South



Photo 4 – Island Wetland, Southwest Corner Looking East



Photo 5 – Georgina Island Ferry Terminal Parking – Looking West



Photo 6 – Mainland Ferry Terminal/ Marina Parking



Photo 7 – Island Roadway



Photo 8 – Mainland Ferry Terminal Looking East



Photo 9 – Mainland Ferry Terminal – Looking West



Photo 10 – Approaching Georgina Island via Ferry



Photo 11 – Duclos Point f/ Ferry



Photo 12 – Mainland Ferry Terminal



Photo 13 – Ferry Docking at Mainland Terminal



Photo 14 – East Point Marina, Georgina Island



Photo 15 – Southwest Wetland, Georgina Island



Photo 16 – Georgina Island Marina - Island



Photo 17 – Sand Islands and Wetlands – SW Georgina Island



Photo 18 – SW Georgina Island Wetlands and Sand Islands looking SW



Photo 19 – SW Georgina Island Wetlands and Sand Islands looking NW

NEEGAN BURNSIDE

Appendix B
Correspondence

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NEEGAN BURNSIDE

Minutes of Meeting

Georgina Island Fixed Link Start Up Meeting
Georgina Island First Nation

November 9, 2006

Meeting Date	November 1, 2006
Time	10:00 a.m. to 11:45 a.m.
Location	Georgina Island First Nation Administration Centre
File Number	FCO 10428

Those in attendance were:

Buzzy Big Canoe	Georgina Island First Nation (GIFN)
Andrew Big Canoe	Georgina Island First Nation
Barb McDonald	Georgina Island First Nation
Rob Porte	Georgina Island First Nation
Ed McCue	Georgina Island First Nation
Keith Maracle	Ogemawahj Tribal Council (OTC)
Marlene Stiles	Ogemawahj Tribal Council
Cory Jones	Neegan Burnside Ltd. (NB)
Stephen Burnett	Neegan Burnside Ltd.
Two Additional Members (After meeting had begun)	Georgina Island First Nation

The following items were discussed:	**Action by**
1.0 Meeting was called to order with introductions around the table. Cory passed around a contact list to obtain project team names and contact information. A copy of that list is attached.	
2.0 Buzzy acknowledged that the Georgina Island member committee formed to provide community background knowledge and support for the study had met the week before. A copy of the minutes from that meeting were circulated.	
3.0 Buzzy asked Cory to provide a summary of the work Neegan Burnside would be doing to begin the process for investigating the fixed link. Cory presented a summary of the proposed document outlining the deliverables and milestone dates.	
3.1 Keith asked for further clarification of the tasks NB proposes to complete. Keith further noted that an extensive amount of senior level time was being spent on the project, without much substantiation in the proposal. Cory explained that the summary of the proposal provided attempted to further clarify the tasks and provide a clearer summary of deliverables. Keith would still like to see a clearer correlation between deliverables, and time spent on the project. Cory noted that he would provide that as soon as possible after discussions with the Neegan Burnside team.	**NB**
3.2 Cory noted that two final documents would be produced from this scope of work. One is "Corridor Evaluation Study' the second is the Final Alternatives Evaluation Report.	
3.3 Keith questioned the objectives of the study, and the change in terminology from a 'Feasibility Study' to 'Preliminary Evaluation of Engineering and Environmental Alternatives'. Cory explained that the purpose of this project was to better define the scope of work required for a Feasibility Study, which requires the completion of work up to a pre-design phase. By completing this Stage 1 of the Feasibility Study, Stage 2, which would entail completion of the studies required and a CEAA Screening, would be defined and confined to the review of a single configuration, saving costs and time.	**NB**

Action By

Keith acknowledged that while that may be an acceptable goal, it would be prudent to ensure INAC as the funding agency is aware of this, to ensure there is no confusion over the requirements for Stage 2. Buzzy acknowledged that he and Marlene mentioned this fact to Tony Tino of INAC when the second proposal was dropped off, but it would be prudent to ensure INAC is aware of this. Cory is to further discuss this with Tony Tino (INAC).

3.4 Keith asked about additional inclusions in the report. Keith asked if a preliminary CEAA Screening could be included in the report. This was agreed. In addition, a preliminary economic analysis of the options based on a Life Cycle Costing model, as well as preliminary estimates on usage should be reviewed. NB agreed that this could be included in the final report. Keith explained to the group the nuances of life cycle costing vs. initial capital cost comparisons.

3.5 Keith noted that the overall timeline for a project of this magnitude is potentially upward of 20 years to finish construction, starting at the stage we are at now. It was noted that sound economic planning could potentially reduce that timeframe.

3.6 Marlene noted that the time constraints of the funding suggested that the project needs to be completed by March. Cory noted that the schedule of the project could be reduced, particularly if review times could be reduced down from 3 weeks. However, dropping 13 weeks from the 37 week schedule may be difficult. Steve noted that in the past, INAC has been acceptable to releasing the funding according to their schedule with the understanding the final report will be coming in the near future. This will need to be further discussed with INAC for this particular situation.

NB
GI

4.0 Throughout the meeting, the committee members from Georgina Island asked various questions and provided general comments. These are summarized below.

Action By

4.1 ***What is the difference between a bridge and a causeway?*** A bridge is a structure built above the waterline, that allows for water movement and flow without much additional impediment from the original situation. A causeway is usually constructed of fill material piled up in a dike fashion in the water and provides a permanent barrier to water.

4.2 ***Why would you build a causeway instead of a bridge?*** In shallow waters, where not much fill is required, a causeway can be much cheaper and quicker to build than a bridge. As the water depth and potential currents increase, a bridge becomes more cost effective.

4.3 ***Will additional methods, such as a high speed overhead tram be considered?*** At this time, this study is focused on transportation alternatives. This includes reviewing alternatives to the ferry system or leaving the existing transportation system as is. If during the preliminary consultation process with the community it is found that a passenger only option is of interest, it can be recommended to be further studied during the Feasibility Study stage.

4.4 Neegan Burnside asked what previous studies or background information the committee may be aware of existing. It was noted that at one time, Georgina Island was linked to the mainland, prior to the introduction of the Trent Severn Waterway. There may also have been previously approved Federal Government plans for a fixed link, from the 60's or 70's. Cory noted that NB had completed work with Georgina on many recent projects and would bring any relevant information from those studies to the group. In addition, it was identified that Beausoleil First Nation had completed a Transportation Feasibility Study Update in 1999, and that it may provide information on key factors to look for as we work through the process. Cory also noted letters to agencies regarding available background information would go out. **NB**

Action By

4.5 It was noted that approximately 200 people live on the first Nation, and approximately 400 members live elsewhere.

4.6 Concerns about potentially lost jobs associated with the existing ferry were brought up. It was noted that there would be new jobs associated with a fixed link, but the situation would likely need to be reviewed further in depth in a future socio-economic study.

4.7 Concerns about safety of the existing transportation system, requiring ice road travel in the winter, and in between times in the fall and spring were expressed as main reasons for progressing toward a fixed link. Secondarily, economic self reliance would also be a benefit.

5.0 The meeting was ended at 11:45 am.

The preceding are the minutes of the meeting as observed by the undersigned. Should there be a need for revision, please advise within seven days. In the absence of notification to the contrary, these minutes will be deemed to be an accurate record of the meeting.

Minutes Prepared by:

Neegan Burnside Ltd.

Cory Jones, P. Eng.
Project Manager
CJ/tk

Distribution – via fax only:

Buzzy Big Canoe, Georgina Island First Nation (for GIFN distribution)
Keith Maracle, Ogemawahj Tribal Council
Marlene Stiles, Ogemawahj Tribal Council

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NEEGAN BURNSIDE

Minutes of Meeting

Georgina Island Fixed Link Start Up Meeting
Georgina Island First Nation

February 5, 2007

Meeting Date	January 25, 2007
Time	10:00 a.m. – 12:15 p.m.
Location	Georgina Island First Nation Administration Centre
File Number	FCO 10428

Those in attendance were:

Buzzy Big Canoe	Georgina Island First Nation (GIFN)
Elaine McCue	Georgina Island First Nation
Natalie Priesler	Georgina Island First Nation
Barb McDonald	Georgina Island First Nation
Rob Porte	Georgina Island First Nation
Keith Maracle	Ogemawahj Tribal Council (OTC)
Marlene Stiles	Ogemawahj Tribal Council
Cory Jones	Neegan Burnside (NB)
Fiona Christiansen	Neegan Burnside

The following itmes were discussed: **Action by**

1.0 Buzzy opened the meeting by welcoming the group and explaining that Neegan was present to give an update on the study, as well as ask for information from the committee.

1.1 Buzzy distributed minutes from the previous meeting and asked if anyone had questions or comments. Buzzy did ask if Cory could further explain the statement of the project potentially taking 20 years to complete. Cory explained that as a maximum, if things progressed through INAC only as a funding source, a project of this size could take that long to find funding. However, if other funding sources, or a strong business plan is shown, the timeline could be sped up significantly.

2.0 Cory introduced Fiona as the environmental lead for NB on the project. Fiona presented the draft tables of Alternative Solutions (Table 6.1) and Alternative Routes (Table 7.1). It was explained that the tables showed the alternatives evaluated, different impact factors they would have and the evaluation system from least preferred to most preferred.

2.1 Rob asked why the option of a cable car had not been evaluated as had been mentioned at the previous meeting. Cory explained that the thrust of the study was to improve the transportation aspect from the island to the mainland. Rob asked if it could be included as an option for evaluation. Neegan will include it, but in conjunction with improving the existing ferry service. **NB**

2.2 Fiona went over the constraints mapping. There were various discussions over what was shown, and the impacts to the project. The main items discussed were:

a) Keith asked about the "Provincially Significant" areas noted on First Nation land. Fiona explained that while the First Nation was not bound by provincial regulations in these areas, there may be areas for this project, or future projects, which the first Nation may require the province's approval on. In this case, it would be prudent to acknowledge their concerns or cooperation and work with them as a potential partner and not a potential adversary.

b) Fiona further explained that based on her research to date, and past experiences, there did not seem to be any issues on the environmental side which would cause the project to stop.

2.3	Cory went over the feedback from contacted stakeholders, such as federal and provincial government departments, etc. To date, all feedback had been similar. Most asked to be kept up to date, some referred us to general standards and notes which NB has taken into consideration.	
2.3.1	Cory noted that the Town of Georgina Planning Department had asked for a face to face meeting for additional information. Cory asked the committee for direction, but did suggest it would likely be advantageous. There was concern that too much information may be divulged that the First Nation does not currently have or does not feel comfortable sharing at this time. Cory felt that the meeting would serve the opposite, to better inform the Town that this is at a very preliminary stage, and the proper planning process would be followed. It was decided to set up a meeting with the Planner, NB representatives and Buzzy. Keith will also be extended an invitation as will the mayor of Georgina, Rob Grosse. Neegan will set up.	**NB**
3.0	Fiona presented a copy of the survey to the committee for review and comment. Cory explained that the survey was currently written to address people on the island. The following is a summary of the discussions.	
3.1	Make the survey for all Georgina members, including those off reserve.	**NB**
3.2	Add the improved passenger service (i.e. via cable car) to the survey.	**NB**
3.3	Allow the ranking of options	**NB**
3.4	On the island surveys to be done by individuals, based on the voter list, off the island to be done by household. Georgina is to provide a mailing list to NB. All correspondence to be returned to Georgina via SASE, then forwarded to NB.	**GIFN, NB**
3.5	Once results are determined, another committee meeting should be held, with a community information meeting soon after. Buzzy and Cory will coordinate at the appropriate time.	**GIFN, NB**
3.6	Fiona to revise the survey based on comments and send to Keith and Buzzy for review prior to sending out.	**GIFN, OTC, NB**
4.0	Cory brought a list of elements that NB wanted feedback from the committee on. (These are listed below).	

4.1 Traditional land uses in the study area:

4.1.1 Fishing grounds – it was noted that there was recreational fishing, but no current commercial fishing.

4.1.2 Culturally significant/medicinal plants: it was acknowledged there may be such on the southern shores of the island, but none that are actively harvested.

4.1.3 Cemeteries or burial sites: none.

4.1.4 Cultural resources: none.

4.1.5 Sacred places: none

4.2 Cory asked for additional information on emergency services on the island.

4.2.1 Medical – there is a health clinic in the community, but a doctor only attends once per month. In the case of emergency, GIFN transports the person to the mainland via whatever transportation is possible at the time of year. They are met on the opposite side by EMT's, and continue directly on to the hospital themselves. Helicopter is a long tedious task to request and is rarely used.

4.2.2 Fire – the community has their own new fire truck. There's no possibility at any time of the year, from off reserve back up.

4.3 Current travel trends to the mainland.

4.3.1 ***Where is the most common destination?***
Most people are going to Sutton for groceries, etc. the travel is localized due to a limited ferry schedule and running times.

4.3.2 ***How would that change if a fixed link were established?***
Travel trends would change in frequency and destination. Some parents currently board their children on the mainland for schooling. The opportunity for joining sports teams would expand. Time of return would not be an issue.

5.0 Buzzy informed Cory he is working on the current ferry information as requested, re: usage, breakdowns, O & M.

6.0 The meeting was concluded at approximately 12:15 p.m.

The preceding are the minutes of the meeting as observed by the undersigned. Should there be a need for revision, please advise within seven days. In the absence of notification to the contrary, these minutes will be deemed to be an accurate record of the meeting.

Minutes Prepared by:

Neegan Burnside Ltd.

<Original signed by>

Cory Jones, P. Eng.
Project Manager
CJ/kc

Distribution – via fax only:

Buzzy Big Canoe, Georgina Island First Nation (for GIFN distribution)
Keith Maracle, Ogemawahj Tribal Council
Marlene Stiles, Ogemawahj Tribal Council

Via Email:

Fiona Christiansen
Henry Centen

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2007-02-05 1:02 PM

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NEEGAN BURNSIDE

Memo

DATE	March 1, 2007 **FILE NO.** FC010428
PROJECT	**Privileged Information – February 21, 2007 Meeting with the Town of Georgina Island** Chippewas of Georgina Island Causeway
PREPARED BY	Cory Jones, P. Eng.
DISTRIBUTION	Via Fax: Buzzy Big Canoe, Chippewas of Georgina Island Keith Maracle, OTC Via Email: Henry Centen Fiona Christiansen

Comments

Fiona Christiansen and I travelled to the Town of Georgina Municipal offices on Wednesday, February 21, 2007. We met up with Buzzy Big Canoe, and had a meeting with Town of Georgina representatives regarding the ongoing Georgina Island Fixed Link Study. The meeting was at the request of Harold Lenters, Town of Georgina Planner, in response to the original background information call Neegan Burnside sent out to potential stakeholders for the project. Also attending on behalf of the Town were Mayor Rob Grossi, Director of Engineering Bob Magloughlen, and Ward 4 Councillor Ken Hackenbrook. Harold had asked for the meeting to clarify what the project was about, and in the interest of good relationships between the First Nation and the Town and the fact this intended to be an open process, Buzzy and Neegan Burnside agreed to the meeting.

The meeting started with Cory introducing the Neegan members and Buzzy to the group, and providing a quick overview of the project. The explanation of the project is that we are completing a pre-feasibility study to identify what further studies need to be completed to finalize a full feasibility study for a fixed link. We are doing this based on the problem Georgina Island presented to us, namely "How do we provide a more reliable transportation alternative to and from the island?"

Fiona then presented what stage we were at. She explained we first took a step back and looked at different ways that the transportation to and from the island could be improved. Out of our preliminary analysis, a fixed link over the water would best meet environmental and transportation criteria. From there, three alternative routes had been identified, and a similar analysis completed. We noted that all of the mainland study areas fall within the limits of Town of Georgina and would have some impact on traffic analysis and potential development corridors along those transportation routes.

From there, the meeting became more of a general discussion. The main discussion points are outlined below:

What is the EA process involved?

At our current phase of the project, this is unknown. Fiona explained that depending on what route was advanced to further study, we would try to use a harmonized EA process for the Municipal, Provincial and Federal concerns. This would be dependent on what types of lands were affected by the preferred route.

What is the Town of Georgina planning for the study area?

Harold mentioned that the area identified appears to be in an area they have identified as a low growth area. No municipal servicing and no secondary planning exist for that area. This could change however depending on the selection of a route, and the outcome of any financial feasibility studies.

Has the local conservation authority been consulted?

Fiona mentioned that not only the Conservation Authority had been contacted, but so had Ministry of Natural Resources (MNR), Department of Fisheries and Oceans (DFO), Region of York, and others. Their response had been formulaic in that they referred us to current public domain plans and information. It was further explained that this was a somewhat expected response given the preliminary nature of the project, and at the appropriate time in the planning and design process, these agencies would be further consulted and become more involved.

What input would the Town of Georgina have on preferred alternatives?

At the appropriate time, the Town would have an opportunity to be involved in the EA process as required. At this time however, if they had any information that would change our preliminary review, based on our initial call for information, it would be very advantageous for us to review it now. We reiterated at this time that the First Nation was willing to work with the Town.

Is it possible to inform community members at this time of the process?

Cory explained that at this time, because everything is preliminary, they didn't feel comfortable going to the mass public since there are currently no answers for questions. The public would also have their opportunity at the appropriate time to be heard.

In general, the meeting went extremely well. All parties were interested in how the development could jointly benefit both the Town and the First Nation. Bob and Harold were to compose an email to Fiona with the background information the Town has, and will keep in contact with her as necessary. The mayor thanked us for taking the time to discuss the project and wished us well.

Cory Jones, P. Eng.
CJ:jh

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NEEGAN BURNSIDE

Minutes of Meeting

Chippewas of Georgina Island
Georgina Island Fixed Link

May 1, 2007

Meeting Date	April 30, 2007
Time	10:00 a.m. until 11:45 a.m.
Location	Chippewas of Georgina Island Administration Centre
File Number	FCO10428

Those in attendance were:

Buzzy Big Canoe	Chippewas of Georgina Island (CGI)
Charles Warren	Chippewas of Georgina Island
Elaine McCue	Chippewas of Georgina Island
Marlene Stiles	Ogemawahj Tribal Council (OTC)
Tony Tino	Indian and Northern Affairs Canada (INAC)
Urmas Madisso	Indian and Northern Affairs Canada
Fiona Christensen	Neegan Burnside Ltd. (NB)
Dan Tomlinson	Neegan Burnside
Cory Jones	Neegan Burnside

The following items were discussed: **Action By:**

1.0 The meeting was called to order by Buzzy. Cory passed around a contact list to obtain names and contact information of attendees. A copy of that list is attached.

1.1 Cory introduced Fiona as the environmental lead for Neegan Burnside on the project and Dan Tomlinson as the project hand in configuring the surveys.

Action By:

2.0 Minutes from the previous meeting were distributed and it was asked if anyone had any questions or concerns. Marlene mentioned that neither she nor Keith appeared to have received the fax of the previous meeting minutes. Cory explained that their names were on the list and was surprised they had not received it. Cory assured Marlene that it would not happen again.

3.0 Cory reviewed the meeting that he, Fiona and Buzzy had attended with the Town of Georgina. In general, the Town had expressed an interest in the process through their planner and the Project Team had agreed at the second meeting that in the interests of good relations, the meeting should take place. Specifics of the meeting are attached as per Buzzy's request (see attached Memo). Cory and Fiona felt the meeting was well received and found the process extremely worthwhile.

Buzzy also mentioned he had spoken to the Mayor at a later time informally and the Mayor was supportive of both a fixed link project and a potential wind generation project.

3.1 Cory stated that the survey was complete and that there would be time to go over the results later in the meeting.

3.2 Cory then handed over the meeting to Fiona to address any environmental concerns. Fiona stated the environmental review was complete, except for the information pertaining to the transportation review. Cory mentioned that Neegan Burnside was well on the way to completing the transportation aspects, but was still awaiting some information from the First Nation. Buzzy replied by saying that information would be produced as soon as possible. CGI

3.3 Tony mentioned the option of considering alternate routes to place a fixed link. Cory explained that three options had already been considered, but option one (Duclos Point) had already been removed due to the property issues involved.

3.4 Urmas inquired if a biological inventory would be part of the preliminary evaluation. Fiona replied by saying it would not be part of the preliminary study, but a Preliminary CEAA screening would be included. Fiona also mentioned there are certain studies which will need to be completed that are time sensitive, mainly involved with the spring and that time may have elapsed.

		Action By:
3.5	Tony mentioned the idea of possible funding through the Ministry of Transportation (MTO). Tony explained a gas tax refund that could be available, but still needed to contact Paul Zimmerman at the MTO for further details.	
3.6	Cory explained that the transportation review in regards to the height of the causeway was ongoing. Charlie mentioned that usage at Alternative No. 2 never includes sailboats due to the shallow water depths. Cory stated at this time Neegan Burnside would move forward utilizing the worse case scenario presented by the Coast Guard.	
4.0	Cory went over survey results mentioning that the general reply from the survey was positive. The summary results were presented next. A list of key statistics were highlighted and presented to the group with the option of asking questions or stating concerns. Cory also provided the group with the option of contacting him for further questions on the survey.	NB
4.1	Tony asked Cory if he could get the exact number of absentees from the school. Cory said he would follow-up.	NB
	The issue of questioning service providers (i.e. propane, gas, etc.) was also reviewed. Cory noted that this was a further study that would be identified.	
5.0	Marlene questioned where Neegan was at in terms of completion. Cory explained that the Final Report would be available by the end of June with the draft being prepared three weeks in advance provided the transportation data was forthcoming from the First Nation. Fiona stated that the draft would include the preliminary screening.	NB/CGI
6.0	Cory opened up the meeting to discussion.	
6.1	Tony mentioned that currently his office would find it difficult to provide capital dollars for a project of this magnitude. As well, funding to complete the Final Feasibility Study would need to be reviewed. It had been hoped that the initial outlay would have been sufficient. Cory explained that the two step approach of defining the project and reducing the scope of options to be carried through to full feasibility should reduce the overall costs from a feasibility study started from a standing start.	

Action By:

6.2 During a break, Elaine McCue mentioned the current island landfill. Apparently, it is reaching the end of its useful life and the option of transporting it to the mainland would be worth reviewing further, if a fixed link became a reality.

6.3 Fiona mentioned a stakeholder meeting to review the Draft Report may be advantageous to ensure all potential hurdles are reviewed prior to completion of this phase of the project. Neegan Burnside and the First Nation will review further. NB/CGI

The preceding are the minutes of the meeting as observed by the undersigned. Should there be a need for revision, please advise within seven days. In the absence of notification to the contrary, these minutes will be deemed to be an accurate record of the meeting.

Minutes Prepared by:

Neegan Burnside Ltd.

Cory Jones, P. Eng.
CJ:jh
Attach. - Contact Sheet
- Memo (dated March 1, 2007)

Distribution – via fax only:

Mr. Buzzy Big Canoe – Chippewas of Georgina Island (for distribution)
Mr. Keith Maracle, M.Eng., P.Eng. – Ogemawahj Tribal Council
Ms. Marlene Stiles – Ogemawahj Tribal Council
Mr. Tony Tino, Economic Development Advisor – Indian and Northern Affairs Canada
Mr. Urmas Madisso, Environment Officer – Indian and Northern Affairs Canada



Fiona Christiansen/RJB
29/Nov/2006 09:25 AM

To Cory Jones/RJB@RJB, Henry Centen/RJB@RJB
cc
Subject Fw: Proposed Fixed Link Study - Chippewas of Georgina Island First Nations

FYI

Fiona Christiansen M.Sc.,
EA Specialist

R.J. Burnside & Associates Limited
292 Speedvale Ave W, Unit 7
Guelph, ON
N1H 1C4
Canada
Tel: 519 823 4995
Cell: 519 820 1396
Fax: 519 836 5477
fchristiansen@rjburnside.com
----- Forwarded by Fiona Christiansen/RJB on 11/29/2006 09:25 AM -----



"DeMichele, Michael \(MTO\)" <Michael.DeMichele@ontario.ca>
29/Nov/2006 09:18 AM

To "fchristiansen@rjburnside.com" <'fchristiansen@rjburnside.com'>
cc "Panza, Mario \(MTO\)" <Mario.Panza@ontario.ca>, "Hewitt, Tom \(MTO\)" <Tom.Hewitt@ontario.ca>
Subject FW: Proposed Fixed Link Study - Chippewas of Georgina Island First Nations

Fiona, for any corridor management issues you may contact me, and either myself or Mario Panza, Encroachment Officer will assist you.

Very briefly I would like to make you aware that any work done on a provincial highway will require an Encroachment Permit and any work done within MTO permit control will require a Building and Land Use Permit. Ministry permit control is identified as 45m from MTO right-of-way and a 400m radius from the intersection point of a highway the a roadway.

Michael DeMichele
Corridor Management Engineer (Toronto/Durham & York)
Corridor Management Section
7th Floor, Building D
1201 Wilson Ave.
Downsview, Ontario, M3M 1J8
(416) 235-5661
Email:Michael.DeMichele@ontario.ca

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attachments that arise as a result of e-mail transmission. Thank you.

> -----Original Message-----
> From: Hewitt, Tom (MTO)
> Sent: November 29, 2006 8:23 AM
> To: DeMichele, Michael (MTO)
> Subject: FW: Proposed Fixed Link Study - Chippewas of Georgina Island First Nations
>
>
> PTAA
> -----Original Message-----
> From: Reynolds, Pat (MTO)
> Sent: November 28, 2006 10:44 AM
> To: 'fchristiansen@rjburnside.com'
> Cc: McAusland, Linda (MTO); Jones, Bill (MTO); Hewitt, Tom (MTO); Boot, Susan (MTO); Klowak, John (MTO); Reynolds, Pat (MTO); Carscallen, Charlton (MTO); Currie, Leslie (MTO)
> Subject: Proposed Fixed Link Study - Chippewas of Georgina Island First Nations
>
>
> Fiona:
>
> I have received your letter requesting input from the Ministry of Transportation regarding the above study that your firm, Neegan Burnside Ltd., has been retained to carry out.
>
> Please be advised I will not be the designated contact.
>
> For external planning studies, the appropriate initial contact in the MTO Central Region Office is Mr. Tom Hewitt, Head Corridor Management, (416-235-4267). Mr. Hewitt may also identify additional contacts or a designated contact within Highway Engineering following internal consultation regarding Central Region's interests in the project.
>
> The Head of Highway Engineering for the geographic area in which your project is located, "York/Simcoe" is Ms. Susan Boot, (416-235-4002).
>
> I have made and attached a "pdf" of the material you provided and will be forwarding it with this e-mail to ensure that Central Region offices potentially effected are aware of your request.
>
> With regard to the identification of MTO Head Office interests I have copied Ms. Linda McAusland, Manager, MTO Provincial and Environmental Planning Office (905-704-2473).
>
> As your study involves Georgina Island First Nation I have also advised our Regional Archaeologist, Mr. Charlton Carscallen, (416-235-5489) of your project.
>
> Patrick Reynolds
> Planning & Environmental Office
> MTO Central Region
>
> 416-235-5542 > > <<Georgina Fixed Link Letter.pdf>>
>



Georgina Fixed Link Letter.pdf

Fiona Christiansen/RJB
29/Nov/2006 12:02 PM

To Cory Jones/RJB@RJB, Henry Centen/RJB@RJB
cc
Subject Fw: Chippewa's of Georgina Island First Nation-Preliminary Evaluation of Engineering and Environmental Alternatives Study for a Proposed Fixed Link to the Mainland-Request for Baseline Information

FYI

Fiona Christiansen M.Sc.,
EA Specialist

R.J. Burnside & Associates Limited
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Tel: 519 823 4995
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Fax: 519 836 5477
fchristiansen@rjburnside.com
----- Forwarded by Fiona Christiansen/RJB on 11/29/2006 12:01 PM -----



Harold Lenters
<hlenters@georgina.ca>
29/Nov/2006 10:53 AM

To "'fchristiansen@rjburnside.com'" <fchristiansen@rjburnside.com>
cc Stan Armstrong <sarmstrong@georgina.ca>, Bob Magloughlen <rmagloughlen@georgina.ca>, John McLean <jmclean@georgina.ca>, Velvet Ross <vross@georgina.ca>
Subject Chippewa's of Georgina Island First Nation-Preliminary Evaluation of Engineering and Environmental Alternatives Study for a Proposed Fixed Link to the Mainland-Request for Baseline Information

Good morning Ms.Christiansen, this is to acknowledge receipt of your letter dated November 20, 2006 on the above noted matter and to formally request that you add the Town to your list of interested stakeholders. This is certainly a significant project that the Town wishes to participate in and be kept fully apprised of. In your letter, you have requested a variety of information. I think the best approach to handle this is to arrange a meeting with pertinent staff from the Town. In this way we can learn more about the Study process, timetable etc.., provide you with some initial feedback and coordinate the collection of info. you are looking for from us. Please call me to arrange such a meeting. In the mean time, I will circulate a copy of your letter to our CAO, Dept. Heads and manager of Planning for their info.

Harold W. Lenters, M.C.I.P.,R.P.P.
Director of Planning and Building
Town of Georgina
905-476-4301 Ext. 246
Fax: 905-476-4394
hlenters@town.georgina.on.ca

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Fiona Christiansen/RJB
01/Dec/2006 09:27 AM

To Cory Jones/RJB@RJB
cc Henry Centen/RJB@RJB
Subject Fw: Proposed Fixed Link Study for Chippewas of Georgina Island First Nation - TC EA 1465

FYI

Fiona Christiansen M.Sc.,
EA Specialist

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----- Forwarded by Fiona Christiansen/RJB on 12/01/2006 09:27 AM -----



"Earl, Rebecca"
<EARLR@tc.gc.ca>
01/Dec/2006 09:20 AM

To <fchristiansen@rjburnside.com>
cc
Subject Proposed Fixed Link Study for Chippewas of Georgina Island First Nation - TC EA 1465

Fiona,

Thank you for your letter regarding the above referenced fixed link study (FIle No: FC0 10428). Please in future forward correspondence on this study to the undersigned.

We have reviewed the information, and note the following:

Transport Canada is responsible for the administration of the Navigable Waters Protection Act, which prohibits the construction or placement of any "works" in navigable waters without first obtaining approval. If any of the related project elements or activities may cross or affect a potentially navigable waterway, you are requested to prepare and submit an application in accordance with the requirements as outlined in the attached Application Guide. Any questions about the NWPA application process should be directed to Tim Markus, NWP Officer at (613) 925-1946.

Please note that certain approvals under the Navigable Waters Protection Act or Railway Safety Act trigger the requirement for a federal environmental assessment under the Canadian Environmental Assessment Act.

<<Annex A Navigable Waters Protection Act Application Addresses.doc>> <<TC Application Form.pdf>> <<TC Application Guide.pdf>>
Please contact me should you wish to discuss this further.

Regards,

Rebecca Earl, M.A.Sc.
Environmental Officer
Environment and Engineering
Transport Canada - Ontario Region (PHE)
p: (416) 952-0486
f: (416) 952-0514


Annex A Navigable Waters Protection Act Application Addresses.doc

TC Application Form.pdf

TC Application Guide.pdf

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Annex A Navigable Waters Protection Act Application Addresses

To apply for approval of works or for additional inquiries about the Navigable Waters Protection Act or Program, please contact the appropriate office below.

NWP Regional Office - South Western Ontario

Navigable Waters Protection Program

100 Front Street South,

Sarnia, ON N7T 2M4

NWPA Prescott Office - Eastern Ontario

Navigable Waters Protection Program P.O. Box 1000
401 King St. W
Prescott, ON K0E 1T0

NWPA Parry Sound Office - North Eastern Ontario

Navigable Waters Protection Program
28 Waubeek St.
Parry Sound, ON P2A 1B9

NWPA Kenora Office - North Western Ontario

Navigable Waters Protection Program P.O. Box 649
1100 3rd Ave. S
Kenora, Ontario P9N 3X6

NWP Winnipeg Office - Manitoba

Navigable Waters Protection Program Freshwater Institute
501 University Crescent
Winnipeg, MB R3T 2N6

NWP Prince Albert Office - Saskatchewan

Navigable Waters Protection Program
125 - 32nd Street West
Prince Albert, SK S6V 7H7

NWP Edmonton Office - Alberta

Navigable Waters Protection Program

4253 - 97th Street

Edmonton, AB T6E 5Y7

APPLICATION GUIDE CHECKLIST

Before returning your application form, the following **must** be included otherwise your application will not be processed:

- ☐ Name of property owner & description of the project site
- ☐ Complete mailing address of the property owner
- ☐ Plot or survey plan with project shown & adjacent landowners
- ☐ Map or chart with arrow to show location of project
- ☐ Plan view of the project (with dimensions)
- ☐ Side view of project (with dimensions)
- ☐ Location for disposal of dredge spoils (if applicable)
- ☐ Name of the contractor/firm doing the work (if applicable).

APPLICATION GUIDE

INTRODUCTION

The Navigable Waters Protection Act (NWPA) revised Statutes of Canada, 1985, is one of the oldest pieces of federal legislation. It first became law on May 17, 1882. The principle objective is to protect the public right of navigation by prohibiting the building or placement of any "work" in, upon, over, under, through, or across a navigable water without the authorization of the Minister of Transport. The jurisdiction of the legislature begins at the high water mark. Therefore structures that are between low and high water marks will require approval under the NWPA. The administration of the NWPA was recently transferred to Transport Canada.

Important Notice

An approval granted by the Minister is neither a general approval of construction nor an authorization in respect of any law, excepting the Navigable Waters Protection Act. An authorization may also be required from the Minister under the Fisheries Act; you should contact the Department of Fisheries & Oceans for such a determination. In addition, contact should also be made with local municipal, provincial and other government offices to determine if other approvals will be required for the proposal.

What is a Navigable Waterway?

A navigable water is any body of water capable of being navigated by floating vessels of any description for the purpose of transportation, commerce or recreation. This includes both inland and coastal waters. The authority to determine the navigability of a waterway and consequently the requirement for an application under the NWPA, rests with the Minister of Transport or his/her designated representative.

Examples of Some Types of "Works" Requiring Authorization

- any bridge, boom, dam, causeway, wharf, dock, boathouse, intake, outfall, etc.;
- dredging; dumping of fill, retaining wall, groyne, breakwater;
- submarine or overhead cables, tunnel, pipeline;
- aquaculture facilities;
- any other device, structure, or thing whether similar in character to the above or not.

Permit Process

There are basically two types of processes followed in reviewing an application under the Act:

- **Formal Approval**
  The formal approval process is followed when NWPA officials determine that your work or project poses a substantial interference with navigation. Under the requirements of the Act all bridges, booms, dams, and causeways must be processed by formal approval.

- **Letter of Exemption**
  The exemption process is followed when NWPA officials determine that your work or project does not pose a substantial interference with navigation.

How to Make an Application

1. Application Form - Complete, sign and date the enclosed application form.

2. Site Location - Obtain 6 copies of a map or topographic chart of your area. Please include enough details to simplify the location of the proposed project. If not already shown, add the following:

- Name of the waterbody in which the project is located;
- Location of the proposed project (draw an arrow showing the exact location of the site on the map);
- Approximate latitude and longitude of the project

3. Plot Plan - One (1) copy of your plot or survey plan, showing adjacent property owners (include names), with the location of the proposed work clearly indicated.

4. Plan View (6 copies) - The plan view shows the proposed project as if you were looking straight down on it from above. Provide these drawings, to scale or dimensioned, containing sufficient detail to clearly show your proposed project, including:

- Any existing works presently on your property or adjacent properties such as docks, slipways, breakwaters etc.;
- Existing shorelines;
- Dimensions (length, width, etc.) of the project All dimensions should be from the ordinary high water mark.. See sample sketches for further details;
- Average water depth around the project;
- Scale of drawing.
- North arrow.

5. Profile View or Section View (6 copies) - The profile view is a scale drawing that shows the side, front, or rear of the proposed structure as it would look if you were standing to the side of it; the section view is a scale drawing that shows the proposed structure as it would look if sliced internally for display. Clearly show the following:

- Dimensions of the project, including width, height etc. See the sample sketches for further details;
- The ordinary high water mark (O.H.W.M.) and high water mark (H.W.M.);
- Existing and proposed ground contours;
- Height above the bed of the waterway;
- The type of construction material to be used;
- Scale;

Other information

a) If any information is missing, your application may be delayed; therefore please ensure that your application, plans, etc. are complete.
b) Please be advised that it is recommended that applications for approval under the NWPA be made well in advance of the anticipated start-up date, to allow Coast Guard officials to do a complete investigation and possible environmental assessment of your project, which may take several months.
c) Advise whether you have received or applied for a waterlot lease or permit, and if so, with whom you have applied and when.
d) Provide a proposed construction schedule, advising when you plan on starting the project.
e) If you are not the upland owner, provide the owners consent in writing.
f) Provide an environmental assessment or study if one has been prepared.

Where to Make an Application

In accordance with the map below, please submit applications for approval to the addresses listed on Annex A "Navigable Waters Protection Act Application Addresses".

Ontario Region & Prairie & Northern Region
NWP PROGRAM – AREA OFFICES



Environment Canada | Environnement Canada

Environmental Protection Operations Division – Ontario
Environment Canada
867 Lakeshore Road, P.O. Box 5050
Burlington, Ontario L7R 4A6

March 6, 2007

Our File Notre reference
F-2006-124
Your File Votre reference
FC010428

Fiona Christiansen
EA Specialist
Neegan Burnside Ltd.
292 Speedvale Ave. West, Unit 7
Guelph, Ontario
N1H 1C4

Dear Ms. Christiansen,

Re: Georgina Island Fixed Link Study, Lake Simcoe, Ontario
Proponent: Georgina Island First Nation

This is in response to your letter dated November 20, 2006 requesting that Environment Canada (EC) provide any comments, concerns or background information relevant to the undertaking. This project may also be subject to an environmental assessment (EA) under the *Canadian Environmental Assessment Act* (CEAA). Please be advised that based on the initial information provided by your letter, Environment Canada does not expect to have any obligations as a Responsible Authority under section 5(1) of CEAA.

Based on the limited information provided in your letter we have prepared scoping comments to assist in the assessment of the three causeway location options currently being considered, related to our areas of interest and expertise arising from the legislation and policies within EC's mandate

In general, EC recommends that the Study Report should include an adequate level of information on the proposed project alternatives and environmental conditions at the three locations proposed, in order to properly assess their potential environmental effects, and identify appropriate mitigation for the preferred alternative.

The following comments specifically pertain to the potential effects of the project alternatives during their construction, maintenance and operation related to water quality, air quality and toxics management, migratory birds, and, species at risk; and also include associated recommendations for issues/measures to include in the Study Report, and to implement during these phases of the preferred project alternative. Please note that we have a regulatory interest in these factors as administrators of section 36 of the *Fisheries Act, the Canadian Environmental Protection Act 1999,* the *Migratory Birds Convention Act 1994,* and *Species at Risk Act,* respectively. Environment Canada's departmental interests in these environmental factors and the background context and requirements of relevant legislation are described in an Appendix attached to this letter, and should be carefully referred to when reviewing our comments and recommendations.

Typically, causeway projects such as the one currently proposed (and any ancillary works) would potentially result in a number of environmental effects for which we have specific concern or mandated interest, as outlined below. Our recommendations on how these issues should be addressed are provided for your consideration. We have also provided some pertinent background information, and references to guidelines, codes of practice, etc. that may be applicable to this project.

Eco-Logo® Paper / Papier Eco-Logo®

1. Surface Water (and Soils and Groundwater) Quality

EC recommends that the Study Report include an assessment of potential effects of the project on surface water, soils and groundwater, notably effects due to erosion and sedimentation, stormwater runoff[1], de-icing chemicals[2], accidental spills, including spills due to improper handling and storage of chemicals (particularly any toxic materials required for project implementation). As a minimum, EC recommends that the following potential adverse effects should be addressed in the Study Report; and, appropriate mitigation be proposed for the preferred project alternative, and also incorporated into construction specifications for project implementation:

- Releases of debris and effluents from construction, fabrication and landscaping activity potentially impacting downstream Canadian Fisheries Waters. These debris and effluents may include (but are not limited to): toxic chemicals and associated leachate, metal debris and corrosion by-products, uncured concrete and cement leachate, contaminated dewatering effluents and wash water, concrete cuttings/debris, sawdust, topsoil, compost and other waste materials;
- Spills resulting from improper equipment refuelling, maintenance, etc., and handling/storage of toxic materials (e.g., fuel, lubricants, paints, solvents, form oils, chemicals, etc.).
- Erosion and sedimentation into Canadian Fisheries Waters during construction due to:
  - Clearing, grubbing, excavation and grading works on land by heavy equipment and other means,
  - Construction/upgrading and use of site access roads, temporary work areas, etc.; and,
  - In-water works and works in the river valley downstream of the proposed weir and powerhouse, including foundation preparation, fill placement, and concreting work associated with the structures proposed for the project.
- Effects of chemically treated wood, if these materials are proposed for structures in or adjacent to water bodies or wetlands, notably for construction of bridges, retaining walls, etc.
  - Any project involving the aquatic use of treated wood may have adverse environmental effects, even where proponents follow the usage recommendations provided by manufacturers and follow published best management practices (e.g. <http://wwpinstitute.org/pdffiles/bmpsinaquatic2.pdf>). It is often advisable not to use treated wood in areas where preservatives could leach from wooden structures and contaminate nearby surface waters and sediments.
- Effects of causeway on water circulation and associated water quality effects due to impaired water circulation in area between the mainland and the Georgina Island.

Based on the foregoing concerns, EC further recommends that:

- Hydrotechnical analyses be carried out to identify potential water quality impacts associated with each of the project alternatives, and any required mitigation be proposed for the preferred option.
- A sediment and erosion control plan should be developed and implemented for the preferred project option.
- Guidelines such as the Ontario Ministry of Environment's Stormwater Management Planning and Design Manual (March 2003) (MOE SWM Manual) be utilized for the design and operation of stormwater drainage and treatment facilities[3] to help reduce the potential

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[1] The road and bridge deck drainage system could release stormwater contaminants, de-icing chemicals applied for winter maintenance and toxic spills) directly into the lake, providing little opportunity for emergency personnel to block off all drainage pathways in the event of accidents (notably tanker truck spills on bridge structures).

[2] The *Synthesis of Best Practices for Road Salt Management* (Transportation Association of Canada, available at <http://www.tac-atc.ca/english/pdf/roadandbridge.pdf>) provides guidance on techniques, configurations, and design parameters to reduce the amount of snow and ice accumulation on bridges and roads, which leads to optimization of salt application. EC suggests the proponent will consider this guidance when designing the roadway. Further guidance on drainage and stormwater management is also available at: <http://www.tac-atc.ca/english/pdf/drainage.pdf>

[3] EC recognizes that the design of effective stormwater management for a causeway would be challenging; nevertheless, the proponent should explore all technically feasible measures to minimize potential water quality impacts due to stormwater runoff and spills.

water quality impacts due to stormwater runoff during operation of the project. The SWM Manual is available electronically at the MOE web site at:
http://www.ene.gov.on.ca/envision/env_reg/er/documents/stormwatermanual/index.htm

- Contingency plans and measures[4] should be in place during implementation of the preferred project option to minimize risk of adverse impacts due to accidental spills to ensure timely and effective responses to spill incidents.

Where the use of treated wood is being considered, the Department of Fisheries and Oceans (DFO) has developed Guidelines to protect fish and fish habitat from treated wood used in aquatic environments in the Pacific Region (Samis and Hutton, 2000; <http://www.dfo-mpo.gc.ca/Library/245973.pdf>), which are designed to ensure the protection of aquatic life from installation through to decommissioning of the treated-wood structure. These Guidelines contain information[5] applicable to freshwater sites in Ontario. For the purposes of the EA (particularly the federal EA), EC recommends that the proponent consider the above noted document, and consistency of any pertinent components with the guidelines.

EC's mandate to advocate for the protection of water quality and environmental quality[6] stems from the pollution prevention provisions of the *Fisheries Act* (which are administered by EC), the *Canadian Environmental Protection Act 1999 (CEPA)*[7], Strategy for Action on Pollution Prevention, the Federal Water Policy and the *Department of Environment Act*. In assessing the significance of any adverse project effects and developing best practices, reference should be made to pertinent environmental quality objectives, guidelines and codes of practices developed under CEPA to prevent pollution. For more information on Pollution Prevention, Preparedness, Response & Spill Reporting Requirements please refer to EC's web site at:
http://www.on.ec.gc.ca/pollution/fpd/cpb/3019-e.html

2. Wildlife and Wildlife Habitat, including Terrestrial, Wetland and Aquatic Ecosystems, Migratory Birds and Species at Risk

EC recommends that an appropriate level of information on the natural environment in the study area be provided in the study report to allow for a proper assessment of the effects of each causeway alternative on wildlife and wildlife habitat, including terrestrial, wetland and aquatic ecosystems, migratory birds and species at risk. A detailed discussion should be included if implementation of the preferred alternative has the potential to cause the loss, and/or disturbance of vegetation and wildlife habitat[8] (including habitat fragmentation), and/or, impairment to any associated ecological functions (particularly if wildlife species frequent the project area, notably migratory birds and species of local, regional, provincial or federal concern, including wildlife species listed under the federal *Species at Risk Act*[9] *(SARA))*. Therefore, EC recommends that the proponent fully assess and document impacts on vegetation, wildlife habitat and wildlife, notably migratory birds and any species at risk that may be identified in the project area (and their habitats), and propose measures to mitigate adverse environmental effects (see further recommendations on this below).

Species at Risk: The nature of species at risk (SAR) may make them particularly sensitive to development projects including causeways and bridges. Typically, existing background information[10] should be collected to determine whether any species at risk are known or expected

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[4] For example, ensure that: (a) refuelling, maintenance and storage of potentially toxic materials are carried out a sufficient distance away from waterbodies and outside of floodplain areas, implementing procedures to avoid contamination of soils, groundwater and surface waters; and, (b) sufficient clean-up materials are available on site to address potential spills, workers are fully trained on spills avoidance, and spills management, and reporting requirements.

[5] Please see the last page of the Appendix to this letter.

[6] Regarding releases of toxic substances

[7] With respect to the potential for the project to release spills/emission of substances that are declared toxic under CEPA

[8] For example, clearing right of ways for access roads, temporary laydown/work areas, etc., during construction and maintenance.

[9] Please refer to page 9 of this letter (Appendix) for more info on SARA and federal EA requirements.

[10] It might be useful to consult the Natural Heritage Information Centre database <http://www.mnr.gov.on.ca/MNR/nhic/nhic.cfm> maintained by the Ontario Ministry of Natural Resources in Peterborough for known occurrences of species at risk.

to use the site or adjacent lands if they are within the zone of influence of the project. EC's species at risk search tool should also be consulted (http://www.speciesatrisk.gc.ca/map/default_e.cfm) to determine if the ranges of any COSEWIC listed species at risk overlap with the site. Our database is showing that Butternut is a highly probable occurrence on the island, and there is also the possibility of finding Least Bittern, Spotted Turtle, Blanding's Turtle, Milksnake, and Branched Bartonia. Also a possibility, but unconfirmed, is a sensitive SARA listed plant species. It should be noted that EC's data for SAR found on Georgina Island is limited and may not be reflective of the actual SAR species present on Georgina Island. Fisheries and Oceans Canada (DFO) may also have some possible aquatic SAR to add to this list and should be contacted at the address provided below.

In order to confirm the presence of SAR a more detailed survey/inventory would need to be completed at the appropriate time for the above species, and over all seasons. If bait traps are used for wildlife surveys in the project area, incidental trapping of SAR may occur. Therefore, the proponent should obtain a permit under SARA to carry out this activity.

For further information on SARA requirements and the sensitive plant species potentially found in the project area please contact:

Ms. Tania Morais
Environment Canada
Canadian Wildlife Services, Conservation Service Delivery
4905 Dufferin Street, Downsview, Ontario M5H 5T4
Telephone: (416) 739-4100

In regard to permit requirements under SARA:

Mr. Andrew Taylor
Conservation Service Delivery
Telephone: (905) 336-4464

In regard to aquatic species at risk potentially occurring in the project area, EC recommends that the following contact at DFO be consulted:

Ms. Lareina Rising
Aboriginal Specialist
Fisheries and Oceans Canada
Species at Risk Program
73 Meg Drive, London, Ontario N6E 2V2
Telephone: (519) 383-1276
Fax: (519) 383-0699

Migratory Birds: Adverse environmental effects on migratory birds could occur through direct mortality or disturbance during construction (including vegetation clearing and grubbing, site access and preparation, staging, infilling and excavation activity), particularly if work is conducted in migratory bird habitat during the breeding season. The removal of vegetation also has the potential to reduce habitat for birds. Additionally, construction or maintenance activities could disturb nearby breeding birds and disrupt breeding.

To avoid incidental take[11], the project works and activities that may affect migratory bird habitat should be timed to occur outside of the breeding season. EC can provide more specific advice on this at a later date.

Based on our interests in migratory birds we recommend the study assessment should also include:

- Information on the proposed works and activities to occur in migratory bird habitat, any habitats to be altered/removed (including any sensitive or otherwise significant areas) and on birds using the project site or vicinity during all seasons.

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[11] For more info on this, please see Appendix (p. 8).

- Mitigation to avoid disturbance or destruction of breeding or wintering migratory birds.

Habitat Restoration: Given our responsibilities under the *Canadian Biodiversity Strategy*, we recommend that re-vegetation of any disturbed or restoration areas be carried out using native plant species indigenous to the area, to the maximum extent possible, in order to preserve the biodiversity of surrounding vegetation and provide suitable migratory bird and wildlife habitat. Use of invasive species should be avoided to the maximum extent possible.

3. Air Quality Issues

This project may cause local air quality impacts due to fugitive dust generation and exhaust emissions resulting from the operation and movement of heavy equipment on site during construction of the preferred project alternative. These air emissions may also result in cumulative regional air quality impacts in the short term.

Please note that heavy equipment/vehicle exhaust emissions contain contaminants which include, but are not limited to: carbon monoxide (CO), nitrogen oxides (NOx), sulphur dioxide (SO_2), fine particulate matter ($PM_{2.5}$, PM_{10}), polycyclic aromatic hydrocarbons (PAHs), benzene, 1,3-butadiene, formaldehyde, acetaldehyde and volatile organic compounds (VOCs). Most of these substances are designated as toxic under the *Canadian Environmental Protection Act (1999)* (CEPA). Emissions of these and other deleterious substances may potentially occur during the construction and operational (maintenance) phases of the project due to operation and movement of heavy equipment and/or wind action on loose or dusty materials (e.g., soils, stockpiled materials, dried up mud tracked along access routes, etc.).

EC recommends that the Study Report include an assessment of potential air quality impacts and propose mitigation and monitoring to address air pollution through dust and machinery, including air emissions from heavy equipment, vehicles and machinery, including any rock or concrete crushing/batching operations.

For construction, the proponent may wish to reference "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005, prepared by Cheminfo Services Inc. for Environment Canada" as one source of mitigation measures and best work practices. An electronic copy of the document is attached for use by the proponent, however please be advised that a final revision may occur as a result of discussions with stakeholders.

EC recommends that all feasible measures[12] should be taken by the proponent to minimize air emissions due to the preferred project alternative during the construction phase so that air quality (and surface water quality) and any sensitive biological (including human) receptors downwind are not unduly impacted.

EC's mandate to advocate for the protection of air quality stems from our responsibilities under CEPA, and the *Department of Environment Act*. Also, in assessing the significance of any adverse project effects and developing best practices, reference should be made to pertinent environmental quality objectives, guidelines and codes of practices developed under CEPA to prevent pollution.

Therefore, EC recommends that the above potential impacts on air quality be considered in the Study Report and that appropriate mitigation and monitoring be proposed and implemented to prevent and/or minimize any adverse environmental effects.

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[12] EC expects that construction impacts can be substantially mitigated using commonly applied measures; for example: dust suppression by water spray, well maintained and up-to date- equipment - engines and exhaust systems, temporary fencing around high intensity work areas adjacent to sensitive receptors, etc.; and, by conforming to any pertinent environmental codes of practice/guidelines. Air emissions for construction equipment could be further reduced by including contract provisions such as: requiring motorised equipment to meet design specifications for emission controls, etc. consistent with provincial Drive Clean standards, and, by limiting idling of any equipment on site to an absolute minimum.

Based on the foregoing considerations, EC recommends that the assessment of project alternatives consider all valued ecosystem components (VEC's) potentially impacted by the project; and that appropriate mitigation measures and monitoring should be proposed and implemented for the preferred alternative to fully address any adverse environmental impacts identified in the project assessment, (notably those described in our comments above), including any cumulative impacts on the VEC's.

EC also recommends that environmental protection plans be prepared for the preferred project alternative consistent with our above recommendations (e.g., plans to protect water quality: erosion and sediment control and spills contingency plans[13]; plans to facilitate protection of wildlife/sensitive habitats and air quality; monitoring plans; and, that construction environmental specifications incorporating these measures be developed and implemented for the preferred project alternative.

If an assessment of the preferred project is initiated under CEAA, EC requests the opportunity to participate in the federal EA review as an expert Federal Authority per section 12(3) of CEAA. EC expects that its scoping advice would also be pertinent to a federal EA screening if CEAA is triggered.

This advice does not relieve the proponent from meeting the requirements of the federal *Fisheries Act*, including subsection 36(3), the *Migratory Birds Convention Act*, the *Species at Risk Act*, or any regulations made under the *Canadian Environmental Protection Act* that are applicable to the project. Information and comments should not be construed as a fettering of the government's ability to make decisions and/or enforce any applicable regulations.

Please note that I will be coordinating EC's review of the environmental assessment of this project, therefore any further correspondence should be forwarded to me.

Please contact me at the address referenced in this letter if you wish to discuss the above comments.

Yours sincerely,
<Original signed by>

M. A. Shaw
Environmental Assessment Officer
EA Unit
Ph. (905) 336-4957 Fax (905) 336-8901
E-mail: michael.shaw@ec.gc.ca

cc.
S. Allan, EC, EPOD, EA Unit
T. Morais, EC, CWS
H. Strathearn, EC, EPOD, FP Unit

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[13] A spills contingency plan should also be developed and implemented by the proponent for the operational phase of the causeway to help minimize the risk of spill releases to Lake Simcoe and facilitate effective responses, clean-up and monitoring of any long term effects of any spill incidents.

APPENDIX

Regulatory and Policy Context for Environment Canada's Comments and Advice[14]

Environment Canada's mandate to protect the environment and to actively promote sustainable development extends beyond the Department's legislated responsibilities for undertakings that trigger the *Canadian Environmental Assessment Act*. Our review and comments are related, but not limited, to our areas of interest and expertise arising from the following legislation, policies and agreements. More information is available on-line, as indicated in the footnote references below.

1. Legislation

Department of Environment Act

http://laws.justice.gc.ca/en/E-10/text.html

The *Department of Environment Act* provides Environment Canada (EC) with general responsibility for environmental management and protection. Its obligations extend to and include all matters over which Parliament has jurisdiction, and have not by law been assigned to any other department, board, or agency of the Government of Canada as related to: preservation and enhancement of the quality of the natural environment (e.g. water, air, soil), renewable resources including migratory birds and other non-domestic flora and fauna, water, meteorology, and coordination of policy and programs respecting preservation and enhancement of the quality of the natural environment.

The *Department of Environment Act* states that EC has a mandated responsibility to advise heads of federal departments, boards and agencies on matters pertaining to the preservation and enhancement of the quality of the natural environment. This responsibility is reinforced as per subsection 12(3) of CEAA, which states that federal departments must provide specialist and expert information or knowledge to other federal departments or review panels.

Canadian Environmental Protection Act, 1999

http://www.ec.gc.ca/CEPARegistry/subs_list/
http://www.ec.gc.ca/CEPARegistry/policies/

The Canadian Environmental Protection Act, 1999 (CEPA) contributes to sustainable development through pollution prevention and protects the environment, human life and health from the risks associated with toxic substances. Key parts of CEPA include:

- public participation;
- information gathering, objectives, guidelines and codes of practice;
- pollution prevention;
- controlling toxic substances;
- animate products of biotechnology;
- controlling pollution and managing wastes including nutrients, protection of the marine environment, disposal at sea, fuels, vehicle engine and equipment emissions, international air pollution and international water pollution, and hazardous and non-hazardous waste;
- environmental matters related to emergencies including requirements for environmental emergency plans;
- government operations - federal and aboriginal lands including regulations to close any regulatory gap between federal and provincial requirements; and,
- enforcement.

The Canadian Environmental Protection Act, 1999 enables the government to manage a toxic substance throughout its life cycle. Provisions under CEPA require Environment Canada, under certain conditions, to develop a "regulation or preventive or control instrument" for a substance that

[14] Only those most pertinent to our review advice on this project are included in this appendix.

is found to be "toxic" under the Act. CEPA further requires the virtual elimination of anthropogenic releases to the environment of substances that are declared toxic and that are bioaccumulative and persistent. CEPA also establishes the requirements for the assessment of chemicals, polymers and products of biotechnology, prior to import or manufacture of substances not on the Domestic Substances List.

Fisheries Act

http://www.ec.gc.ca/ele-ele/policies/c_and_e_fisheries_act/main_e.asp.

Environment Canada's mandate to advocate for the protection of water quality stems from the pollution prevention provisions of the *Fisheries Act*, which are administered by EC. Please be advised that the Compliance and Enforcement Policy for the Habitat Protection and Pollution Prevention Provisions of the *Fisheries Act* states that compliance with the federal *Fisheries Act* is mandatory. Subsection 36(3) of the *Fisheries Act* specifies that, unless authorized by federal regulation, no person shall deposit or permit the deposit of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water. Proponents should note that only a federal regulation under the *Fisheries Act* or another Act of Parliament can authorize a discharge of a deleterious substance; no federal permit, provincial, territorial or municipal regulatory permit or approval allows for exemption from the *Fisheries Act*.

In the application of the *Fisheries Act*, court cases have accepted that a discharge or effluent that is acutely lethal to fish is deleterious. In other words, results of tests designed to determine whether fish will die in an effluent or discharge within a specified time period will determine one aspect of deleteriousness. However, any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat is also deleterious. For example, substances (such as sediment) that smother nesting areas or spawning grounds, or interfere with reproduction, feeding or respiration of fish at any point in their life cycle are also considered deleterious. In general, any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat may be considered deleterious.

The act of depositing a deleterious substance should be considered a violation of the *Fisheries Act*, regardless of whether the water itself is made deleterious by the deposit. Subsection 36(3) of the *Fisheries Act* makes no allowance for a mixing or dilution zone. Any measurements or tests to determine whether something is deleterious should be done where the substance is at its highest concentration, typically at the point of discharge to the receiving water.

Migratory Birds Convention Act, 1994

http://www.cws-scf.ec.gc.ca/legislations/laws1_e.cfm

The disturbance, destruction or taking of a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird are prohibited under section 6 of the *Migratory Bird Regulations* (MBRs), under the authority of the *Migratory Birds Convention Act, 1994* (MBCA)*. "Incidental take" is the killing or harming of migratory birds due to actions, such as economic development, which are not primarily focused on taking migratory birds. No permit can be issued for the incidental take of migratory birds or their nests as a result of economic activities.

Under section 5.1 of the MBCA, no person shall deposit or permit to be deposited oil, oil wastes or any other substance harmful to migratory birds in any waters or any area frequented by migratory birds.

---

* Please note that amendments to the MBCA in Bill C-15 came into force on June 28, 2005. This pollution prohibition was previously contained in s.35(1) of the *Migratory Bird Regulations*, which has now been repealed and is included as s.5.1 of the amended MBCA, 1994.

Species at Risk Act
http://www.speciesatrisk.gc.ca/default_e.cfm

SARA was proclaimed on June 5, 2003 and is intended to provide protection for individuals of wildlife species at risk listed under Schedule 1 of the Act, their residences (dwelling places, such as a den or nest or other similar area that is occupied or habitually occupied by one or more individual during part or all of its life cycle) and critical habitat (that part of areas used or formerly used by the species to carry out their life processes that is deemed essential for survival or recovery). Critical habitat will be identified for each listed species in Recovery Strategies or Action Plans. The prohibitions under SARA came into force on June 1, 2004 and apply to listed (Schedule I) endangered and threatened species for all federally protected aquatic species and migratory birds (including their residences) found anywhere, as well as to all endangered and threatened species, when found on federal lands.

One of the purposes of SARA is to to manage species of special concern to prevent them from becoming endangered or threatened. In this context, we recommend that all EAs consider potential impacts on any species listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). http://www.cosewic.gc.ca/eng/sct5/index_e.cfm

The *Species at Risk Act* (SARA) has resulted in a consequential amendment to the *Canadian Environmental Assessment Act* (CEAA) that amends the definition of "environmental effect" to clarify that all federal EAs[15] must always consider adverse effects on listed wildlife species, and the critical habitat or residences of individuals of that species.

2. Policies

Federal Policy on Wetland Conservation
http://www.ramsar.org/wurc/wurc_policy_canada.htm

The Federal Policy on Wetland Conservation, 1991 is a shared federal responsibility that directs all departments to sustain wetland functions in the delivery of their programs, services or expenditures. The goals of the Policy include: maintaining the functions and values of wetlands; ensuring no net loss of wetland functions on all federal lands and waters; enhancing and rehabilitating wetlands in areas prone to degradation and loss; recognizing wetland functions in resource planning and management with regard to federal programs, policies and activities; securing significant wetlands; and recognizing and utilizing sustainable management practices to conserve wetlands.

The Federal Water Policy
http://www.ec.gc.ca/water/en/info/pubs/fedpol/e_fedpol.htm

The Federal Water Policy addresses the management of water resources, balancing water uses with the requirements of the many interrelationships within the ecosystem. The policy takes into account the needs of all Canadians in its overall objective to encourage the use of freshwater in an efficient and equitable manner consistent with the social, economic and environmental needs of present and future generations.

---

[15] In addition, section 79(2) of SARA requires that when a federal EA is carried out on a project that may affect a listed species or its critical habitat, adverse environmental effects must be identified, mitigation measures must be taken to avoid or lessen adverse effects, and environmental effects monitoring must be conducted.
Pursuant to Section 79(1) of SARA, if any listed wildlife species, its critical habitat or the residences of individuals of that species may be adversely impacted by the project, the Responsible Authorities for the CEAA assessment must notify the competent Minister responsible for the listed species in writing. Fisheries and Ocean Canada is responsible for aquatic species at risk and can provide advice regarding potential impacts on these species covered under the *Fisheries Act*. Notifications in relation to listed terrestrial species are to be sent to EC, and for this project may be sent to my attention.

To manage Canada's water resources, the federal government has defined two main goals:

- to protect and enhance the quality of the water resource; and,
- to promote the wise and efficient management and use of water.

The policy stresses that government action is not enough. Canadians at large must become aware of the true value of water in their daily lives and use it wisely. We cannot afford to continue undervaluing and therefore wasting our water resources.

3. Agreements

Great Lakes Water Quality Agreement and Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem
http://www.on.ec.gc.ca/greatlakes/default.asp?lang=En&n=FD65DFE5-1

Other legislation, agreements and federal policies respecting environmental matters

The above list is not exhaustive; EC may have other interests in this project not identified at this time based on our review of additional information provided at a later date. For further information on EC's mandated interests, please refer to *http://www.ec.gc.ca/EnviroRegs*.

Fiona Christiansen/RJB
06/Mar/2007 12:21 PM

To Cory Jones/RJB@RJB, Henry Centen/RJB@RJB
cc
Subject Fw: Georgina Island Fixed Link Study, Lake Simcoe, Ontario {EC file# 2006-124} with Cheminfo Attachment

FYI

Fiona Christiansen M.Sc.,
Senior EA Specialist

R.J. Burnside & Associates Limited
292 Speedvale Ave W, Unit 7
Guelph, ON
N1H 1C4
Canada
Tel: 519 823 4995
Cell: 519 820 1396
Fax: 519 836 5477
fchristiansen@rjburnside.com
----- Forwarded by Fiona Christiansen/RJB on 03/06/2007 12:20 PM -----



"Shaw,Michael [Burlington]" <Michael.Shaw@ec.gc.ca>
06/Mar/2007 11:44 AM

To "Christiansen, Fiona" <fchristiansen@rjburnside.com>
cc
Subject Georgina Island Fixed Link Study, Lake Simcoe, Ontario {EC file# 2006-124} with Cheminfo Attachment

As indicated in our prior email, we have attached the reference cited in our letter: "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005, prepared by Cheminfo Services Inc. for Environment Canada".

<<Final Draft -Best Practices AQ Construction & Demolition.pdf>>
Yours Sincerely,

M Shaw

Michael Shaw
Environmental Assessment Officer

EA Unit
Environmental Protection Operations Division Ontario
Environment Canada
867 Lakeshore Road, P.O. Box 5050
Burlington, Ontario L7R 4A6
Ph. (905)336-4957 Fax. (905)336-8901
E-mail:michael.shaw@ec.gc.ca

Note: The comments are provided in Adobe Acrobat 5.0 file format (signed copy) and MS Word (unsigned copy).

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http://www.adobe.com/products/acrobat/readstep2.html

If you are unable to open and print the Adobe Acrobat file, please contact me and I will fax the document to you.

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Final Draft -Best Practices AQ Construction & Demolition.pdf
ForwardSourceID:NT0000B8C2

Fiona Christiansen/RJB
04/Apr/2007 01:55 PM

To "Cory Jones" <Cory_Jones@rjburnside.com>, "Henry Centen" <henry_centen@rjburnside.com>

cc

Subject Fw: Chippewa's of Georgina Island First Nation-Preliminary Evalua tion of Engineering and Environmental Alternatives Study for a Proposed Fixed Link to the Mainland-Request for Baseline Information

Fyi
Fiona Christiansen, M.Sc
Senior Environmental Assessment Specialist

R.J Burnside and Associates Limited

----- Original Message -----
From: Harold Lenters [hlenters@georgina.ca]
Sent: 04/04/2007 11:18 AM AST
To: Fiona Christiansen
Cc: Stan Armstrong <sarmstrong@georgina.ca>; Bob Magloughlen <rmagloughlen@georgina.ca>
Subject: RE: Chippewa's of Georgina Island First Nation-Preliminary Evalua tion of Engineering and Environmental Alternatives Study for a Proposed Fixed Link to the Mainland-Request for Baseline Information

Hi Fiona, further to our meeting earlier this year (Feb. 21) on the above noted subject, it was agreed that staff would provide you with some preliminary comments. In this regard, the most significant aspect of a causeway/bridge to Georgina Island would be the impact on municipal roads. Both Black River Road and Hadden Road are local roads under the jurisdiction of the Town. We request that a traffic study be provided based on the ultimate use of the Island to enable us to determine the impact on our roads. We would not expect much change from existing conditions if traffic volumes were similar to what presently occurs with the ferry service. A significant increase in traffic volume will require road improvements and may trigger a Municipal Class EA. The new road on the mainland with route option 2 would probably not be a municipal road but if that were to be the case a Schedule B or C Class EA would be required. It was stated at the meeting that the Island would continue to have its own stand alone water and sewage system.

Another potential concern we have is if and how the bridge/causeway and the ultimate use or uses on the Island and on any Federally owned mainland may serve to influence or affect land use planning in the local area. For example, if the Island served by a bridge/causeway was to support a major tourist attraction, there may be pressure to locate ancillary or other types of uses on the main land. While this is highly speculative at this point, I trust this planning land use issue will be kept in mind as the process unfolds.

We look forward to receiving further information, particularly with respect to the road and traffic issues, as the evaluation study continues. Thanks,

Harold.

-----Original Message-----
From: Fiona Christiansen [mailto:Fiona_Christiansen@rjburnside.com]
Sent: Thursday, February 08, 2007 12:27 PM

To: Harold Lenters
Subject: Re: Chippewa's of Georgina Island First Nation-Preliminary Evaluation of Engineering and Environmental Alternatives Study for a Proposed Fixed Link to the Mainland-Request for Baseline Information

Harold

With regard to your e-mail (below), we believe that we are now in a position to meet with the Town of Georgina to provide you with some additional details regarding our study. We would like to hold our meeting with interested individuals at the Georgina Island First Nation Administration Center. Representatives from the First Nation, the Ogemawahj Tribal Council and Neegan Burnside will be present.

We would be grateful if you could confirm your availability to meet with us during the week of February 19th 2007. We would also be grateful if you could circulate this e-mail to others at the Town, such as the Mayor, who may be interested in our project.

We look forward to hearing from you.

Kind regards

Fiona Christiansen M.Sc.,
Senior EA Specialist

R.J. Burnside & Associates Limited
292 Speedvale Ave W, Unit 7
Guelph, ON
N1H 1C4
Canada
Tel: 519 823 4995
Cell: 519 820 1396
Fax: 519 836 5477
fchristiansen@rjburnside.com
Inactive hide details for Harold Lenters <hlenters@georgina.ca>Harold Lenters <hlenters@georgina.ca>

Harold Lenters
<hlenters@georgina.ca>

29/Nov/2006 10:53 AM

[IMAGE] [IMAGE]
To "'fchristiansen@rjburnside.com'" <fchristiansen@rjburnside.com>
[IMAGE] [IMAGE]
cc Stan Armstrong <sarmstrong@georgina.ca>, Bob Magloughlen <rmagloughlen@georgina.ca>, John McLean <jmclean@georgina.ca>, Velvet Ross <vross@georgina.ca>
[IMAGE] [IMAGE]

E] Subject: Chippewa's of Georgina Island First Nation-Preliminary Evaluation of Engineering and Environmental Alternatives Study for a Proposed Fixed Link to the Mainland-Request for Baseline Information

[IMAGE] [IMAGE]

Good morning Ms.Christiansen, this is to acknowledge receipt of your letter dated November 20, 2006 on the above noted matter and to formally request that you add the Town to your list of interested stakeholders. This is certainly a significant project that the Town wishes to participate in and be kept fully apprised of. In your letter, you have requested a variety of information. I think the best approach to handle this is to arrange a meeting with pertinent staff from the Town. In this way we can learn more about the Study process, timetable etc.., provide you with some initial feedback and coordinate the collection of info. you are looking for from us.
Please call me to arrange such a meeting. In the mean time, I will circulate a copy of your letter to our CAO, Dept. Heads and manager of Planning for their info.

Harold W. Lenters, M.C.I.P.,R.P.P.
Director of Planning and Building
Town of Georgina
905-476-4301 Ext. 246
Fax: 905-476-4394
hlenters@town.georgina.on.ca

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Transport Canada
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&
Prairie & Northern Region

NAVIGABLE WATERS PROTECTION ACT

APPLICATION GUIDE



Navigable Waters Protection
201 Front Street North
Suite 703
Sarnia, Ontario, N7T 8B1

Phone (519) 383-1865 Fax (519) 383-1989

Canada

NEEGAN BURNSIDE

Appendix C
Preliminary CEAA Screening

Indian and Northern Affairs Canada - Ontario Region - 2005/2006

Environmental Screening Report

CANADIAN ENVIRONMENTAL ASSESSMENT ACT

This form, when completed in full, constitutes an environmental screening report intended to meet the requirements of s. 16 of the *Canadian Environmental Assessment Act* (CEAA). It contains the following sections:

1) PROJECT IDENTIFICATION
2) LOCATION OF RESERVE & PROJECT
3) PROJECT JUSTIFICATION
4) PROJECT DESCRIPTION
5) CONSULTATION
6) EXISTING ENVIRONMENT
7) ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES
8) CUMULATIVE EFFECTS ASSESSMENT
9) SUMMARY OF ENVIRONMENTAL EFFECTS
10) CEAA SCREENING DECISION
11) KEY REFERENCES & SOURCES
12) LIST OF ATTACHMENTS

The table below will be completed by INAC Ontario Region staff. The proponent should complete the sections that follow, starting with "1. PROJECT IDENTIFICATION" on page 2.

For INAC Use Only

Project Reference #	
Section 5 Triggers	Funding
FEAC (Lead RA)	INAC
Other RAs	Unknown
Other Expert FAs	Unknown
Project also Subject to Provincial EA: Yes/NO	No
CEAR Reference #	
Env Officer	Urmas Madisso
RCM & Directorate	Joan Parrell

1) PROJECT IDENTIFICATION

First Nation:	Chippewas of Georgina Island First Nation
Project Title:	Fixed Link Study (Preliminary Evaluation)
Project proponent(s):	Chippewas of Georgina Island First Nation

2) LOCATION

RESERVE Location:

Relative to the nearest town, highway, lake, etc.

Georgina Island First Nation is located in the southern portion of Lake Simcoe, in the Township of Georgina, Region of York, Ontario. The community is comprised of three islands: Georgina, Snake, and Fox (Snake and Fox island are located to the south west of the project study area). The First Nation community also owns a portion of land on the mainland at Virginia Beach (Figure 1.1, Preliminary Evaluation Report, NBL 2007).

Yes	**All or part of the project is ON Reserve land (YES/NO)**

Definition of Project Area:

The geographical extent of the project, and those areas affected during construction and operation. For example:
- key transportation routes for equipment and materials
- staging & refueling areas
- main activity/construction site, traffic routes, etc.

The proposed study limits are defined by Highway 48 to the south, Sibbald Point Provincial Park to the west, the north shore of Georgina Island and Duclos Point to the east (Figure 1.1, Preliminary Evaluation Report, NBL 2007).

Adjacent Land:

Land use and description to the North, East, South, and West of project.

N:	Georgina Island and Lake Simcoe
E:	Lake Simcoe and Duclos Point
S:	Lake Simcoe and Mainland
W:	Lake Simcoe and Snake/Fox Islands

3) PROJECT JUSTIFICATION

Need for the Project: *Rationale: e.g. what problem is the project going to solve or what opportunity is the project going to provide?*	The long-term goal of the Fixed Link is to address safety concerns for residents, create potential economic and development benefits and provide positive social impacts to the community.
Purpose of the Project: *What is going to be achieved by carrying out the project?*	The fixed link will proved a reliable all-weather transportation (vehicle and passenger) link from Georgina Island to the mainland. This project will affect not only the lifestyle of the community and its members but also cottagers and other visitors to the island.
Alternatives Considered: *Different ways to meet the project need and achieve the project purpose.*	A detailed evaluation of the alternatives considered for this project is provided in the Preliminary Evaluation of Engineering and Environmental Alternatives Report (NBL, June 2007). The following alternative solutions have been considered: • Do Nothing; • Improve existing ferry and ice road operations (larger ferry, ferry schedule, ice breakers, bubble system etc); • Existing Ferry and/or Hovercraft; • Existing Ferry and/or Helicopter; • Existing Ferry and Cable Car; • Fixed Link - Road link (tunnel); • Fixed Link - Road link (bridge and/or causeway combination). The 'Road Link (bridge and/or causeway combination)' was considered the ***preferred alternative*** which has been carried forward. The provision of a Fixed Link through a bridge/causeway combination fully addresses the technical needs of the First Nation and would be financially viable. With the implementation of appropriate mitigation measures this alternative will have limited impacts on the natural and socio-economic/cultural environment. The following alternative fixed link routes/corridors have been considered: • Alternative 1 – South east Georgina Island to Duclos point; • Alternative 2 – South west Georgian Island to Doyle Beach/Virginia; and • Alternative 3 – South west Georgina Island to Virginia Beach (existing ferry route).

Alternative 2 was considered a ***preferred alternative*** which has been carried forward for further assessment. This alternative fixed link route/corridor fully addresses the technical needs of the First Nation and would be financially viable.

Alternative 3 was also considered a ***preferred alternative*** which has been carried forward for further assessment. This alternative fixed link route/corridor fully addresses the technical needs of the First Nation and would be financially viable. No land acquisition would be required for this alternative. This route is also already relatively disturbed due to existing ferry activities/infrastructure, therefore this alternative would result in relatively limited effects to the natural environment. Based on DFO's "no net loss" policy for fish habitat Alternative 3 would have the lowest potential loss to fish habitat based on existing access on both mainland and island access point to the existing ferry.

With the implementation of appropriate mitigation measures Alternative 2 or 3 should have limited impacts on the natural and socio-economic/cultural environment; however additional studies/inventories are required to accurately determine potential effects and mitigation measures.

The following alternative designs for the fixed link have been considered:

- Bridge structure (pontoon);
- Bridge structure (piered); and
- Bridge/causeway combination.

The Bridge/Causeway Alternative was considered a ***preferred alternative*** which has been carried forward for further assessment. This alternative fully addresses the technical needs of the First Nation and would be financially viable. With the implementation of appropriate mitigation measures this alternative should have limited impacts on the natural and socio-economic/cultural environment.

4) PROJECT DESCRIPTION

Proposed Start Date: *(year-month-day, if known)*	Un-Known	**Estimated Completion Date:**	Un-Known
Estimated Total Cost:	Un-Known		
Description/Scope of Project: *(attach/reference supporting material as required)*	Georgina Island is located approximately 3km from the mainland. During the months of April to December, when there is open water on Lake Simcoe, the Georgina Island First Nation relies on a passenger and vehicle ferry to transport community members between the island and the mainland. There are also approximately 330 cottagers located on Georgina Island and island visitors who rely on the ferry service. The ferry is operated by the First Nation and has a capacity of 99 passengers and 15 vehicles. The weight capacity is 70 tons. The ferry has a regular daily schedule consisting of 10 trips per weekday and seven trips per weekend day. Community members travel on a daily basis to the mainland for access to schools, shopping and employment. Access to the Island is required for construction vehicles, residents, cottagers and tourists. Docks for the Virginia and Georgian Island dock terminals have been reconstructed to accommodate the ferry. Construction involved additional sheet piling and channel dredging of Lake Simcoe to accommodate the draft of the ferry. The existing ferry became operational in 2001. During 2001 there were some unexpected operational problems that caused the ferry to be out of operation for one week in April and two weeks in July. Passenger traffic numbers did not recover following the July operational problems. During the freeze and thaw months of January to March, the ferry is winterized. Transportation is limited during this time to using a scoot, a 12 passenger air-cushioned vehicle, snowmobile, or car across the ice. Vehicles cross on an ice road once the ice thickness is sufficient to accommodate their loading (i.e. about 30 cm minimum ice thickness is recommended for car travel). The scoot is considered a somewhat dangerous vehicle given its size. The Ferry Operation Business Plan (NBL, 2002) recommended that, as this time of year island/mainland transit is considered quite dangerous for the community given the uncertain weather conditions and ice structure of the lake, a secure winter transportation method should be investigated. The proposed fixed link will provide a reliable all-weather transportation (vehicle and passenger) link from Georgina Island to the mainland. This project will affect not only the lifestyle of the community and its members but also cottagers and other visitors to the island.		

Design Criteria

For the purposes of this study, we have assumed that a minimum bridge clearance of about 7 m and span of 50 m would be required to accommodate the marine traffic in this area. Considering the annual average high water mark in Lake Simcoe as being 219.15 m asl, a fixed link structure would require a clearance elevation of approximately 226.15 m. These assumptions are subject to verification during the next stages of study.

Operational and Transportation Criteria

Preliminary cross sections for the causeway, marine navigation bridge and water flow bridge are shown in Figure 8.1 (Preliminary Evaluation Report, NBL, 2007). The cross sections will accommodate single lane closures (while permitting one way traffic) for emergency or maintenance road closures. A design speed of 90 km/h has been assumed, corresponding to a 70 km/h posted speed. Accordingly the fixed link options have been based on the following criteria:

- Road classification – RAU 90;
- Minimum Stopping Sight Distance – 160 metres;
- Equivalent Minimum "K" Factor (crest/sag) – 50/40;
- Maximum Grade – 6%;
- Minimum Radius – 340 metres;
- Pavement Width (For Two Lanes) – 7.5 metres (3.75 m per lane); and
- Outside shoulder width – 1.25 m.

Water Levels and Wave Climate

The fixed crossing will be exposed to waves approaching from the northeast and from the west, and designs must take into account the extreme wave conditions to which the structure will be subjected. No wind or wave analysis has been carried out as part of this assignment, but this work is required as part of the preliminary and final design phases for this crossing. However the following general observations can be made with respect to the wave climate in this area:

- The prevailing winds are from the west in this area and the greatest reach of adjacent open water in Lake Simcoe also lies to the west. These factors dictate that wave impacts would be greater for Alternatives No. 2 and 3, than they would for Alternative No. 1, which is relatively shielded by the island.
- The wave heights will be limited by the relatively shallow nature of the crossing sites, with the shallow water inducing breaking of the waves. Waves that experience breaking conditions may be in the order of 3.0 m in height, while waves near to the breaking conditions may be in the order of 5.0 metres high.

For the purposes of this study, a preliminary causeway elevation has been assumed to be 224.15 m, based on the following:

- Annual High Water Mark – 219.15 m; and
- Allowance for waves, seiching etc. – 5.0 m.

Since it is possible that waves may still overtop the structure during extreme high water levels, the causeway design should accommodate this potential. A cost/benefit assessment should be included with the detailed designs to assess the elevation requirements and the impacts on the structural designs.

As shown in Figure 8.2 (Preliminary Evaluation Report, NBL, 2007), a preliminary causeway design may include the following:

- A two lane, paved roadway built on interior fill of sand and gravel, which is contained between stone fill dykes.
- Maximum dyke sideslopes of 1.5:1.0, protected with armour stone (10 tonnes average). Type 1 armour stone erosion protection should be placed on the west side (i.e. side of prevailing winds) and type 2 armour stone erosion protection placed on the east side slopes.

As shown in Figure 8.2 (Preliminary Evaluation Report, NBL, 2007), a preliminary bridge design may include the following:

- A concrete slab deck on steel plate girders with a total width of 10.96 m, with spans of approximately 50 metres. The structural depth (vertical thickness of the concrete deck slab and steel plate girders) will be about 2.4 metres.

The above noted designs are preliminary only, and for comparative purposes in this present study. Geotechnical and hydrotechnical assessments will be required to confirm the required final design as part of the detailed design work.

Scope of Assessment

Environmental Components

The scope of assessment includes the environmental effects of the project as defined in Section 2 Paragraph 16 (1)(a) of the CEAA, including the environmental effects likely to result from the project in combination with other projects that have, or will be carried out. Table 1 provides a matrix, which facilitates the identification of the environmental components to be included in the scope of assessment.

	Temporal and Spatial Boundaries The temporal boundary of this EA is defined by the construction and maintenance of the fixed link. The spatial boundaries are defined by the construction envelope directly associated with the fixed link, including associated approaches, storage areas and related works, access or other undertakings directly associated with the repair.
Project Management Team Members & Affiliation:	Marlene Stiles, Georgina Island First Nation. Keith Maracle, Engineer, Ogemawahj Tribal Council. Urmas Madisso, Environmental Officer, INAC. Tony Tino, Economic Development Program Advisor, INAC. Neegan Burnside Ltd – Engineering Design and Environmental Consultant.

Table 1: Project-Environment Interaction Matrix

Component	Surface Water/Hydrology	Ground Water	Soils and Sediments	Air Quality and Climate Change	Noise/Vibration	Terrain/Topography	Vegetation	Wetlands	Fish and Fish Habitat	Wildlife/Habitat	Migratory Birds	Species at Risk/Habitat of Special Concern	Heritage/Archaeology	Aboriginal Use of Traditional Lands/Resources	Land Use	Human Health and Safety	Socio-Economic Conditions	Transportation and Navigation	Other
Construction Activities																			
Fixed link - causeway	X	P	X	P	X	X	X	X	X	X	P	P	P	P	X	X	X	X	
Fixed link - bridge	X	P	X	P	X	X	X	X	X	X	P	P	P	P	X	X	X	X	
Road upgrades	P	P	X	P	X	X	X	X	X	X	P	P	P	P	X	X	X	x	
Operation Activities																			
Increase in traffic volume				P	P										P	P	P		
Route maintenance and repairs	P		P	P	P		P	P	P	P	P	P	P			P	P	P	
Decommissioning/Abandonment																			
N/A																			

X = Presence of project-environment interaction
P = Potential project-environment interaction
Blank = Absence of project-environment interaction

5) CONSULTATION

(a) Government departments, agencies, non-governmental organizations, Tribal Councils, etc.

A request for baseline information was sent to the following agencies on November 20th 2006. A summary of any responses received are provided below.

Department/Agency	Response
Ministry of Environment, Central Region Office	No response received to date.
Ministry of Environment, York - Durham District Office	Requested that they receive a copy of future correspondence.
Ministry of Natural Resources - Aurora District Office	Invited NBL to their office/library to make copies of relevant information. Provided wetland and greenbelt mapping. Stated that project may trigger reviews and/or approval requirements pursuant to provincial legislation such as the Public Lands Act, Environmental Assessment Act and the Planning Act. Stated that they would welcome the opportunity to participate in a meeting.
Lake Simcoe Region Conservation Authority	Forwarded information request to DFO. Stated MNR could provide information. Other issues will be dealt with as part of the LSRCA Permit process.
Ministry of Transportation, Transportation Planning and EA Unit	No response received to date.
Ministry of Transportation, Provincial and Environmental Planning Office	No response received to date.
Ministry of Transportation Corridor Management Section	Any work done on a provincial highway will require an Encroachment Permit and any work done within MTO permit control will require a Building Land Use Permit. Ministry permit control is identified as 45 m from the MTO ROW and a 400 m radius from the intersection point of a highway.
Ontario Realty Corporation	No response received to date.
Environment Canada	Does not expect to have any obligations as an RA under CEAA. Provided recommendations with respect to surface water quality, wildlife and wildlife habitat and air quality issues. Would like to be kept informed about the project.
Department of Fisheries and Oceans	Confirmed that they would like to be kept informed about the project and would be available to participate in project meetings. Stated that they may be an RA within the federal EA process. DFO require additional information with regard to the type of crossing structure before they can provide additional comments. DFO stated that LSRCA and MNR have fisheries data for the study area.

Transport Canada - Marine	Provided Navigable Waters Protect Act (NWPA) guidelines.
Transport Canada - Ontario Region, Canadian Coast Guard Central & Arctic Region HQ	Confirmed that Transport Canada is responsible for the administration of the Navigable Waters Protection Act. If any of the related project elements or activities cross or affect a potentially navigable waterway we are requested to prepare and submit an application.
Health Canada	No response received to date.
Town of Georgina	Confirmed that the Town would like to participate in the project. Requested a meeting to provide information and learn about the study process. Provided follow-up preliminary comments from meeting. Concerned with regard to impact on municipal roads. Both Black River Road and Hadden Road are under the jurisdiction of the Town. Requested that a traffic study be provided based on the ultimate use of the Island to enable the Town to determine the impact on roads. A significant increase in traffic volume may require road improvements and may trigger a Municipal Class EA. If the Island was to support a major tourist attraction as a result of the bridge/causeway, concerned with regard to potential pressure to locate ancillary or other types of uses on the main land. Would like to ensure that planning land use issues will be kept in mind.
York Region	Referred to maps 2-4 of the Official Plan. Stated that potential 'landing locations' are located within the Rural Policy Area. Also listed Shoreline Area Policy/Greenbelt Plan.
Ministry of Culture	Identified that the project may have the potential to impact archaeological sites. Recommended that a cultural resource assessment (land and marine) is undertaken once the preferred alternative has been determined. The assessment should included the ROW, construction impacts, detours, access roads, storage and staging areas etc.
Ministry of Tourism and Recreation – Central Area	No response received to date.
Canada Coast Guard, Central Region	No response received to date.

(b) <u>Public Consultation, including First Nation Community Members</u>

Meetings were held with The Chippewas of Georgina Island First Nation Committee Members on the following dates:

- November 1st 2006;
- January 25th 2007; and
- April 30th 2007.

A meeting was held with the Town of Georgina on February 21st 2007. A copy of the meeting minutes is provided in Appendix B.

A questionnaire was sent to First Nation community members, questionnaires were returned on March 9th 2007. A summary of the main comments received are presented below. Copies of the completed comment forms can be provided on request.

A total of 80 questionnaires were returned (54 from on-reserve residents and 26 from off-reserve residents).

Respondents identified that the main reason they travel to the mainland is for shopping and going to the doctor or dentists (50% or respondents).When asked how many times they use the ferry and ice road when it is operational, 44% of on-reserve respondents confirmed they use the ferry daily, while 78% use the ice road daily. This difference is potentially related to the convenience of using the ice road at any time and the cost of using the ferry. Alternative forms of transportation include private boat, ATV and snowmobile. Respondents noted average lost school days of 10 per year and 11 lost work days due to transport downtime or inaccessible periods for the current transportation.

Respondents were asked to rank their three most preferred alternative solutions (listed in Section 6.3). The most preferred alternative was road link through bridge followed by road link through tunnel, followed by improvements to the existing ferry and ice road.

Respondents were asked to indicate if they had a preference for alternative crossing route locations 1 (Duclos point), 2 (Doyle Beach), or 3 (Existing ferry route). The majority of on-reserve respondents preferred location 2, followed by location 3. Off-reserve respondents preferred location 3, followed by location 1.

Respondents were asked on a scale of 1 (none) and 10 (strong) how much they supported the idea of a fixed link, 67% on-reserve and 66% off-reserve strongly supported a fixed link (with a rank of 10).

The main advantages to a fixed link were identified as convenience, safety, medical/emergencies and economic development. Disadvantages identified included none, unwelcome guests, traffic and crime rate. When asked about potential use of the fixed link 78% on-reserve and 100% off-reserve responded that they would go to the mainland more if a fixed link was available. 87% of on-reserve respondents see the fixed link as increasing employment opportunities for local residents due to convenience and reduced costs. 84% of on-reserve respondents see the fixed link as increasing education opportunities. 77% of on-reserve respondents and 80% of off-reserve respondents thought that people would move back to the island if a fixed link was provided.

6) EXISTING ENVIRONMENT

Photographs of the existing environment are provided in Appendix C.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
6.1 PHYSICAL FEATURES - VALUED ECOSYSTEM COMPONENTS	
Topography/Terrain: *(hilly, flat)*	Terrain within the study area is predominantly flat.
Soil and Geology: *(soil type, quality and use; bedrock geology)*	Georgina Island First Nations Reserve is underlain by limestone bedrock which rises 8-10 metres above the lake on its northwestern and northeastern points. On these points the bedrock is covered by only 10 to 15 cm of sandy or clay loams. The bedrock is exposed as a cliff along the steep slopes of the north shore. Two former embayments along this shore have a series of post-glacial cobble beach ridges. To the south, the island slopes down into the lake with much of the land only 0.5 to 3 meters above the lake. A former embayment along the southeast side has accumulated thick organic deposits in excess of 40 cm deep. Off the south shore, there are shallow silts over clay and, off the island's southwest corner; currents have deposited a series of small islands and spits known as the Sand Islands (Varga et al., 1998). Georgina Island is part of the Drumlinized Till Plain Physiographic Unit. The surface soil cover consists of Otonabee sandy loam occupying gentle sloping areas and the King clay series found in more steeply sloping areas, which cover approximately 90% of the island. The soils are predominantly loam-textured with clays in the northern portion. The main soil type developed from loamy glacial till, is well drained, and occurs on moderately sloping topography. Because of these slopes, the soil is susceptible to sheet erosion. The clay soils were derived from till deposits intermixed with glaciolacustrine sediments and are well drained occurring on smooth, moderately sloping topography. This soil type is also susceptible to erosion. The remainder of Georgina Island is composed primarily of loam-textured soils similar to those described above. Additional soils surveys will be undertaken during the next phase of the study.
Surface Water & Bathymetry: *(presence & quality)*	Lake Simcoe is in the Severn River watershed and is part of the Trent-Severn waterway. Water levels and flows are managed by Parks Canada. Dam settings are based on the establishment of trends, extremes and averages from level recording stations and from streamflow and precipitation gauges. Lake Simcoe has been managed using a rule curve, in effect since 1918, which serves as a target or guide for water levels throughout the year. Due to its large size, Lake Simcoe reacts relatively slowly to climatic conditions and stop-log changes. Flows are also coordinated on the Black River to reduce the threat of flooding downstream on the Severn River and Sparrow Lake.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
	The minimum depth is 1.8 metres in the Trent-Severn waterway, between the locks in Peterborough and the outfall to Georgian Bay at Port Severn. The minimum overhead fixed bridge clearance is 6.7 m (22 ft.) in the main Trent-Severn waterway channel. The locks along the waterway open in mid May. The entrance of the waterway into Lake Simcoe is located about 13 km to the north and east of Georgina Island. The exit of the waterway from Lake Simcoe is at the north end of the lake, crossing under the Atherley Narrows Bridge (clearance 7.0 m) and into Lake Couchiching. Due to the significant area of shoals to the south of Georgina Island in the study area, most cruising boats would travel to the north of Blackbird Point on the northern tip of Georgina Island, rather than following a route to the south of the island. However there are a number of marinas located in Beaverton, Pefferlaw and Virginia Beach that service recreational boats, as well as cottages, homes and a Provincial Park along the shoreline that have docking facilities. The chart datum for Lake Simcoe is 218.7 m, and is defined as a level below which the water level will seldom fall. The average annual high water mark (AAHW) for Lake Simcoe has been determined by the Lake Simcoe Region Conservation Authority (LSRCA) to be 219.15 m asl (Watershed Development Policies, LSRCA, April 2006). Over the past 100 year period, records show that the highest level in the lake was 219.47 m, while the lowest level in the lake was 218.37 m. Annual variation in the water level in Lake Simcoe is about 0.5 m, with higher lake levels occurring in the summer and lower levels in the winter months. In addition seiching (i.e. sloshing of water within the lake following an initial storm surge or setup on one part of the lake) may provide a short term increase in lake levels by as much as 0.15 m. Also waves will increase the depths in localized areas, depending upon the prevailing winds (i.e. prevailing winds from the northwest in the summer and from the southwest in the Fall). The depths from the chart level, as well as marine navigation constraints, are summarized as follows: • Eastern Area (i.e. between Duclos Point and Georgina Island) – Shoals are shown to extend out from both the mainland point and the island in this area, with depths of less than 1.0 m. A marked shoal (Bald Shoal) also exists in the central area of the channel (although not shown on the bathymetry map). Boats can navigate through this area by staying to the north of the central shoal, where the depths are assumed to be in the order of 2.5 m within a relatively narrow channel.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
	• Existing Ferry Crossing Route – The bathymetric information shown pre-dates the dredging work completed in 2001 to accommodate the new ferry, and therefore it is recommended that updated soundings be obtained to confirm depths in this area. However based on the bathymetric information available, the depths along this route were in the order of 1.5 m. • Western Area (i.e. between the southwest corner of the island and Doyle Beach) – A major shoal formation extends over a significant part of this area, in places extending above the surface as the Sand Islands. The Sand Island Shoals have depths of less than 1.0 metre. Nearer to the mainland the depths are also very shallow, in the order of 0.6 m, extending to the area adjacent to Sibbald's Point Provincial Park. An area of deeper channel exists in the central area between the Sand Island shoals and the mainland, and is thought to have depths of about 1.8 m.
Distance to Water:	0 m
Aquatic Sediment/Substrate: *(type & quality)*	Based on the information collected in a 1996 littoral zone study, the south shore of Georgina Island is predominately characterized by gently sloping shorelines of sand and gravel with occasional rubble and muck. Shorelines on the mainland in the study area between Duclos and Sibbald points are characterized as low to moderately sloped foreshore consisting of sandy substrate and occasional muck with mixed gravel to boulder depending on location.
Groundwater: *(local use & quality)*	Groundwater studies will be undertaken during the next phase of the project.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
Climate/Air Quality/Noise: *(local air quality)*	Within Lake Simcoe, precipitation is heaviest from June to January ranging from 79 to 95 mm, with lower amounts of precipitation from February to May ranging from 59 to 70 mm. Total average precipitation is approximately 932 mm annually. The mean average temperature for Lake Simcoe is 5.6°C, with cooler temperatures occurring between October and April ranging from -12°C to 7.4°C, and warmer temperatures occurring between May and September ranging from 13°C to 20.4°C. Air quality within the study area can be characterized by the Ministry of Environment (MOE) Air Quality Index (AQI) reports based on monitoring results from MOE Air Quality Monitoring Stations. The closest air quality monitoring station to Georgina Island is the Barrie Station. The general trend for the AQI in this area, based on 2005 and 2006 data, tends to range from good to very good in January and February, good from March to October with a few poor days in early June and moderate days throughout the summer months. October and November range from good to very good with a few moderate days near the beginning of October. There is a gradual warming in the climate affecting Lake Simcoe that has impacted the ice cover and freeze-up/break-up trends for the Lake. Historical data shows that the lake currently freezes 1.3 days later and breaks up four days earlier than it did 140 years ago (Canadian Council of Ministers of the Environment, 2003). Environment Canada has stated that climate change could reduce water levels in the Great Lakes to lower than they have been in recorded history. These changes will impact shipping, power generation, and wildlife. Even though most climate scenarios predict increased precipitation for the region around the Great Lakes, higher temperatures will mean greater evaporation of water into the atmosphere. This will also mean less snow in winter, so less spring run-off and snow melt entering the lakes. According to researchers, the average temperature in the Great Lakes basin could go up by about 4.5°C by 2055, with slightly larger increases in winter than in summer. Higher rates of evaporation and drier soils would reduce runoff, and water levels in the Great Lakes could fall by an average of between 0.5 m and 1.0 m, according to typical scenarios. Site specific noise and air quality surveys will be undertaken during the next phase of the study.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
6.2 BIOLOGICAL FEATURES - VALUED ECOSYSTEM COMPONENTS	
Vegetation: *(e.g. forest, ground cover, aquatic plants)*	Ecological Land Classification (ELC) and floristic inventories will be undertaken during the next phase of the study.
Wetlands: *(e.g. fens, swamp)*	A site reconnaissance was undertaken within the study area on November 24th 2006. During the site reconnaissance numerous ducks, predominately Mallards, were observed in the wetland located in the south west corner of the study area. Additional surveys will be undertaken within the wetland during the next phase of the study. The proposed project will aim to have no net loss of wetland functions on federal lands and waters.
Fish & Fish Habitat: *(types of habitat and common species found)*	***Fish*** According to MNR data, a total of 58 fish species have been captured and recorded in the Lake Simcoe watershed, of which approximately 20 species have been captured in near shore environments south of Georgina Island by the MNR Lake Simcoe Fisheries Assessment Unit (LSFAU). The LSFAU has conducted numerous sampling programs from 1965 to present in the study area. A summer index netting program was initiated that concentrated mainly on the species composition of the near shore community. Coldwater fish species of Lake Simcoe (Lake trout, Lake whitefish, Lake herring, Rainbow smelt) are frequently captured north of Georgina Island and are not typically observed in areas along the southern shoreline of Georgina Island. Based on previous catch efforts by LSFAU, coldwater species have been captured on the north east corner of the island, and on spawning shoals that encompass the north side of the island. Based on the average depths and fish species captured north of the mainland shoreline between Duclos point, south-west to Sibbald point and south of Georgina Island (southern portion of the Study area), a warmwater to coolwater fishery exists. A review of the NHIC database for the study area did not reveal any fish species listed as endangered, threatened, or vulnerable. The Lake Simcoe whitefish (*Coregonus clupeaformis)* has been listed as threatened under Committee on the Status of Endangered Wildlife in Canada (COSEWIC) status for Lake Simcoe. Based on verbal communication with the MNR (pers comm., Jason Borwick, 2007), Lake whitefish and Lake trout use an area near the northeast corner of Georgina Island for spawning. The species listed in Table 3.3 have either been captured or observed in the southern part (southern shore of Georgina Island to the mainland) of the Study area based on reviewed records from the MNR Aurora District Library. Capture methods in near shore environments consisted of 15m seine netting and deeper areas sampled with trapnets and gill nets. A full fish species list for the Lake Simcoe watershed is presented in Appendix B.

COMPONENT

DESCRIPTION *(describe features; indicate sensitivity to disturbance)*

Table 3.3 – Fish Species Observed in the Study Area

Common Name	***Scientific Name***
Banded Killifish	*Fundulus diaphanus*
Iowa Darter	*Etheostoma exile*
Johnny Darter	*Etheostoma nigrum*
Spottail Shiner	*Notropis hudsonius*
Spotfin Shiner	*Notropis spilopterus*
Emerald Shiner	*Notropis atherinoides*
Longnose Dace	*Rhinichthys cataractea*
Bluntnose Minnow	*Pimephales notatus*
Brook Stickleback	*Culaea inconstans*
Yellow Perch	*Perca flavescens*
Log Perch	*Percina caprodes*
Rock Bass	*Ambloplites rupestris*
Largemouth Bass	*Micropterus salmoides*
Smallmouth Bass	*Micropterus dolomieui*
Pumpkinseed	*Lepomis gibbosus*
Mottled Sculpin	*Cottus bairdi*
White sucker	*Catostomus commersoni*
Rainbow Smelt	*Osmerus mordax*
Northern Pike*	*Esox Lucius*
Muskellunge*	*Esox masquinongy*

**Species known to exist in the study area but were not captured during sampling efforts by LSFAU.*

The main game species of fish encountered in both nearshore and shallow to mid-depth habitats consisted of White sucker, Brown bullhead, Rock bass, Pumpkinseed, Smallmouth bass, Yellow perch. Numerous non-game species (cyprinids) were captured in shoreline seine netting efforts along the southern shore of Georgina Island and the north shore of the mainland between Duclos and Sibbald point. A total of 17 non game species were observed with minnow species being most predominant and possibly a key forage species for local game fish.

Fish Habitat

Georgina Island - Southern Shoreline

In 1996 a littoral zone study was initiated for the shoreline of Georgina Island. Site specific information was collected from Bald point southwest to the southern tip of the island. Information collected during the sampling included: location, water depth, substrate type, vegetation, fish species, number of fish captured or observed and collection methods used. Based on the information collected, the south shore of Georgina Island is predominately characterized by gently sloping shorelines of sand and gravel with occasional rubble and muck. Near shore macrophytes

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
	were not observed but reed beds were noted in some sampling locations. Shallow water environments were more predominant near the south west corner of the island. Young of the year (YOY) perch, rock bass, smallmouth and largemouth bass were captured in near shore seine nets. YOY capture could indicate nearby spawning areas and based on the information from LSFAU, the southern shoreline of Georgina Island is used by pike and bass for spawning during spring months (See Spawning Map for Georgina Island - Appendix B). Communication with the LSFAU indicated that the southeast shoreline of Georgina Island is one of the best muskellunge nursery habitats in the lake and is used as a stocking site for the Lake Simcoe Muskellunge Restoration Program (pers. Comm. Jason Borwick, MNR Aurora). The restoration program was initiated in 2000 to bring back the native Muskellunge population after years of over-harvest in the early 1900's. *Mainland Shoreline - Duclos Point to Sibbald Point* A littoral zone study (Lake Simcoe Littoral Zone Study) was conducted from 1986 to 1996 to characterize littoral zone and shoreline habitat conditions on Lake Simcoe to determine spawning and nursery habitats critical to the sustainable future of fish populations in Lake Simcoe. Habitat information was collected during fish sampling efforts by LSFAU during spring and summer site visits. Shorelines in the study area between Duclos and Sibbald points are characterized as low to moderately sloped foreshore consisting of sandy substrate and occasional muck with mixed gravel to boulder depending on location. Aquatic macrophytes were observed freely floating and could have originated from wind and wave action dislodging plants from the root base. Areas of detritus at creek mouths and beaches were observed and provided micro habitat for invertebrates and small fish. Species of macrophytes observed included: coontail, wild celery, common elodea, water milfoil, clasping leaf pondweed, sago pondweed, ranunculus species and bushy pondweed. A Summer Index Netting Program was conducted by the LSFAU from 1965 to 1981 to provide trend trough time data on relative abundance, distribution, size and age composition, growth, diet, sexual composition and age of maturity for species comprising the near shore community (MNR Aurora, LSFAU 1982). Trapnets and gill nets were set to sample depths ranging from 2.5 to 18m from May 13 to September 3 from 1965 to 1981. Based on the catch records for areas south of Georgina Island it appeared that Brown bullhead, Rock bass, Pumpkinseed, and Yellow perch were to most common species captured and consist of mainly warm-water species.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
	Additional aquatic surveys (fish and fish habitat) will be undertaken during the next phase of the study to determine any potential Harmful Alteration Disruption or Destruction (HADD) as a result of the proposed project.
Migratory Birds: *(e.g. waterfowl, songbirds)*	A review of the Ontario Breeding Bird Atlas (OBBA) identified 110 bird species recorded in a 10 km square (17PK31) covering the project study area. The OBBA does not identify any species which are listed on Schedule 1 of the Species At Risk Act (SARA) in the study area. 106 species have a provincial (S-Rank) of S4-S5 (Apparently Secure-Secure). The Caspian Turn (*Sterna caspia*) is ranked as S3 (Vulnerable) and the Great Egret (*Casmerodius albus*), Trumpeter Swan (*Cygnus buccinators*) and Great Black-backed Gull (*Larus marinus*) are ranked as S2 (Imperiled). Additional bird surveys will be undertaken during the next phase of the study to determine any potential effects on breeding/migratory birds as a result of the proposed project.
Other Fauna: *(mammals/amphibians reptiles/insects; game & protected species)*	The preliminary CEAA Screening prepared for the Capital Planning Study (NBL, 2005) lists the following fauna present on the Island; moles, rabbits, hare, chipmunk, squirrel, beaver, coyote, fox, racoon, deer and mice. Hepetofauna include newts, salamanders, toads, frogs, turtles and snakes. Surveys for amphibians will be undertaken during the next phase of the study to determine any potential effects as a result of the proposed project.
Designated Species/ Habitat Areas: *(specially designated or protected)*	**Designated Sites** ***Georgina Island*** • One Area of Natural and Scientific Interest (ANSI) – Georgina Island (Earth Science); • Two Environmentally Sensitive Areas (ESAs) – Georgina Island and Big Shoal; • One Provincially Significant Wetland (PSWs) – Georgina Island Wetlands; and • Vulnerable, Threatened or Endangered (VTE) species (COSSARO, listed as 'unidentified' on the NHIC website). ***Mainland*** • One Area of Natural and Scientific Interest (ANSI) – Duclos Point Park Reserve (Life Science); • Two Environmentally Sensitive Area (ESAs) – Duclos Point and Morning Glory Swamp; • One Provincially Significant Wetland (PSW) –Morning Glory Swamp; • One Nature Reserve - Duclos Point Provincial Nature Reserve;

COMPONENT

DESCRIPTION *(describe features; indicate sensitivity to disturbance)*

- One old growth forest (>100 years) – near Doyle Beach;
- Mid-to-Late successional forest (> 4 ha) – near Doyle Beach;
- Butternut (SARA, Schedule 1 species); and
- Red-Shouldered Hawk (COSEWIC, Special Concern).

The following designated sites are located on the mainland in close proximity to the study area:

- Two Environmentally Sensitive Areas (ESAs) - Virginia Beach and Mossington Park;
- Two Non-Provincially Significant Wetlands (NPSWs) - Mossington Park and Riverview Beach Wetlands; and
- One Provincial Park - Sibbald Point Provincial Park.

In accordance with Environment Canada's letter of March 6th 2007, there are also records of the following federally designated species located within the study area (mainland and island). There are no federally designated aquatic species within the study area.

Designated Species

Species	Designation	Habitat Preference	Potential to be located within study area
Birds			
Least Bittern	SARA Schedule 1 Threatened	Nest in freshwater marshes, where dense tall aquatic vegetation is interspersed with clumps of woody vegetation and open water. They are most regular in marshes that exceed 5 ha in area.	Yes
Reptiles and Amphibians			
Spotted Turtle	SARA Schedule 1 Endangered	Found in ponds, ditches, streams, swamps, bogs and marshes. They generally prefer soft (muddy) substrate and some aquatic vegetation.	Yes
Blanding's Turtle	SARA Schedule 1 Threatened	Found in a variety of habitats, including lakes, ponds, marshes, low fields, ditches, creeks, river sloughs, and bogs. Within these habitats, the species is associated with shallow water where submergent or emergent plants occur.	Yes

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*		
Plants			
American Ginseng	SARA Schedule 1 Endangered	Grows in rich, moist, undisturbed and relatively mature deciduous woods in areas of neutral soil (such as over limestone or marble bedrock). The forest canopy is usually dominated by Sugar Maple, White Ash, Bitternut Hickory, and Basswood.	Yes
Butternut	SARA Schedule 1 Endangered	Grows best in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone.	Yes
Branched Bartonia	SARA Schedule 1 Threatened	Occurs in open graminoid (grass-like vegetation) or low shrub sphagnum bog or fen habitat. It is usually found growing on a peat substrate, and is associated with Larch and Black Spruce	Yes
Surveys for designated species, particularly SARA Schedule 1 species, will be undertaken during the next phase of the study to determine any potential effects as a result of the proposed project.			

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
6.3 SOCIO-CULTURAL FEATURES - VALUED ECOSYSTEM COMPONENTS	
Sensitive Areas: *(e.g. residential zones, parkland, hospitals, schools)*	***Georgina Island*** The Chippewas of Georgina Island First Nation includes Georgina Island (1295 ha), Snake Island (133 ha), Fox Island (19 ha), Sand Island (4 ha) and Gravel Island (0.4 ha). The First Nation residents reside on Georgina Island, while Snake, Fox and Sand Islands are "surrendered lands" and are currently leased to cottagers (according to the First Nation web site there area about 227 cottage lots on Snake Island, about 64 lots on Fox Island). In addition, the First Nation territory includes the parcel of land (Part of Lot 24 and 25 and road allowance between Concessions 7 and 8) in Georgina Township that is occupied by the Virginia Beach Marina and the Ferry Dock. The Virginia Beach Marina includes a restaurant, boat storage and maintenance area and a boat refueling area. The majority of the community's homes and community buildings are located on the west side of the island, along Chief Joseph Snake Road. Approximately 92 homes were identified on the island based on information from 2002. Cottages occupy lots along the northwest, south and eastern portions of the island. There are approximately 330 cottagers on Georgina Island. FN community buildings are concentrated in the area of Root Road. The community centre, administration office, school, medical clinic, and water treatment plant are located along Bear Road. The ferry dock, located in the southwest corner of the island, is the main access point for residents, cottagers and visitors. The Virginia Beach (Marina Parcel) is located approximately 7 km east of the community of Sutton. Virginia Beach is the main access point via the ferry to Georgina Island and includes a restaurant operated by the First Nation. This area is approximately 0.4 ha not including the boat marina. A Phase 1 and 2 environmental audit was undertaken in the study area by NBL in 1998 and 2000. Three inactive landfills were identified on Georgina Island. An active landfill is located adjacent to the sewage lagoon. The sewage treatment system on Georgina Island consists of a two cell lagoon and raised tile bed. The system has been in operation since 1993. The sewage system is used to treat effluent pumped from septic tanks and holding tanks. A water treatment plant is also located on the island.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
6.3 SOCIO-CULTURAL FEATURES - VALUED ECOSYSTEM COMPONENTS	
	Mainland The study area on the mainland is located within the Greenbelt Plan (November, 2005). The Greenbelt Plan identifies where urbanization should not occur in order to provide permanent protection to the agricultural land base and the ecological features and functions occurring on this landscape. The Greenbelt Plan includes lands within, and builds upon the ecological protections provided by, the Niagara Escarpment Plan (NEP) and the Oak Ridges Corridor Park Management Plan (ORMCP). Lands within the study area are designated as Protected Countryside/Shoreline Areas Policy (4.1.3). The Protected Countryside lands identified in the Greenbelt Plan are intended to enhance the spatial extent of agriculturally and environmentally protected lands currently covered by the NEP and the ORMCP while at the same time improving linkages between these areas and the surrounding major lake systems and watersheds. The Greenbelt Plan builds upon the existing policy framework established in the Provincial Policy Statement (PPS), issued under section 3 of the *Planning Act*, and its implementation through municipal official plan policies and maps (Ministry of Municipal Affairs and Housing, 2006). Land use within the study area is characterised in The York Region Official Plan (November 2005) and the Town of Georgina Official Plan. The Region of York Official Plan (OP) identifies Significant Natural Features, Significant Forest Resources and the Regional Greenland System (particularly around Georgina Island and Duclos Point) and Rural Policy Areas within the study area. The objectives of the Significant Natural Features and Forest Resources policies are to ensure that the features and functions are preserved, to ensure no loss of wetland function and to protect forested areas. The objective of the Rural Policy Areas is to retain the rural character of the lands and the viability of existing agricultural operations. The Town of Georgina Official Plan identifies Environmental Protection Areas (1, 2 & 3), Core Conservation Lands and Waters, Lake Simcoe Shoreline and forest resources within the study area. The purpose of these policies is to identify and protect components of the Greenlands System.
Human Health and Safety: *(any persons whose health and safety may be affected by the construction and operation of the project)*	The long-term goal of the Fixed Link is to address safety concerns for residents, create potential economic and development benefits and provide positive social impacts to the community.

COMPONENT	DESCRIPTION *(describe features; indicate sensitivity to disturbance)*
6.3 SOCIO-CULTURAL FEATURES - VALUED ECOSYSTEM COMPONENTS	
Traditional Land Use Activities: *(e.g. trapping, fishing, medicinal plant collection, ceremonial grounds)*	Discussion with the First Nation (meeting of January 25th 2007) revealed that recreational fishing occurs within the study area. There are also some culturally significant/medicinal plants which are located along the southern shore of the island. These include Sweet Flag (heart remedy) and Pepper Weed (colds/congestion), however these are not actively harvested. The First Nation has a community forest strategy for developing the trails on the island, with a program to teach traditions and historic activities of the Chippewa community.
Aesthetics: *(general character of the surrounding area; and if the project is compatible)*	Route 2 - more disturbed, therefore potentially less aesthetic impacts or Route 3 - more natural, therefore potentially more aesthetic impacts
Archaeological Resources: *(recorded, or potential)*	The First Nation confirmed that there are no cultural resources/sacred places/burial sites within the study area. A Stage 1 archaeological study will be undertaken during the next phase of the project.
Special Designations: *(parks, protected areas)*	Refer to Designated sites.

7) ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES – SUMMARY

The next table summarizes the following:

(A) Valued Ecosystem Components (VECs) within the study area

The environmental attributes or elements that are identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic significance, (refer to Table 1)

(B) Potential Environmental Effect(s) on the VECs associated with project activities.

An *Environmental Effect* is defined as:

i) any change that the project may cause in the environment, including any effect of any such change on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by aboriginal persons, or on any structure, site, or thing that is of historical, archaeological, paleontological or architectural significance; and

ii) any change to the project that may be caused *by* the environment. (Example: ice break-up damaging a bridge or dock; freezing and bursting of unprotected water lines.)

(C) Mitigation Measures

A *Mitigation Measure* is:

i) an action or provision made that will eliminate, reduce or control the adverse environmental effects of the project, and may include restoration, compensation or replacement of any damages or impacts.

(D) Determination of Significance

A determination of the significance of the environmental effects, taking into account appropriate mitigation measures if applicable. Mitigation measures are intended to prevent or reduce any potentially negative effects. The abbreviations used are:

N/S - effect not significant, or rendered insignificant with mitigation
SP - significant positive effect
SN - significant negative effect
U - outcome unknown or cannot be predicted, even with mitigation.

(E) Residual Effect and Significance (if applicable)

The following table has been completed with the assumption that Route 2 or 3 has been chosen for the proposed fixed link.

CONSTRUCTION - ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
1	Surface Water/Hydrology & Soils and Sedimentation	a) Potential for sediments to enter watercourse as a result of the following project activities: • site clearing; • stockpiling; • excavation; and, • construction. b) Potential to encounter contaminated materials during excavation. c) Potential for localized water quality impacts as a result of spills. d) Disruption of water course/creek beds and water flow during crossing.	a) The footprint of disturbed area will be minimized as much as possible, for example, vegetated buffers will be left in place adjacent to watercourses to the maximum extent possible. An erosion and sediment control plan will be developed. Implementation of the erosion and sediment control measures will conform to recognized standard specifications such as Ontario Provincial Standards Specification (OPSS) 182, 518 and 577. Stockpiled material will be stored a safe distance from the waterway to ensure that no deleterious substances enter the water. Sediment and erosion control measures (silt curtains, silt fence) will be installed and will be maintained during the work phase and until the site has been stabilized. Control measures should be inspected daily to ensure they are functioning and are maintained as required. If control measures are not functioning properly, no further work will occur until the problem is resolved. Any temporary mitigation measures will be installed prior to the commencement of any site clearing, grubbing, excavation, filling or grading works and will be maintained on a regular basis, prior to and after runoff events. b) Should contaminated materials be identified during construction, all activity in the vicinity of the contamination will be suspended and Chief, Council and INAC's Environmental	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
			Officer will be notified. c) All equipment fuelling and maintenance will be done at a safe distance from the water to ensure that no deleterious substances enter the waterway. d) Watercourse will be crossed using environmentally appropriate crossing methodology. Siltation fencing will be used where required. The original drainage pattern within the study area will be restored upon completion of work to the extent possible.		
2	Groundwater	a) Potential for localized groundwater quality impacts as a result of spills. Dewatering of the work area may be required.	a) Refuelling of equipment and fuel storage should be conducted in designated areas with spill protection. If applicable, work area to be dewatered as per OPSS 577.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
3	Air Quality/Climate	a) Increased dust in air from construction activities.	a) Vehicles/machinery and equipment should be in good repair, equipped with emission controls, as applicable, and operated within regulatory requirements. A water truck will be available to control dust on roads.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
4	Noise/Vibration	a) Temporary nuisance noise during construction activities.	a) Noise control measures, such as restricted hours of operation, the use of appropriate machinery/mufflers, will be implemented where required.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
5	Terrain/Topography & Land Use	a) Change in topography as a result of construction activities.	a) Project area will be restored to pre-construction conditions to the extent possible.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
6	Vegetation, Wetlands, Wildlife/Habitat	a) Loss of vegetation/Habitat loss. b) Alteration of wetland function as a result of installation of the bridge/causeway.	a) Minimize disturbance to existing vegetation. Disturbed areas should be stabilized and revegetated upon project completion and restored to a pre-disturbed state. Topsoil should be stockpiled separately and used for restoration to facilitate natural regeneration of native species. b) The project will result in no net loss of wetland functions on federal lands and waters. The location of the bridge/causeway has been selected to effect as little wetland habitat as possible. Sediments will be prevented from entering the wetland by sediment fencing, etc. The original substrate in the wetland will be returned to its original grade, along with the water levels and the wetland will be returned to its original state.	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
7	Migratory Birds	a) Loss of vegetation/Habitat may impact migratory birds.	a) If any work is undertaken within natural undisturbed areas compliance with the Migratory Birds Act guidelines is required. This relates to activities to be undertaken within migratory bird habitat with the potential to disturb or destroy nests or result in incidental take. Vegetation clearing (undertaken during project construction, operation or maintenance) will be undertaken outside the breeding season (ideally late autumn/ winter) where possible. If this is not possible then a qualified biologist should determine if nesting is occurring prior to construction. If a nesting survey needs to be conducted and identifies nesting migratory birds, Environment Canada should be consulted to discuss next steps.	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
8	Species at Risk/Habitat of Special Concern	a) Potential effect on SARA Schedule 1 Species during construction activities.	a) Should the proponent encounter a species at risk at any time during the project they should contact Environment Canada – Ontario Region, for advice on how to proceed. Construction workers and others working in the study area will be provided with information that will allow them to identify a protected species that they may encounter.	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
9	Fish and Fish Habitat	a) Potential water quality impairments (sediment loading; fuels and lubricants from machinery. Potential effects on fish/fish habitat to be determined during next phase of the study. LOI to be provided to DFO.	a) Sediment and erosion control measures (such as silt fence barriers, turbidity curtains etc) will be installed and maintained during the work phase and until the site has been stabilized. Control measures will be inspected daily to ensure they are functioning and are maintained as required. If control measures are not functioning properly, no further work will occur until the problem is resolved. All temporary erosion and sediment control measures will be installed in accordance with OPSS 577. Where required, silt fence to be installed along watercourse banks within work area as per OPSS 219.110. Extra silt fence/turbidity curtain will be on site, should additional sediment control be required. If applicable, work area to be dewatered as per OPSS 577, and pumped into an acceptable dewatering trap as per OPSS 219.240. Prevent if possible, and minimize otherwise, any in-water operation of heavy equipment and minimize operation of the same on the banks of the watercourse. All equipment fueling and maintenance will be done a safe distance from the edge of the water to ensure that no deleterious substances enter the water.	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
			Any stockpiled material will be stored and stabilized away from the watercourse. In-water works timing restriction windows will need to be confirmed with MNR (July 15th to September 15th). Any part of equipment entering the water should be free of fluid leaks and externally cleaned/degreased to prevent any deleterious substance from entering the water. All disturbed areas of the work site should be stabilized immediately and re-vegetated as soon as conditions allow. Sediment and erosion control measures should be left in place until all areas of the work site have been stabilized.		
10	Socio-economic Conditions/human health and safety	a) Potential safety hazard from construction activities, heavy equipment and increased traffic. b) The project is expected to have a positive impact on the socio-economic condition of Georgina Island	a) The contactor will be required to prepare and implement a Health and Safety Plan (OHSA 1990) and a Traffic Management Plan.	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
11	Heritage/Archaeology	a) Potential to expose items of archaeological interest.	a) Should human remains be identified during operation, all works in the vicinity of the discovery will be suspended immediately. Notification will be made to the Ontario Provincial Police or local police, who will conduct a site investigation. Should other cultural heritage values be identified during operations, all activity in the vicinity of the recovery will be suspended and the Ministry of Culture Archaeologist and Georgina Island First Nations will be contacted.	N/S – small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
12	Transportation/Navigation	a) Navigation impacts as a result of installation of the causeway/bridge.	a) The bridge project will be designed to maintain navigation within the study area. Navigation will be maintained throughout the project. The following mitigation measures will be implemented in accordance with Transport Canada's requirements. • No person shall permit any tools, equipment, vehicles, temporary structures or parts thereof used or maintained for the purpose of building or placing a work in navigable water to remain in such water after the completion of the project. • Where a work or a portion of a work that is being constructed or maintained in a navigable water causes debris or other material to accumulate on the bed or on the surface of such water, the owner of that work or portion of that work shall cause the debris or other material to be removed to the satisfaction of the Minister. • The proponent must notify Coast Guard Traffic Centre at least 24 hours in advance of commencement and upon completion of the causeway/bridge. • Silt curtains installed during the navigation season, are to be marked with yellow bouys and/or yellow lights during hours of darkness.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

OPERATION AND MAINTENANCE - ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
1	Surface Water/Hydrology & Soils and Sedimentation Fish and Fish Habitat	a) Effect of operation/maintenance (sand/salt etc) activities on water quality.	a) All chemicals used during operation/maintenance will be analyzed and neutralized prior to discharge. If high winds and waves occur, all project activities should cease until conditions become favorable. Disturbance to the lake bottom should be minimized. No debris or other deleterious substances should be allowed to enter the waterway during maintenance. Equipment will not be cleaned in the watercourse or where the wash-water can enter the watercourse.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
2	Noise/Vibration	a) Potential noise generated from operation and maintenance activities.	a) Best management practices will be used. Local residents will be informed of potential disruption from maintenance and repair work.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.
3	Vegetation, Wetlands, Wildlife/Habitat Migratory Birds Species at Risk/Habitat of Special Concern	a) Effect of operation/maintenance activities on existing vegetation . b) Potential habitat disturbance and change (such as shadow effects).	a) Maintenance and repair work will be undertaken at an appropriate time of year to avoid disturbance. Shadow effects will be considered during the detailed design process. b) Ecosystem friendly land maintenance should be encouraged.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
4	Socio-economic Conditions/human health and safety	a) Increased traffic volumes.	b) Road will be designed in accordance with applicable safety requirements.	N/S - small magnitude, limited geographical extent and duration.	No residual permanent adverse environmental effect.

ACCIDENTS AND MALFUNCTIONS - ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
1	Surface Water/Hydrology & Soils and Sedimentation Vegetation, Wetlands, Wildlife/Habitat Species at Risk/Habitat of Special Concern Fish and Fish Habitat Transportation/Navigation	a) Leak or spill of petroleum and/or other deleterious substance from vehicles and equipment.	a) The contractor will be required to develop spill prevention and contingency plans for construction and operational phases of the project. Personnel will be trained in how to apply the plans and the plans will be reviewed to strengthen their effectiveness and ensure continuous improvement. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and a contingency plan. A hydrocarbon spill response kit will be on site at all times during the work. Spills will be reported to the Ontario Spills Action Center at 1-800-268-6060.	N/S - small magnitude, limited geographical extent, duration and frequency.	No residual permanent adverse environmental effect.
2	Socio-economic Conditions/human health and safety	a) Accident that could harm workers.	a) Adequate safety barriers and signs will be installed for safety of works and public. The contractor will be required to implement a Health and Safety Plan (OHSA 1990).	N/S - small magnitude, limited geographical extent, duration and frequency.	No residual permanent adverse environmental effect.

EFECTS OF THE ENVIORNMENT ON THE PROJECT - ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

(A) Environmental Component (VEC)		(B) Description of Effect	(C) Mitigation Measures	(D) Significance	(E) Residual Effect
1	Surface water/hydrology, soils and sediments, Air quality and climate change, terrain/ topography, vegetation, wetlands, fish and fish habitat, wildlife/habitat, species at risk/habitats of special concern, land use, human heath and safety, socio-economic conditions, transportation and navigation	a) Environmental hazard/change such as flooding, ice damage (freezing), erosion, which will effect VECs and project construction activities.	a) Project will be designed in accordance with appropriate specifications.	N/S - small magnitude, limited geographical extent, duration and frequency.	No residual permanent adverse environmental effect.

8) CUMULATIVE EFFECTS ASSESSMENT

The natural environment is interconnected, and does not recognize project boundaries or lines on maps. The impacts caused by one project, which may be considered minor and insignificant on their own, can combine with other environmental impacts from other projects or developments planned or already underway in the area. Together, these impacts may combine to become significant, and adverse. The consideration and assessment of these "cumulative" effects is therefore an important part of the environmental assessment process.

None of the effects from this project were determined to be significant and all are localized in nature. No adverse residual on or off site effects are anticipated. There are no known plans for other projects to occur in the immediate vicinity that when combined with this project would result in significant adverse environmental effects.

9) SUMMARY OF ENVIRONMENTAL EFFECTS

Assuming that all mitigation measures are implemented as proposed in Sections 7 and 8, the following effects are predicted for the Valued Ecosystem Components identified in Section 6:

(N/S not significant; SP significant positive effect; SN significant negative effect; U unknown; N/A not applicable)

VALUED ECOSYSTEM COMPONENT	Summary of Effects *(check box)*					Comments
	N/S	SP	SN	U	N/A	
Topography/terrain	√					
Soil/geology	√					
Aquatic sediment/substrate	√					
Surface water	√					
Groundwater				√		
Air quality	√					
Vegetation	√					
Wetlands	√					
Fish & fish habitat				√		
Migratory birds	√					
Other fauna	√					
Special habitat	√					
Sensitive areas	√					
Human health and safety		√				
Traditional land use activities	√					
Aesthetics	√					
Archaeological resources	√					
Specially-designated areas	√					

10) FOLLOW-UP PROGRAM & MONITORING

No environmental follow-up & monitoring programs have been identified.

Screening Report Completed by:

<Original signed by>

Fiona Christiansen, M.Sc., Senior Environmental Assessment Specialist — June 2007
Neegan Burnside Ltd.

10) CEAA SCREENING DECISION

RECOMMENDED SCREENING DECISION (*mark appropriate box*):

☐ **[00]** DECISION PENDING. Assessment not final.

☑ **[01]** PROJECT MAY PROCEED. All potentially adverse effects are mitigable with known technology, and therefore will be rendered insignificant (*CEAA s. 20(1)(a)*).

☐ **[02]** PROJECT MAY NOT PROCEED. The project is likely to cause significant adverse environmental effects that cannot be justified in the circumstances *(CEAA s.20(1)(b))*.

☐ **[03]** ENVIRONMENTAL ASSESSMENT IS TO BE REFERRED TO THE MINISTER FOR MEDIATION OR A REVIEW PANEL, since it is uncertain whether the project is likely to cause significant adverse environmental effects *(CEAA s. 20(1)(c)(I))*; significant public concern has been raised, warranting a referral to a mediator or a review panel *(CEAA s. 20(1)(c)(ii))*; and/or public concerns warrant a reference to a mediator or a review panel *(CEAA s. 20(1)(c)(iii)*.

Reviewed and Recommended by:

Buzzy Big Canoe, Georgina Island First Nation — Date

Urmas Madisso, INAC Environmental Officer — Date

Other Federal RA(s) *(specify details)* — Date

INAC USE ONLY

SCREENING DECISION by LEAD RESPONSIBLE AUTHORITY (enter code):

Approved by:

INAC Responsibility Centre Manager *(name + signature)*

Date

11) KEY REFERENCES & SOURCES

Neegan Burnside Ltd, 2007, Proposed Fixed Link Study - Preliminary Evaluation of Engineering and Environmental Alternatives

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APPENDIX A
FIGURES

(Refer to Preliminary Evaluation of Engineering and Environmental Alternatives Report, NBL 2007)

APPENDIX B
CORRESPONDENCE

(Refer to Preliminary Evaluation of Engineering and Environmental Alternatives Report, NBL 2007)

APPENDIX C
PHOTOGRAPHS

(Refer to Preliminary Evaluation of Engineering and Environmental Alternatives Report, NBL 2007)

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Appendix D
Summary Survey Results

Georgina Island Fixed Link Study Survey Results
Surveys Administered From February 25 to March 9

Data Complied March 23, 2007 by Neegan Burnside & Associates
The information below is provided as received; no interpretation of results has taken place

82 Surveys distributed on the island to adults in the community
114 mailed to off reserve households, 24 returned as undeliverable

Question 1

Do you live on or off reserve?

On Reserve	54
Off Reserve	26

Question 2

How many people live in your household?

Number of people	on reserve	off reserve
1	10	2
2	11	12
3	13	4
4	10	5
5	5	3
6	2	1

Question 3

Why do members of your household travel to the mainland/island?

on reserve reasons	occurrence
Shopping	27
Doctor/Dentist	27
Groceries	20
Sports/Recreational activities	17
Work	17
Entertainment	9
School	7
Visit relatives	5
Bank	4
Building Materials	4
Gas	2
Mail	2

off reserve reasons	occurrence
Visit relatives	14
Work	11
Funeral	2
Community Functions	2
Weddings/Anniversaries	1
Vacation	1
Shopping	1
Doctor/Dentist	1

Question 4

How often does your family use the existing ferry service when it is operational?

Occurrence	on reserve	off reserve
once a day	24	8
once a week	25	7
once a month	1	3
once a year	1	8
never	0	0

Question 5

How often does your family use the ice road when it is operational?

Occurrence	on reserve	off reserve
once a day	42	10
once a week	7	6
once a month	0	2
once a year	0	3
never	0	6

Question 6

Do you use any other mode of transportation to access the mainland/island?

on reserve transportation	occurrence
Private boat	25
4 Wheeler	22
Scoot	15
Snowmobile	13
No	10
Foot	3
Barge	3
Truck	1
Bike	1
Sled	1

off reserve transportation	occurrence
Private boat	10
Scoot	7
4 Wheeler	6
No	6
Snowmobile	3
Foot	1

Question 7

Does your household currently own a vehicle?

	on reserve	off reserve
yes	40	23
no	4	3

If no, would you consider buying a vehicle if there was a reliable all weather connection to the mainland.

	on reserve	off reserve
yes	1	2
no	0	1

Question 8

Please rank your 3 most preferred alternatives.

	on reserve	Rank		
		1	2	3
Improve existing ferry and ice road		5	9	13
Adding hovercraft		1	5	2
Adding helicopter		0	2	4
Passenger cable car		1	2	5
Road link through a tunnel		0	13	1
Road link through bridge		36	2	1
Do nothing		2	0	5
	off reserve			
Improve existing ferry and ice road		0	6	9
Adding hovercraft		0	4	3
Adding helicopter		0	0	1
Passenger cable car		0	1	3
Road link through a tunnel		0	13	1
Road link through bridge		25	0	0
Do nothing		1	0	3

Question 9

Please identify any other alternatives that you feel should be considered.

Buying land on the mainland so people don't need to live on the Island
Another ferry
Road link with toll gates for non-island residents
Extend ferry service hours
Water taxi service

Question 10

What would you consider to be the main advantages of having a fixed link?

on reserve	occurrence	off reserve	occurrence
Access/Convenience	23	Accessibility/Convenience	10
Safety	19	Medical/Emergencies	9
Medical/Emergencies	15	Safety	9
Work	13	Economic development	8
School	9	Jobs	6
Economic Development	8	Schedule conflicts	2
Eliminate isolation	6	Traffic	2
Cost savings	5	School	2
None	2	Visit	1
Policing	1	Avoid long weekend lineups	1
Visiting	1	Not governed by weather	1
Control who enters island	1	Would save money in long run	1
Traffic	1	Control who's on island through toll booth	1
Remove waste/recycle	1	Remove isolation	1

Question 11

What would you consider to be the main disadvantages of having a fixed link?

on reserve	occurrence	off reserve	occurrence
None	11	None	8
Unwelcome guests	11	Loss of privacy	4
Traffic	6	More traffic	4
Crime rate	6	Unwelcome guests	4
Security	4	Increased police presence	2
Overpopulation	2	Loss of jobs	1
Loss of isolation/seclusion	2	Financial	1
Over development	2	Overpopulation	1
Environmental concerns	1	Possible harm to fish/water fowl habitat	1
Loss of way of life	1	No excuse for being late	1
Police Presence	1		
Loss of jobs	1		
Cost	1		
Noise	1		

Question 12

Would you access the Mainland/ island more often if a fixed link was provided?

	on reserve	off reserve
yes	42	26
no	6	0

Question 13

Do you think people would move back to Georgina Island if a fixed link was provided?

	on reserve	off reserve
yes	38	21
no	4	1
not sure	7	4

Question 14

On a scale of 1 (none) to 10 (strong) do you support the idea of a Fixed Link?

Rating	on reserve	off reserve
1	6	1
2	1	0
3	0	0
4	0	0
5	2	3
6	0	0
7	1	0
8	3	2
9	3	2
10	33	16

Question 15

Please indicate if you have a preference for location 1, 2 or 3 and let us know your reasons.

	on reserve	off reserve	
Location 1	10	6	Duclos Point
Location 2	17	4	
Location 3	13	11	Virginia Beach/ Ferry route

Location 1 comments

because of marina
shortest route
less construction
less cost

Location 2 comments

closer to island
most economical
shortest distance
incorporates sand islands
Shallow
less traffic interference

Location 3 comments

closer to island
mostly populated by non members
more accessible
close to business
environmentally accessed
infrastructure is already in place

Question 16

Please identify any other alternative locations that you feel should be considered.

Route 2
Route 3

Question 17

Do you feel a permanent link would improve the employment opportunities for Georgina Island residents?

	on reserve	off reserve
yes	47	25
no	5	1

Why?

no set schedule
don't have to stay over
encourage growth
more tourism
Safe
allows residents to accept outside positions
no weather delays
financial
cost of ferry consumes to much of basic wage

Question 18

Do you feel a permanent link would improve the education received by Georgina Island residents?

	on reserve	off reserve
yes	45	22
no	6	0

Why?

fixed link wont stop dropout rate
Extra-curricular activities
children/adults can take extra classes
no boarding out
more access
safe
allow for a higher education
cut down on day duration
increase the number of teachers

Question 19

If you or children travel to or from the mainland for school or work, please indicate below how many times in the past year you or your children were unable to travel to work or school.

on reserve			off reserve	
school	work		School	Work
3	1		5	3
4	4		9	3
5	7			5
5	7			
5	7			
8	10			
10	14			
10	15			
10	20			
10	25			
15				
20				
20				
125	110	Totals	14	11
10	11	Average	7	4

Question 20

How has the current travel situation affected your household in regards to education/employment.

On reserve

Reason	Occurrence
Miss meetings/work	10
School/activities hard to attend	9
Hasn't	9
Required to live/board on mainland	6
Made it difficult and limiting	6
People don't bother looking for work/school	1
Denied time with family	1

Off reserve

Reason	Occurrence
Moved for more employment opportunities	2
Risked life going to work in poor weather conditions	2
Boarding	2
Not at all	2
Children did not have access to activities	1
Missing work	1

NEEGAN BURNSIDE

Appendix E
Capital Costs and 50 Year LCC

Table E1

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates
Option 1A - Georgina Island to Duclos Point via Causeway Structure

Crossing Length: 1450m (1400 Causeway, 50m Bridge)
Total Route Length: 1840m

		Quantity	Unit	Unit Price	Total
A	**SITEWORKS**			TOTAL:	**$6,954,000**
A1	**Mobilization & Demobilization**	1	LS	$75,000	$75,000
A2	**Property Acquisition**	1	LS	$2,000,000	$2,000,000
A3	**Rehab to Existing Marina**	1	LS	$250,000	$250,000
A4	**Parking Lot**				
	- Asphalt; 100 spaces	3000	sq.m.	$35	$105,000
	- Light Standards	20	EA	$3,200	$64,000
	- Site Development	3500	sq.m.	$40	$140,000
A5	**Existing Road Reconstruction**	1	LS	$3,200,000	$3,200,000
A6	**Toll System**				
	- Electronic Gates and Barriers (manual operation)	1	LS	$100,000	$100,000
	- Gatebooths	2	EA	$10,000	$20,000
A6	**Environmental Control Measures**	1	LS	$1,000,000	$1,000,000
B	**CAUSEWAY CONSTRUCTION**			TOTAL:	**$40,122,800**
B1	**S&P Bridge Structure**				
	- 50m span bridge for navigation	1	LS	$1,500,000	$1,500,000
B2	**S&P Rock Fill for Core**	944800	t	$27	$25,509,600
					$0
B3	**S&P Rip Rap for Slopes**	57800	sq.m.	$40	$2,312,000
					$0
B4	**S&P Armour Stone for Slopes**	132800	t	$71	$9,428,800
					$0
B5	**S&P Filter Fabric (600R Tensor)**	57800	sq.m.	$3	$173,400
					$0
B6	**S&P CSP Culverts**				$0
	- 3000mm dia. Culverts	200	m	$3,000	$600,000
	- Installation	1	LS	$200,000	$200,000
					$0
B7	**S&P Steel Beam Guiderail**				
	- Guiderail	3000	m	$125	$375,000
	- Structure Connection	4	EA	$500	$2,000
	- Extruder	4	EA	$5,500	$22,000
C	**ROADWAY**			TOTAL:	**$571,500**
C1	**Base**				
	- S&P Granular 'B' (300mm depth)	14700	t	$12	$176,400
	- S&P Granular 'A' (150mm depth)	8900	t	$15	$133,500
C2	**Road Finish**				
	- S&P HL3 ACP (50mm)	2300	t	$75	$172,500
	- S&P HL8 ACP (40mm) HD	1300	t	$60	$78,000
	- Pavement Markings	7400	m	$1.50	$11,100
D	**BASE CONSTRUCTION TOTAL (no index factors):**				**$47,648,300**
E	**CONTINGENCY (10% of Construction):**				**$4,765,000**
F	**TOTAL CONSTRUCTION COST (D + E):**				**$52,413,300**
	ARCHITECTURAL & ENGINEERING COSTS				
	(Percentage of Estimated Construction Cost, as per INAC Cost Reference Manual)				
			% of Construction		Total
G	**Project Definition**		1.2%		$629,000
H	**Investigation & Design**		4.7%		$2,463,500
I	**Inspections**		5.1%		$2,673,100
J	**Consultant Project Management**		2.2%		$1,153,100
K	**First Nations Project Management**		3.5%		$1,834,500
	- From start of project to finish (estimated)				
L	**PROJECT DEVELOPMENT COST (G+H+I+J+K):**				**$8,753,200**
M	**TOTAL ADJUSTED COST (F+L):**				**$61,166,500**

ANNUAL O&M for OPTION 1A

	Description	Quantity	Unit	Unit Price	Zone Index (Zone 2)	Total
	Causeway*	1.45	km	$40,000.00	1.02	$59,160
	Bridge (50m x 8m)	400	sq.m.	$29.14	0.99	$11,539
	Roadway (Paved)	1.85	km	$3,806.83	1.02	$7,205
	Toll Operator (Crew of 8 @ $25,000 EA per year)	8	EA	$25,000.00	1.00	$200,000

Index = City Centre Index X Zone Index
City Index (Toronto) = 1.00
Zone Index (Zone 2) = As Noted

Annual O&M: $277,904

*** Note: No value exists in the INAC Cost Reference Manual for a 'Causeway'. This value is estimated.**

Table E2

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Option 1A - Georgina Island to Duclos Point via Causeway Structure

Capital Cost Year 1 =	$61,166,500.00
Annual O&M Costs =	$277,904.06

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$61,166,500	$61,166,500	$277,904	$61,444,404
1	0.980		$0	$272,402	$272,402
2	0.961		$0	$267,008	$267,008
3	0.942		$0	$261,721	$261,721
4	0.923		$0	$256,539	$256,539
5	0.905		$0	$251,460	$251,460
6	0.887		$0	$246,481	$246,481
7	0.869		$0	$241,600	$241,600
8	0.852		$0	$236,817	$236,817
9	0.835		$0	$232,128	$232,128
10	0.819		$0	$227,532	$227,532
11	0.803		$0	$223,026	$223,026
12	0.787		$0	$218,611	$218,611
13	0.771		$0	$214,282	$214,282
14	0.756		$0	$210,039	$210,039
15	0.741		$0	$205,880	$205,880
16	0.726		$0	$201,804	$201,804
17	0.712		$0	$197,808	$197,808
18	0.698		$0	$193,892	$193,892
19	0.684		$0	$190,053	$190,053
20	0.670		$0	$186,290	$186,290
21	0.657		$0	$182,601	$182,601
22	0.644		$0	$178,986	$178,986
23	0.631		$0	$175,442	$175,442
24	0.619		$0	$171,968	$171,968
25	0.607		$0	$168,563	$168,563
26	0.595		$0	$165,225	$165,225
27	0.583		$0	$161,954	$161,954
28	0.571		$0	$158,747	$158,747
29	0.560		$0	$155,604	$155,604
30	0.549		$0	$152,523	$152,523
31	0.538		$0	$149,503	$149,503
32	0.527		$0	$146,543	$146,543
33	0.517		$0	$143,641	$143,641
34	0.507		$0	$140,797	$140,797
35	0.497		$0	$138,009	$138,009
36	0.487		$0	$135,277	$135,277
37	0.477		$0	$132,598	$132,598
38	0.468		$0	$129,973	$129,973
39	0.458		$0	$127,399	$127,399
40	0.449		$0	$124,877	$124,877
41	0.440		$0	$122,404	$122,404
42	0.432		$0	$119,981	$119,981
43	0.423		$0	$117,605	$117,605
44	0.415		$0	$115,277	$115,277
45	0.407		$0	$112,994	$112,994
46	0.399		$0	$110,757	$110,757
47	0.391		$0	$108,564	$108,564
48	0.383		$0	$106,414	$106,414
49	0.375		$0	$104,307	$104,307
50	0.368		$0	$102,242	$102,242
Total 50 Year Life Cycle Cost in 2007 Dollars					**$67,651,388**

Calculated Effective Interest 2.020 %

Table E3

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates
Option 1B - Georgina Island to Duclos Point via Bridge Structure

Crossing Length: 1450m (1450m Bridge)
Total Route Length: 1840m

		Quantity	Unit	Unit Price	Total
A	**SITEWORKS**			**TOTAL:**	**$6,954,000**
A1	**Mobilization & Demobilization**	1	LS	$75,000	$75,000
A2	**Property Acquisition**	1	LS	$2,000,000	$2,000,000
A3	**Rehab to Existing Marina**	1	LS	$250,000	$250,000
A4	**Parking Lot**				
	- Asphalt; 100 spaces	3000	sq.m.	$35	$105,000
	- Light Standards	20	EA	$3,200	$64,000
	- Site Development	3500	sq.m.	$40	$140,000
A5	**Existing Road Reconstruction**	1	LS	$3,200,000	$3,200,000
A6	**Toll System**				
	- Electronic Gates and Barriers (manual operation)	1	LS	$100,000	$100,000
	- Gatebooths	2	EA	$10,000	$20,000
A6	**Environmental Control Measures**	1	LS	$1,000,000	$1,000,000
B	**BRIDGE CONSTRUCTION**			**TOTAL:**	**$71,477,025**
B1	**S&P Concrete Substructure**				
	- 50m span lengths	1450	m	$12,580	$18,241,000
B2	**S&P Concrete Parapet Walls**	1450	m	$392	$568,400
B3	**S&P Concrete Deck**				
	- Concrete Deck	1450	m	$30,350	$44,007,500
	- Reinforcing Steel	1450	m	$550	$797,500
B4	**S&P Steel Girders**	1450	m	$5,000	$7,250,000
B5	**Bridge Finishes**				
	- Bridge Deck Waterproofing	1450	m	$400	$580,000
	- Joint Fillers Seal and Compunds	1450	m	$2.50	$3,625
	- Bearings	1450	m	$20.00	$29,000
C	**ROADWAY**			**TOTAL:**	**$460,100**
C1	**Approach Roadway**	1	LS	$230,000	$230,000
C2	**Road Finish**				
	- S&P HL3 ACP (50mm)	1800	t	$75	$135,000
	- S&P HL8 ACP (40mm) HD	1400	t	$60	$84,000
	- Pavement Markings	7400	m	$1.50	$11,100
D	**BASE CONSTRUCTION TOTAL (no index factors):**				**$78,891,125**
E	**CONTINGENCY (10% of Construction):**				**$7,890,000**
F	**TOTAL CONSTRUCTION COST (D + E):**				**$86,781,125**
	ARCHITECTURAL & ENGINEERING COSTS				
	(Percentage of Estimated Construction Cost, as per INAC Cost Reference Manual)				
			% of Construction		**Total**
G	**Project Definition**		1.2%		$1,041,400
H	**Investigation & Design**		4.7%		$4,078,800
I	**Inspections**		5.1%		$4,425,900
J	**Consultant Project Management**		2.2%		$1,909,200
K	**First Nations Project Management**		3.5%		$3,037,400
	- From start of project to finish (estimated)				
L	**PROJECT DEVELOPMENT COST (G+H+I+J+K):**				**$14,492,700**
M	**TOTAL ADJUSTED COST (F+L):**				**$101,273,825**

ANNUAL O&M for OPTION 1B

	Description	Quantity	Unit	Unit Price	Zone Index (Zone 2)	Total
	Bridge (1450m x 8m)	11600	sq.m.	$29.14	0.99	$334,644
	Roadway (Paved)	0.39	km	$3,806.83	1.02	$1,519
	Toll Operator (Crew of 8 @ $25,000 EA per year)	8	EA	$25,000.00	1.00	$200,000

Index = City Centre Index X Zone Index
City Index (Toronto) = 1.00
Zone Index (Zone 2) = As Noted

Annual O&M: **$536,163**

Table E4

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Option 1b - Georgina Island to Duclos Point via Bridge Structure

Capital Cost Year 1 =	$101,273,825.00
Annual O&M Costs =	$536,162.57

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$101,273,825	$101,273,825	$536,163	$101,809,988
1	0.980		$0	$525,547	$525,547
2	0.961		$0	$515,141	$515,141
3	0.942		$0	$504,941	$504,941
4	0.923		$0	$494,943	$494,943
5	0.905		$0	$485,143	$485,143
6	0.887		$0	$475,537	$475,537
7	0.869		$0	$466,122	$466,122
8	0.852		$0	$456,892	$456,892
9	0.835		$0	$447,846	$447,846
10	0.819		$0	$438,979	$438,979
11	0.803		$0	$430,287	$430,287
12	0.787		$0	$421,767	$421,767
13	0.771		$0	$413,416	$413,416
14	0.756		$0	$405,230	$405,230
15	0.741		$0	$397,207	$397,207
16	0.726		$0	$389,342	$389,342
17	0.712		$0	$381,633	$381,633
18	0.698		$0	$374,077	$374,077
19	0.684		$0	$366,670	$366,670
20	0.670		$0	$359,410	$359,410
21	0.657		$0	$352,294	$352,294
22	0.644		$0	$345,318	$345,318
23	0.631		$0	$338,481	$338,481
24	0.619		$0	$331,779	$331,779
25	0.607		$0	$325,210	$325,210
26	0.595		$0	$318,771	$318,771
27	0.583		$0	$312,459	$312,459
28	0.571		$0	$306,272	$306,272
29	0.560		$0	$300,208	$300,208
30	0.549		$0	$294,264	$294,264
31	0.538		$0	$288,437	$288,437
32	0.527		$0	$282,726	$282,726
33	0.517		$0	$277,128	$277,128
34	0.507		$0	$271,641	$271,641
35	0.497		$0	$266,263	$266,263
36	0.487		$0	$260,991	$260,991
37	0.477		$0	$255,823	$255,823
38	0.468		$0	$250,758	$250,758
39	0.458		$0	$245,793	$245,793
40	0.449		$0	$240,926	$240,926
41	0.440		$0	$236,156	$236,156
42	0.432		$0	$231,480	$231,480
43	0.423		$0	$226,896	$226,896
44	0.415		$0	$222,404	$222,404
45	0.407		$0	$218,000	$218,000
46	0.399		$0	$213,684	$213,684
47	0.391		$0	$209,453	$209,453
48	0.383		$0	$205,306	$205,306
49	0.375		$0	$201,241	$201,241
50	0.368		$0	$197,256	$197,256

Total 30 Year Life Cycle Cost in 2007 Dollars **$113,785,172**

Calculated Effective Interest 2.020 %

Table E5

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates
Option 2A - Georgina Island to Black River Road via Causeway Structure

Crossing Length: 2500m (2450 Causeway, 50m Bridge)
Total Route Length: 3260m

		Quantity	Unit	Unit Price	Total
A	**SITEWORKS**			TOTAL:	**$4,404,000**
A1	**Mobilization & Demobilization**	1	LS	$75,000	$75,000
A2	**Property Acquisition**	1	LS	$1,500,000	$1,500,000
A3	**Rehab to Existing Marina**	1	LS	$500,000	$500,000
A4	**Parking Lot**				
	- Asphalt; 100 spaces	3000	sq.m.	$35	$105,000
	- Light Standards	20	EA	$3,200	$64,000
	- Site Development	3500	sq.m.	$40	$140,000
A5	**Existing Road Realignment**	1	LS	$400,000	$400,000
A6	**Toll System**				
	- Electronic Gates and Barriers (manual operation)	1	LS	$100,000	$100,000
	- Gatebooths	2	EA	$10,000	$20,000
A6	**Environmental Control Measures**	1	LS	$1,500,000	$1,500,000
B	**CAUSEWAY CONSTRUCTION**			TOTAL:	**$51,391,174**
B1	**S&P Bridge Structure**				
	- 50m span bridge for navigation	1	LS	$1,500,000	$1,500,000
B2	**S&P Rock Fill for Core**	1177562	t	$27	$31,794,174
					$0
B3	**S&P Rip Rap for Slopes**	79400	sq.m.	$40	$3,176,000
					$0
B4	**S&P Armour Stone for Slopes**	187800	t	$71	$13,333,800
					$0
B5	**S&P Filter Fabric (600R Tensor)**	79400	sq.m.	$3	$238,200
					$0
B6	**S&P CSP Culverts**				$0
	- 3000mm dia. Culverts	200	m	$3,000	$600,000
	- Installation	1	LS	$200,000	$200,000
					$0
B7	**S&P Steel Beam Guiderail**				
	- Guiderail	4200	m	$125	$525,000
	- Structure Connection	4	EA	$500	$2,000
	- Extruder	4	EA	$5,500	$22,000
C	**ROADWAY**			TOTAL:	**$1,210,150**
C1	**Earth Excavation (New Mainland Road)**	8100	m3	$12	$97,200
C2	**S&P New CSP, Ditching on Mainland Road**	1	LS	$100,000	$100,000
C2	**Base**				
	- S&P Granular 'B' (300mm depth)	26400	t	$12	$316,800
	- S&P Granular 'A' (150mm depth)	15900	t	$15	$238,500
C3	**Road Finish**				
	- S&P HL3 ACP (50mm)	4000	t	$75	$300,000
	- S&P HL8 ACP (40mm) HD	2300	t	$60	$138,000
	- Pavement Markings	13100	m	$1.50	$19,650
D	**BASE CONSTRUCTION TOTAL (no index factors):**				**$57,005,324**
E	**CONTINGENCY (10% of Construction):**				**$5,701,000**
F	**TOTAL CONSTRUCTION COST (D + E):**				**$62,706,324**
	ARCHITECTURAL & ENGINEERING COSTS				
	(Percentage of Estimated Construction Cost, as per INAC Cost Reference Manual)				
			% of Construction		Total
G	**Project Definition**		1.2%		$752,500
H	**Investigation & Design**		4.7%		$2,947,200
I	**Inspections**		5.1%		$3,198,100
J	**Consultant Project Management**		2.2%		$1,379,600
K	**First Nations Project Management**		3.5%		$2,194,800
	- From start of project to finish (estimated)				
L	**PROJECT DEVELOPMENT COST (G+H+I+J+K):**				**$10,472,200**
M	**TOTAL ADJUSTED COST (F+L):**				**$73,178,524**

ANNUAL O&M for OPTION 2A

Description	Quantity	Unit	Unit Price	Zone Index (Zone 2)	Total
Causeway*	2.45	km	$40,000.00	1.02	$99,960
Bridge (50m x 8m)	400	sq.m.	$29.14	0.99	$11,539
Roadway (Paved)	3.25	km	$3,806.83	1.02	$12,657
Toll Operator (Crew of 8 @ $25,000 EA per year)	8	EA	$25,000.00	1.00	$200,000

Index = City Centre Index X Zone Index
City Index (Toronto) = 1.00
Zone Index (Zone 2) = As Noted

Annual O&M: **$324,156**

*** Note: No value exists in the INAC Cost Reference Manual for a 'Causeway'. This value is estimated.**

Table E6

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Option 2A - Georgina Island to Black River Road via Causeway Structure

Capital Cost Year 1 =	$73,178,524.00
Annual O&M Costs =	$324,156.20

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$73,178,524	$73,178,524	$324,156	$73,502,680
1	0.980		$0	$317,738	$317,738
2	0.961		$0	$311,447	$311,447
3	0.942		$0	$305,280	$305,280
4	0.923		$0	$299,235	$299,235
5	0.905		$0	$293,311	$293,311
6	0.887		$0	$287,503	$287,503
7	0.869		$0	$281,810	$281,810
8	0.852		$0	$276,231	$276,231
9	0.835		$0	$270,761	$270,761
10	0.819		$0	$265,400	$265,400
11	0.803		$0	$260,145	$260,145
12	0.787		$0	$254,994	$254,994
13	0.771		$0	$249,945	$249,945
14	0.756		$0	$244,996	$244,996
15	0.741		$0	$240,146	$240,146
16	0.726		$0	$235,391	$235,391
17	0.712		$0	$230,730	$230,730
18	0.698		$0	$226,161	$226,161
19	0.684		$0	$221,683	$221,683
20	0.670		$0	$217,294	$217,294
21	0.657		$0	$212,992	$212,992
22	0.644		$0	$208,774	$208,774
23	0.631		$0	$204,641	$204,641
24	0.619		$0	$200,589	$200,589
25	0.607		$0	$196,617	$196,617
26	0.595		$0	$192,724	$192,724
27	0.583		$0	$188,908	$188,908
28	0.571		$0	$185,168	$185,168
29	0.560		$0	$181,501	$181,501
30	0.549		$0	$177,908	$177,908
31	0.538		$0	$174,385	$174,385
32	0.527		$0	$170,932	$170,932
33	0.517		$0	$167,548	$167,548
34	0.507		$0	$164,230	$164,230
35	0.497		$0	$160,979	$160,979
36	0.487		$0	$157,791	$157,791
37	0.477		$0	$154,667	$154,667
38	0.468		$0	$151,605	$151,605
39	0.458		$0	$148,603	$148,603
40	0.449		$0	$145,660	$145,660
41	0.440		$0	$142,776	$142,776
42	0.432		$0	$139,949	$139,949
43	0.423		$0	$137,178	$137,178
44	0.415		$0	$134,462	$134,462
45	0.407		$0	$131,800	$131,800
46	0.399		$0	$129,190	$129,190
47	0.391		$0	$126,632	$126,632
48	0.383		$0	$124,125	$124,125
49	0.375		$0	$121,667	$121,667
50	0.368		$0	$119,258	$119,258

Total 50 Year Life Cycle Cost in 2007 Dollars **$80,742,705**

Calculated Effective Interest 2.020 %

Table E7

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates
Option 2B - Georgina Island to Duclos Point via Bridge Structure

Crossing Length: 2500m (2500m Bridge)
Total Route Length: 3620m

		Quantity	Unit	Unit Price	Total
A	**SITEWORKS**			**TOTAL:**	**$7,204,000**
A1	**Mobilization & Demobilization**	1	LS	$75,000	$75,000
A2	**Property Acquisition**	1	LS	$1,500,000	$1,500,000
A3	**Rehab to Existing Marina**	1	LS	$500,000	$500,000
A4	**Parking Lot**				
	- Asphalt; 100 spaces	3000	sq.m.	$35	$105,000
	- Light Standards	20	EA	$3,200	$64,000
	- Site Development	3500	sq.m.	$40	$140,000
A5	**Existing Road Reconstruction**	1	LS	$3,200,000	$3,200,000
A6	**Toll System**				
	- Electronic Gates and Barriers (manual operation)	1	LS	$100,000	$100,000
	- Gatebooths	2	EA	$10,000	$20,000
A6	**Environmental Control Measures**	1	LS	$1,500,000	$1,500,000
B	**BRIDGE CONSTRUCTION**			**TOTAL:**	**$123,236,250**
B1	**S&P Concrete Substructure**				
	- 50m span lengths	2500	m	$12,580	$31,450,000
B2	**S&P Concrete Parapet Walls**	2500	m	$392	$980,000
B3	**S&P Concrete Deck**				
	- Concrete Deck	2500	m	$30,350	$75,875,000
	- Reinforcing Steel	2500	m	$550	$1,375,000
B4	**S&P Steel Girders**	2500	m	$5,000	$12,500,000
B5	**Bridge Finishes**				
	- Bridge Deck Waterproofing	2500	m	$400	$1,000,000
	- Joint Fillers Seal and Compunds	2500	m	$2.50	$6,250
	- Bearings	2500	m	$20.00	$50,000
C	**ROADWAY**			**TOTAL:**	**$711,650**
C1	**Approach Roadway**	1	LS	$305,000	$305,000
C2	**Road Finish**				
	- S&P HL3 ACP (50mm)	3200	t	$75	$240,000
	- S&P HL8 ACP (40mm) HD	2450	t	$60	$147,000
	- Pavement Markings	13100	m	$1.50	$19,650
D	**BASE CONSTRUCTION TOTAL (no index factors):**				**$131,151,900**
E	**CONTINGENCY (10% of Construction):**				**$13,116,000**
F	**TOTAL CONSTRUCTION COST (D + E):**				**$144,267,900**
	ARCHITECTURAL & ENGINEERING COSTS				
	(Percentage of Estimated Construction Cost, as per INAC Cost Reference Manual)				
			% of Construction		**Total**
G	**Project Definition**		1.2%		$1,731,300
H	**Investigation & Design**		4.7%		$6,780,600
I	**Inspections**		5.1%		$7,357,700
J	**Consultant Project Management**		2.2%		$3,173,900
K	**First Nations Project Management**		3.5%		$5,049,400
	- From start of project to finish (estimated)				
L	**PROJECT DEVELOPMENT COST (G+H+I+J+K):**				**$24,092,900**
M	**TOTAL ADJUSTED COST (F+L):**				**$168,360,800**

ANNUAL O&M for OPTION 2B

	Description	Quantity	Unit	Unit Price	Zone Index (Zone 2)	Total
	Bridge (2500m x 8m)	20000	sq.m.	$29.14	0.99	$576,972
	Roadway (Paved)	1.12	km	$3,806.83	1.02	$4,362
	Toll Operator (Crew of 8 @ $25,000 EA per year)	8	EA	$25,000.00	1.00	$200,000

Index = City Centre Index X Zone Index
City Index (Toronto) = 1.00
Zone Index (Zone 2) = As Noted

Annual O&M: **$781,334**

Table E8

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Option 2B - Georgina Island to Black River Road via Bridge Structure

Capital Cost Year 1 =	$168,360,800.00
Annual O&M Costs =	$781,333.71

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$168,360,800	$168,360,800	$781,334	$169,142,134
1	0.980		$0	$765,863	$765,863
2	0.961		$0	$750,699	$750,699
3	0.942		$0	$735,835	$735,835
4	0.923		$0	$721,266	$721,266
5	0.905		$0	$706,985	$706,985
6	0.887		$0	$692,986	$692,986
7	0.869		$0	$679,265	$679,265
8	0.852		$0	$665,816	$665,816
9	0.835		$0	$652,632	$652,632
10	0.819		$0	$639,710	$639,710
11	0.803		$0	$627,044	$627,044
12	0.787		$0	$614,629	$614,629
13	0.771		$0	$602,459	$602,459
14	0.756		$0	$590,530	$590,530
15	0.741		$0	$578,838	$578,838
16	0.726		$0	$567,377	$567,377
17	0.712		$0	$556,143	$556,143
18	0.698		$0	$545,131	$545,131
19	0.684		$0	$534,337	$534,337
20	0.670		$0	$523,757	$523,757
21	0.657		$0	$513,387	$513,387
22	0.644		$0	$503,222	$503,222
23	0.631		$0	$493,258	$493,258
24	0.619		$0	$483,492	$483,492
25	0.607		$0	$473,918	$473,918
26	0.595		$0	$464,535	$464,535
27	0.583		$0	$455,337	$455,337
28	0.571		$0	$446,321	$446,321
29	0.560		$0	$437,484	$437,484
30	0.549		$0	$428,822	$428,822
31	0.538		$0	$420,331	$420,331
32	0.527		$0	$412,009	$412,009
33	0.517		$0	$403,851	$403,851
34	0.507		$0	$395,855	$395,855
35	0.497		$0	$388,017	$388,017
36	0.487		$0	$380,334	$380,334
37	0.477		$0	$372,803	$372,803
38	0.468		$0	$365,422	$365,422
39	0.458		$0	$358,186	$358,186
40	0.449		$0	$351,094	$351,094
41	0.440		$0	$344,143	$344,143
42	0.432		$0	$337,329	$337,329
43	0.423		$0	$330,649	$330,649
44	0.415		$0	$324,103	$324,103
45	0.407		$0	$317,685	$317,685
46	0.399		$0	$311,395	$311,395
47	0.391		$0	$305,230	$305,230
48	0.383		$0	$299,186	$299,186
49	0.375		$0	$293,262	$293,262
50	0.368		$0	$287,455	$287,455

Total 50 Year Life Cycle Cost in 2007 Dollars **$186,593,212**

Calculated Effective Interest 2.020 %

Table E9

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates
Option 3A - Georgina Island to Virginia Beach Marina via Causeway Structure

Crossing Length: 3050m (3000 Causeway, 50m Bridge)
Total Route Length: 3170m

		Quantity	Unit	Unit Price	Total
A	**SITEWORKS**			**TOTAL:**	**$2,554,000**
A1	**Mobilization & Demobilization**	1	LS	$75,000	$75,000
A2	**Rehab to Existing Marina**	1	LS	$750,000	$750,000
A3	**Redevelop Parking Lot**				
	- Asphalt; 100 spaces	3000	sq.m.	$25	$75,000
	- Light Standards	20	EA	$3,200	$64,000
	- Site Development	3500	sq.m.	$20	$70,000
A4	**Existing Road Realignment**	1	LS	$400,000	$400,000
A5	**Toll System**				
	- Electronic Gates and Barriers (manual operation)	1	LS	$100,000	$100,000
	- Gatebooths	2	EA	$10,000	$20,000
A6	**Environmental Control Measures**	1	LS	$1,000,000	$1,000,000
B	**CAUSEWAY CONSTRUCTION**			**TOTAL:**	**$62,434,100**
B1	**S&P Bridge Structure**				
	- 50m span bridge for navigation	1	LS	$1,500,000	$1,500,000
B2	**S&P Rock Fill for Core**	1440600	t	$27	$38,896,200
					$0
B3	**S&P Rip Rap for Slopes**	95800	sq.m.	$40	$3,832,000
					$0
B4	**S&P Armour Stone for Slopes**	229500	t	$71	$16,294,500
					$0
B5	**S&P Filter Fabric (600R Tensor)**	95800	sq.m.	$3	$287,400
					$0
B6	**S&P CSP Culverts**				$0
	- 3000mm dia. Culverts	200	m	$3,000	$600,000
	- Installation	1	LS	$200,000	$200,000
					$0
B7	**S&P Steel Beam Guiderail**				
	- Guiderail	6400	m	$125	$800,000
	- Structure Connection	4	EA	$500	$2,000
	- Extruder	4	EA	$5,500	$22,000
C	**ROADWAY**			**TOTAL:**	**$989,100**
C1	**Base**				
	- S&P Granular 'B' (300mm depth)	25700	t	$12	$308,400
	- S&P Granular 'A' (150mm depth)	15400	t	$15	$231,000
C2	**Road Finish**				
	- S&P HL3 ACP (50mm)	3900	t	$75	$292,500
	- S&P HL8 ACP (40mm) HD	2300	t	$60	$138,000
	- Pavement Markings	12800	m	$1.50	$19,200
D	**BASE CONSTRUCTION TOTAL (no index factors):**				**$65,977,200**
E	**CONTINGENCY (10% of Construction):**				**$6,598,000**
F	**TOTAL CONSTRUCTION COST (D + E):**				**$72,575,200**
	ARCHITECTURAL & ENGINEERING COSTS				
	(Percentage of Estimated Construction Cost, as per INAC Cost Reference Manual)				
			% of Construction		**Total**
G	**Project Definition**		1.2%		$871,000
H	**Investigation & Design**		4.7%		$3,411,100
I	**Inspections**		5.1%		$3,701,400
J	**Consultant Project Management**		2.2%		$1,596,700
K	**First Nations Project Management**		3.5%		$2,540,200
	- From start of project to finish (estimated)				
L	**PROJECT DEVELOPMENT COST (G+H+I+J+K):**				**$12,120,400**
M	**TOTAL ADJUSTED COST (F+L):**				**$84,695,600**

ANNUAL O&M for OPTION 3A

	Description	Quantity	Unit	Unit Price	Zone Index (Zone 2)	Total
	Causeway*	3.05	km	$40,000.00	1.02	$124,440
	Bridge (50m x 8m)	400	sq.m.	$29.14	0.99	$11,539
	Roadway (Paved)	3.15	km	$3,806.83	1.02	$12,267
	Toll Operator (Crew of 8 @ $25,000 EA per year)	8	EA	$25,000.00	1.00	$200,000

Index = City Centre Index X Zone Index
City Index (Toronto) = 1.00
Zone Index (Zone 2) = As Noted

Annual O&M: **$348,247**

*** Note: No value exists in the INAC Cost Reference Manual for a 'Causeway'. This value is estimated**

Table E10

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Option 3A - Georgina Island to Virginia Beach Marina via Causeway Structure

Capital Cost Year 1 =	$84,695,600.00
Annual O&M Costs =	$348,246.76

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$84,695,600	$84,695,600	$348,247	$85,043,847
1	0.980		$0	$341,351	$341,351
2	0.961		$0	$334,593	$334,593
3	0.942		$0	$327,968	$327,968
4	0.923		$0	$321,474	$321,474
5	0.905		$0	$315,109	$315,109
6	0.887		$0	$308,870	$308,870
7	0.869		$0	$302,754	$302,754
8	0.852		$0	$296,759	$296,759
9	0.835		$0	$290,884	$290,884
10	0.819		$0	$285,124	$285,124
11	0.803		$0	$279,479	$279,479
12	0.787		$0	$273,945	$273,945
13	0.771		$0	$268,521	$268,521
14	0.756		$0	$263,204	$263,204
15	0.741		$0	$257,993	$257,993
16	0.726		$0	$252,884	$252,884
17	0.712		$0	$247,877	$247,877
18	0.698		$0	$242,969	$242,969
19	0.684		$0	$238,158	$238,158
20	0.670		$0	$233,443	$233,443
21	0.657		$0	$228,821	$228,821
22	0.644		$0	$224,290	$224,290
23	0.631		$0	$219,849	$219,849
24	0.619		$0	$215,496	$215,496
25	0.607		$0	$211,229	$211,229
26	0.595		$0	$207,047	$207,047
27	0.583		$0	$202,947	$202,947
28	0.571		$0	$198,929	$198,929
29	0.560		$0	$194,990	$194,990
30	0.549		$0	$191,129	$191,129
31	0.538		$0	$187,345	$187,345
32	0.527		$0	$183,636	$183,636
33	0.517		$0	$180,000	$180,000
34	0.507		$0	$176,436	$176,436
35	0.497		$0	$172,942	$172,942
36	0.487		$0	$169,518	$169,518
37	0.477		$0	$166,161	$166,161
38	0.468		$0	$162,871	$162,871
39	0.458		$0	$159,647	$159,647
40	0.449		$0	$156,486	$156,486
41	0.440		$0	$153,387	$153,387
42	0.432		$0	$150,350	$150,350
43	0.423		$0	$147,373	$147,373
44	0.415		$0	$144,455	$144,455
45	0.407		$0	$141,595	$141,595
46	0.399		$0	$138,791	$138,791
47	0.391		$0	$136,043	$136,043
48	0.383		$0	$133,350	$133,350
49	0.375		$0	$130,709	$130,709
50	0.368		$0	$128,121	$128,121

Total 50 Year Life Cycle Cost in 2007 Dollars **$92,821,934**

Calculated Effective Interest 2.020 %

Table E11

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
Class 'C' Capital Cost Estimates
Option 3B - Georgina Island to Virginia Beach Marina via Bridge Structure

Crossing Length: 3050m (3050m Bridge)
Total Route Length: 3170m

		Quantity	Unit	Unit Price	Total
A	**SITEWORKS**			**TOTAL:**	**$2,554,000**
A1	**Mobilization & Demobilization**	1	LS	$75,000	$75,000
A2	**Rehab to Existing Marina**	1	LS	$750,000	$750,000
A3	**Parking Lot**				
	- Asphalt; 100 spaces	3000	sq.m.	$25	$75,000
	- Light Standards	20	EA	$3,200	$64,000
	- Site Development	3500	sq.m.	$20	$70,000
A4	**Existing Road Realignment**	1	LS	$400,000	$400,000
A5	**Toll System**				
	- Electronic Gates and Barriers (manual operation)	1	LS	$100,000	$100,000
	- Gatebooths	2	EA	$10,000	$20,000
A6	**Environmental Control Measures**	1	LS	$1,000,000	$1,000,000
B	**BRIDGE CONSTRUCTION**			**TOTAL:**	**$150,348,225**
B1	**S&P Concrete Substructure**				
	- 50m span lengths	3050	m	$12,580	$38,369,000
B2	**S&P Concrete Parapet Walls**	3050	m	$392	$1,195,600
B3	**S&P Concrete Deck**				
	- Concrete Deck	3050	m	$30,350	$92,567,500
	- Reinforcing Steel	3050	m	$550	$1,677,500
B4	**S&P Steel Girders**	3050	m	$5,000	$15,250,000
B5	**Bridge Finishes**				
	- Bridge Deck Waterproofing	3050	m	$400	$1,220,000
	- Joint Fillers Seal and Compunds	3050	m	$2.50	$7,625
	- Bearings	3050	m	$20.00	$61,000
C	**ROADWAY**			**TOTAL:**	**$453,600**
C1	**Approach Roadway**	1	LS	$71,400	$71,400
C2	**Road Finish**				
	- S&P HL3 ACP (50mm)	3000	t	$75	$225,000
	- S&P HL8 ACP (40mm) HD	2300	t	$60	$138,000
	- Pavement Markings	12800	m	$1.50	$19,200
D	**BASE CONSTRUCTION TOTAL (no index factors):**				**$153,355,825**
E	**CONTINGENCY (10% of Construction):**				**$15,336,000**
F	**TOTAL CONSTRUCTION COST (D + E):**				**$168,691,825**
	ARCHITECTURAL & ENGINEERING COSTS				
	(Percentage of Estimated Construction Cost, as per INAC Cost Reference Manual)				
			% of Construction		**Total**
G	**Project Definition**		1.2%		$2,024,400
H	**Investigation & Design**		4.7%		$7,928,600
I	**Inspections**		5.1%		$8,603,300
J	**Consultant Project Management**		2.2%		$3,711,300
K	**First Nations Project Management**		3.5%		$5,904,300
	- From start of project to finish (estimated)				
L	**PROJECT DEVELOPMENT COST (G+H+I+J+K):**				**$28,171,900**
M	**TOTAL ADJUSTED COST (F+L):**				**$196,863,725**

ANNUAL O&M for OPTION 2b

	Description	Quantity	Unit	Unit Price	Zone Index (Zone 2)	Total
	Bridge (3050m x 8m)	20000	sq.m.	$29.14	0.99	$576,972
	Roadway (Paved)	0.12	km	$3,806.83	1.02	$467
	Toll Operator (Crew of 8 @ $25,000 EA per year)	8	EA	$25,000.00	1.00	$200,000

Index = City Centre Index X Zone Index
City Index (Toronto) = 1.00
Zone Index (Zone 2) = As Noted

Annual O&M: **$777,439**

Table E12

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Option 3B - Georgina Island to Virginia Beach Marina via Bridge Structure

Capital Cost Year 1 =	$196,863,725.00
Annual O&M Costs =	$777,439.33

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$196,863,725	$196,863,725	$777,439	$197,641,164
1	0.980		$0	$762,046	$762,046
2	0.961		$0	$746,957	$746,957
3	0.942		$0	$732,168	$732,168
4	0.923		$0	$717,671	$717,671
5	0.905		$0	$703,461	$703,461
6	0.887		$0	$689,532	$689,532
7	0.869		$0	$675,879	$675,879
8	0.852		$0	$662,497	$662,497
9	0.835		$0	$649,380	$649,380
10	0.819		$0	$636,522	$636,522
11	0.803		$0	$623,919	$623,919
12	0.787		$0	$611,565	$611,565
13	0.771		$0	$599,456	$599,456
14	0.756		$0	$587,587	$587,587
15	0.741		$0	$575,953	$575,953
16	0.726		$0	$564,549	$564,549
17	0.712		$0	$553,371	$553,371
18	0.698		$0	$542,414	$542,414
19	0.684		$0	$531,674	$531,674
20	0.670		$0	$521,147	$521,147
21	0.657		$0	$510,828	$510,828
22	0.644		$0	$500,714	$500,714
23	0.631		$0	$490,800	$490,800
24	0.619		$0	$481,082	$481,082
25	0.607		$0	$471,556	$471,556
26	0.595		$0	$462,219	$462,219
27	0.583		$0	$453,067	$453,067
28	0.571		$0	$444,097	$444,097
29	0.560		$0	$435,304	$435,304
30	0.549		$0	$426,685	$426,685
31	0.538		$0	$418,236	$418,236
32	0.527		$0	$409,955	$409,955
33	0.517		$0	$401,838	$401,838
34	0.507		$0	$393,882	$393,882
35	0.497		$0	$386,083	$386,083
36	0.487		$0	$378,438	$378,438
37	0.477		$0	$370,945	$370,945
38	0.468		$0	$363,600	$363,600
39	0.458		$0	$356,401	$356,401
40	0.449		$0	$349,344	$349,344
41	0.440		$0	$342,427	$342,427
42	0.432		$0	$335,647	$335,647
43	0.423		$0	$329,001	$329,001
44	0.415		$0	$322,487	$322,487
45	0.407		$0	$316,102	$316,102
46	0.399		$0	$309,843	$309,843
47	0.391		$0	$303,708	$303,708
48	0.383		$0	$297,695	$297,695
49	0.375		$0	$291,800	$291,800
50	0.368		$0	$286,023	$286,023

Total 50 Year Life Cycle Cost in 2007 Dollars **$215,005,262**

Calculated Effective Interest 2.020 %

Table E13

Chippewas of Georgina Island First Nation
Preliminary Evaluation of Fixed Link Alternatives
50 Year Life Cycle Costs (LCC)

Forecast for Ferry Remining in Service - 50 Years

Capital Cost Year 1 =	$0.00
Annual O&M Costs =	$590,000.00

Year	PW Factor	Capital Cost	PW Capital Cost	PW O&M Cost	PW Total Costs
0	1	$0	$0	$590,000	$590,000
1	0.973		$0	$573,909	$573,909
2	0.946		$0	$558,257	$558,257
3	0.920		$0	$543,032	$543,032
4	0.895		$0	$528,222	$528,222
5	0.871		$0	$513,816	$513,816
6	0.847		$0	$499,803	$499,803
7	0.824		$0	$486,172	$486,172
8	0.802		$0	$472,912	$472,912
9	0.780		$0	$460,015	$460,015
10	0.758	$25,000,000	$18,960,550	$447,469	$19,408,019
11	0.738		$0	$435,265	$435,265
12	0.718		$0	$423,394	$423,394
13	0.698		$0	$411,847	$411,847
14	0.679		$0	$400,615	$400,615
15	0.660		$0	$389,689	$389,689
16	0.642		$0	$379,061	$379,061
17	0.625		$0	$368,723	$368,723
18	0.608		$0	$358,667	$358,667
19	0.591		$0	$348,885	$348,885
20	0.575		$0	$339,370	$339,370
21	0.560		$0	$330,115	$330,115
22	0.544		$0	$321,112	$321,112
23	0.529		$0	$312,354	$312,354
24	0.515		$0	$303,835	$303,835
25	0.501		$0	$295,549	$295,549
26	0.487		$0	$287,488	$287,488
27	0.474		$0	$279,648	$279,648
28	0.461		$0	$272,021	$272,021
29	0.448		$0	$264,602	$264,602
30	0.436	$25,000,000	$10,906,183	$257,386	$11,163,569
31	0.424		$0	$250,366	$250,366
32	0.413		$0	$243,538	$243,538
33	0.402		$0	$236,896	$236,896
34	0.391		$0	$230,435	$230,435
35	0.380		$0	$224,151	$224,151
36	0.370		$0	$218,038	$218,038
37	0.359		$0	$212,091	$212,091
38	0.350		$0	$206,307	$206,307
39	0.340		$0	$200,680	$200,680
40	0.331		$0	$195,207	$195,207
41	0.322		$0	$189,883	$189,883
42	0.313		$0	$184,705	$184,705
43	0.305		$0	$179,667	$179,667
44	0.296		$0	$174,767	$174,767
45	0.288		$0	$170,001	$170,001
46	0.280		$0	$165,364	$165,364
47	0.273		$0	$160,855	$160,855
48	0.265		$0	$156,468	$156,468
49	0.258		$0	$152,200	$152,200
50	0.251	$25,000,000	$6,273,279	$148,049	$6,421,329

Total 50 Year Life Cycle Cost in 2007 Dollars		**$42,319,969**
Assume Interest Rate	10	
Assume Escalation Rate	7	
Calculated Effective Intrest	2.804 %	

NEEGAN BURNSIDE

Appendix F
25 Year Revenue Generation Estimates

Table F1

Chippewas of Georgina Island First Nation
25 Year Revenue Generation for Fixed Link
Based on 1.96% Population Growth
and Number of Passes Sold

Option 1 - Similar Prices to Current Use

Year	Members			Non-Members			Oversized	Revenue	
	Monthly @ $225	Weekly @ $60	Daily @ $15	Monthly @ $600	Weekly @ $160	Daily @ $35	Per Use $70	Per Month	Per Year
2007	100	25	10	15	75	100	50	$52,150	$625,800
2008	102	25	10	15	76	102	51	$53,172	$638,066
2009	104	26	10	16	78	104	52	$54,214	$650,572
2010	106	26	11	16	79	106	53	$55,277	$663,323
2011	108	27	11	16	81	108	54	$56,360	$676,324
2012	110	28	11	17	83	110	55	$57,465	$689,580
2013	112	28	11	17	84	112	56	$58,591	$703,096
2014	115	29	11	17	86	115	57	$59,740	$716,877
2015	117	29	12	18	88	117	58	$60,911	$730,927
2016	119	30	12	18	89	119	60	$62,104	$745,253
2017	121	30	12	18	91	121	61	$63,322	$759,860
2018	124	31	12	19	93	124	62	$64,563	$774,754
2019	126	32	13	19	95	126	63	$65,828	$789,939
2020	129	32	13	19	97	129	64	$67,118	$805,422
2021	131	33	13	20	98	131	66	$68,434	$821,208
2022	134	33	13	20	100	134	67	$69,775	$837,304
2023	136	34	14	20	102	136	68	$71,143	$853,715
2024	139	35	14	21	104	139	70	$72,537	$870,448
2025	142	35	14	21	106	142	71	$73,959	$887,508
2026	145	36	14	22	108	145	72	$75,409	$904,903
2027	147	37	15	22	111	147	74	$76,887	$922,640
2028	150	38	15	23	113	150	75	$78,394	$940,723
2029	153	38	15	23	115	153	77	$79,930	$959,162
2030	156	39	16	23	117	156	78	$81,497	$977,961
2031	159	40	16	24	120	159	80	$83,094	$997,129
2032	162	41	16	24	122	162	81	$84,723	$1,016,673

Table F2

Chippewas of Georgina Island First Nation
25 Year Revenue Generation for Fixed Link
Based on 1.96% Population Growth
and Number of Passes Sold

Option 2 - 5% Rate **Increase**

	Members			Non-Members			Oversized	Revenue	
Year	Monthly @ $236	Weekly @ $63	Daily @ $16	Monthly @ $630	Weekly @ $168	Daily @ $37	Per Use $74	Per Month	Per Year
2007	100	25	10	15	75	100	50	$54,758	$657,090
2008	102	25	10	15	76	102	51	$55,831	$669,969
2009	104	26	10	16	78	104	52	$56,925	$683,100
2010	106	26	11	16	79	106	53	$58,041	$696,489
2011	108	27	11	16	81	108	54	$59,178	$710,140
2012	110	28	11	17	83	110	55	$60,338	$724,059
2013	112	28	11	17	84	112	56	$61,521	$738,251
2014	115	29	11	17	86	115	57	$62,727	$752,720
2015	117	29	12	18	88	117	58	$63,956	$767,474
2016	119	30	12	18	89	119	60	$65,210	$782,516
2017	121	30	12	18	91	121	61	$66,488	$797,853
2018	124	31	12	19	93	124	62	$67,791	$813,491
2019	126	32	13	19	95	126	63	$69,120	$829,436
2020	129	32	13	19	97	129	64	$70,474	$845,693
2021	131	33	13	20	98	131	66	$71,856	$862,268
2022	134	33	13	20	100	134	67	$73,264	$879,169
2023	136	34	14	20	102	136	68	$74,700	$896,400
2024	139	35	14	21	104	139	70	$76,164	$913,970
2025	142	35	14	21	106	142	71	$77,657	$931,884
2026	145	36	14	22	108	145	72	$79,179	$950,149
2027	147	37	15	22	111	147	74	$80,731	$968,772
2028	150	38	15	23	113	150	75	$82,313	$987,760
2029	153	38	15	23	115	153	77	$83,927	$1,007,120
2030	156	39	16	23	117	156	78	$85,572	$1,026,859
2031	159	40	16	24	120	159	80	$87,249	$1,046,986
2032	162	41	16	24	122	162	81	$88,959	$1,067,506

Table F3

Chippewas of Georgina Island First Nation
25 Year Revenue Generation for Fixed Link
Based on 1.8% Population Growth
and Number of Passes Sold

Option 3 - 10% Rate Increase

	Members			Non-Members			Oversized	Revenue	
Year	Monthly @ $248	Weekly @ $66	Daily @ $17	Monthly @ $660	Weekly @ $176	Daily @ $39	Per Use $77	Per Month	Per Year
2007	100	25	10	15	75	100	50	$57,365	$688,380
2008	102	25	10	15	76	102	51	$58,489	$701,872
2009	104	26	10	16	78	104	52	$59,636	$715,629
2010	106	26	11	16	79	106	53	$60,805	$729,655
2011	108	27	11	16	81	108	54	$61,996	$743,957
2012	110	28	11	17	83	110	55	$63,212	$758,538
2013	112	28	11	17	84	112	56	$64,450	$773,405
2014	115	29	11	17	86	115	57	$65,714	$788,564
2015	117	29	12	18	88	117	58	$67,002	$804,020
2016	119	30	12	18	89	119	60	$68,315	$819,779
2017	121	30	12	18	91	121	61	$69,654	$835,846
2018	124	31	12	19	93	124	62	$71,019	$852,229
2019	126	32	13	19	95	126	63	$72,411	$868,933
2020	129	32	13	19	97	129	64	$73,830	$885,964
2021	131	33	13	20	98	131	66	$75,277	$903,329
2022	134	33	13	20	100	134	67	$76,753	$921,034
2023	136	34	14	20	102	136	68	$78,257	$939,086
2024	139	35	14	21	104	139	70	$79,791	$957,492
2025	142	35	14	21	106	142	71	$81,355	$976,259
2026	145	36	14	22	108	145	72	$82,949	$995,394
2027	147	37	15	22	111	147	74	$84,575	$1,014,904
2028	150	38	15	23	113	150	75	$86,233	$1,034,796
2029	153	38	15	23	115	153	77	$87,923	$1,055,078
2030	156	39	16	23	117	156	78	$89,646	$1,075,757
2031	159	40	16	24	120	159	80	$91,404	$1,096,842
2032	162	41	16	24	122	162	81	$93,195	$1,118,340

NEEGAN BURNSIDE

Appendix G
Population Data

HISTORICAL POPULATION GROWTH
CHIPPEWAS OF GEORGINA ISLAND

15-Jan-08

YEAR	POPULATION				ANNUAL % GROWTH	
	ON-RESERVE	OFF-RESERVE	NON-MEMBERS ON RESERVE	TOTAL POPULATION	ON RESERVE	TOTAL
1968	110	88		198		
1969	103	93		196	-6.36%	-1.01%
1970	105	98		203	1.94%	3.57%
1971	98	113		211	-6.67%	3.94%
1972	96	114		210	-2.04%	-0.47%
1973	89	118		207	-7.29%	-1.43%
1974	97	112		209	8.99%	0.97%
1975	95	110		205	-2.06%	-1.91%
1976	91	118		209	-4.21%	1.95%
1977	88	117		205	-3.30%	-1.91%
1978	88	115		203	0.00%	-0.98%
1979	94	117		211	6.82%	3.94%
1980	105	109		214	11.70%	1.42%
1981	101	113		214	-3.81%	0.00%
1982	119	112		231	17.82%	7.94%
1983	116	115		231	-2.52%	0.00%
1984	119	117		236	2.59%	2.16%
1985	124	120		244	4.20%	3.39%
1986	128	162		290	3.23%	18.85%
1987	132	216		348	3.13%	20.00%
1988						
1989						
1990						
1991						
1992	142	360		502		
1993	141	387		528	-0.70%	5.18%
1994	142	401		543	0.71%	2.84%
1995	146	414		560	2.82%	3.13%
1996	151	444		595	3.42%	6.25%
1997	158	455		613	4.64%	3.03%
1998	158	459		617	0.00%	0.65%
1999	163	461		624	3.16%	1.13%
2000	170	470		640	4.29%	2.56%
2001	170	475		645	0.00%	0.78%
2002	172	472		644	1.18%	-0.16%
2003	177	478		655	2.91%	1.71%
2004	180	480	24	660	1.69%	0.76%
2005	184	488	25	672	2.22%	1.82%
2006	187	495	25	682	1.63%	1.49%
2007	190	498	24	688	1.60%	0.88%
GROWTH RATE (1968 to 2007)	1.41%	4.54%		3.25%		
GROWTH RATE (1992 to 2007)	1.96%	2.19%		2.12%		
AVERAGE GROWTH RATE (1968 to 2007)					1.52%	2.72%

Notes:
1. Population data for years 1988 to 1991 was not available.
2. Non-members on reserve population are shown only for information. They have not been included in population data.

POPULATION PROJECTIONS
CHIPPEWAS OF GEORGINA ISLAND

		OPTION 1 On Reserve Only with Historical Growth Rate			OPTION 2 On Reserve Only with Recent Historical Growth Rate			OPTION 3 Total First Nation Population
	GROWTH RATE	1.41%			1.96%			2.36%
	YEAR	POPULATION	NON-MEMBER RESIDENTS	TOTAL	POPULATION	NON-MEMBER RESIDENTS	TOTAL	POPULATION
	2007	190		190	190		190	688
0	2008	193	25	218	194	25	219	705
1	2009	196	25	221	198	25	223	722
2	2010	199	25	224	202	25	227	740
3	2011	202	25	227	206	25	231	758
4	2012	205	25	230	211	25	236	776
5	2013	208	25	233	216	25	241	795
6	2014	211	25	236	221	25	246	814
7	2015	214	25	239	226	25	251	834
8	2016	218	25	243	231	25	256	854
9	2017	222	25	247	236	25	261	875
10	2018	226	25	251	241	25	266	896
11	2019	230	25	255	246	25	271	918
12	2020	234	25	259	251	25	276	940
13	2021	238	25	263	256	25	281	963
14	2022	242	25	267	262	25	287	986
15	2023	246	25	271	268	25	293	1010
16	2024	250	25	275	274	25	299	1034
17	2025	254	25	279	280	25	305	1059
18	2026	258	25	283	286	25	311	1084
19	2027	262	25	287	292	25	317	1110
20	2028	266	25	291	298	25	323	1137
21	2029	270	25	295	304	25	329	1164
22	2030	274	25	299	310	25	335	1192
23	2031	278	25	303	317	25	342	1221
24	2032	282	25	307	324	25	349	1250
25	2033	286	25	311	331	25	356	1280
26	2034	291	25	316	338	25	363	1311
27	2035	296	25	321	345	25	370	1342
28	2036	301	25	326	352	25	377	1374
29	2037	306	25	331	359	25	384	1407
30	2038	311	25	336	367	25	392	1441
31	2039	316	25	341	375	25	400	1476
32	2040	321	25	346	383	25	408	1511
33	2041	326	25	351	391	25	416	1547
34	2042	331	25	356	399	25	424	1584
35	2043	336	25	361	407	25	432	1622
36	2044	341	25	366	415	25	440	1661
37	2045	346	25	371	424	25	449	1701
38	2046	351	25	376	433	25	458	1742
39	2047	356	25	381	442	25	467	1784
40	2048	362	25	387	451	25	476	1827
41	2049	368	25	393	460	25	485	1871
42	2050	374	25	399	470	25	495	1916
43	2051	380	25	405	480	25	505	1962
44	2052	386	25	411	490	25	515	2009
45	2053	392	25	417	500	25	525	2057
46	2054	398	25	423	510	25	535	2106
47	2055	404	25	429	520	25	545	2156
48	2056	410	25	435	531	25	556	2207
49	2057	416	25	441	542	25	567	2260
50	2058	422	25	447	553	25	578	2314

Notes:
Option 1 respresents the low growth rate characterized by the 40 year historical data from 1968, and allows for no returnees from off reserve.
Option 2 represents a medium growth rate, as characterized by the more recent historical data from 1992, and allows for no returnees from off reserve.
Option 3 represents the bandmembership increasing at the recent historical figure of 2.36%. This option would represent the maximum if all members returned to the reserve.

Non-members are considered in the Total Population Figures, but do not contribute to the growth of the population directly. More study would be required to comment accurately on their



"Sylvia" <smccue@georginaisland.com>

09/Jan/2008 09:18 AM

Please respond to "Sylvia" <smccue@georginaisland.com>

To "Cory Jones" <Cory.Jones@rjburnside.com>

cc

Subject Re: Updated Population data - Georgina Island First Nation

Dear Mr. Jones:

Please excuse the delay but could not be helped, here are the following stats:

2004 - Total Status: 660
180 On Reserve
480 Off Reserve
8 Other Band
24 Non Members

2005 - Total Status: 672
184 On Reserve
488 Off Reserve
5 Other Band
25 Non Members

2006 - Total Status 682
- 187 On Reserve
- 495 Off Reserve
- 5 Other Band
- 25 Non Members

2007 - Total Status 688
- 190 On
- 498 Off
- 5 Other Band
- 24 Non Members

----- Original Message -----
From: Cory Jones
To: smccue@georginaisland.com
Cc: mstiles@georginaisland.com
Sent: Thursday, December 20, 2007 12:02 PM
Subject: Updated Population data - Georgina Island First Nation

Hi Sylvia,

I'm just following up on a phone message I left for you earlier this morning.

We at Neegan Burnside are currently working with chief and council and the Fixed Link Committee on a pre-feasibility study for a fixed link for the island. Part of what we need to do at this stage is update the current population data we have. This will let us estimate future growth, as well as comment on current

NEEGAN BURNSIDE

Appendix H

Interest Rate Information – CP Indices

Bank of Canada Regular page >>

Monetary Policy

Data

Consumer Price Index, 1995 to present

22 June 2007: Please note that CPIW has been updated. The changes in the series are minor.

See also: Inflation Control-Target

	Total CPI		Core CPI (1)	Percentage change over 1 year ago (unadjusted)			
				Total CPI	Core CPI (1)	Alternative measures of trend inflation	
		(seas. adj.)				CPI-XFET (2)	CPIW (3)
November 2007	111.9	112.3	110.3	2.5	1.6	1.8	2.0
October 2007	111.6	111.9	110.3	2.4	1.8	1.9	2.1
September 2007	111.9	111.8	110.5	2.5	2.0	2.1	2.2
August 2007	111.7	111.5	110.1	1.7	2.2	2.2	2.1
July 2007	112.0	111.5	110.0	2.2	2.3	2.4	2.3
June 2007	111.9	111.6	109.9	2.2	2.5	2.7	1.8
May 2007	112.1	111.6	109.9	2.2	2.2	2.4	1.7
April 2007	111.6	111.3	109.6	2.2	2.5	2.5	2.0
March 2007	111.1	111.1	109.5	2.3	2.3	2.4	1.8
February 2007	110.2	110.6	109.1	2.0	2.3	2.4	1.8
January 2007	109.4	110.0	108.6	1.1	2.3	2.3	1.5
December 2006	109.4	109.7	108.4	1.7	2.1	2.1	1.5
November 2006	109.2	109.4	108.6	1.4	2.2	2.1	1.6
October 2006	109.0	109.0	108.4	1.0	2.4	2.4	1.4
September 2006	109.2	109.1	108.3	0.7	2.3	2.2	1.3
August 2006	109.8	109.4	107.7	2.1	2.0	2.0	1.5
July 2006	109.6	109.4	107.5	2.3	2.0	1.9	1.5
June 2006	109.5	109.4	107.2	2.4	1.7	1.4	1.8

May 2006	109.7	109.4	107.5	2.8	2.0	1.8	2.0
April 2006	109.2	109.1	106.9	2.4	1.6	1.7	1.7
March 2006	108.6	108.6	107.0	2.2	1.7	1.4	1.8
February 2006	108.0	108.3	106.6	2.2	1.7	1.3	1.8
January 2006	108.2	108.5	106.2	2.8	1.6	1.4	2.0
December 2005	107.6	108.0	106.2	2.1	1.5	1.3	1.7
November 2005	107.7	107.9	106.3	2.0	1.5	1.4	1.7
October 2005	107.9	107.9	105.9	2.6	1.7	1.4	1.9
September 2005	108.4	108.3	105.9	3.2	1.7	1.5	2.1
August 2005	107.5	107.4	105.6	2.6	1.7	1.5	1.9
July 2005	107.1	107.0	105.4	2.0	1.3	1.1	1.7
June 2005	106.9	106.7	105.4	1.7	1.5	1.4	1.6
May 2005	106.7	106.4	105.4	1.6	1.6	1.2	1.6
April 2005	106.6	106.5	105.2	2.4	1.6	1.1	1.8
March 2005	106.3	106.1	105.2	2.3	1.8	1.5	1.9
February 2005	105.7	105.8	104.8	2.1	1.7	1.4	1.7
January 2005	105.3	105.6	104.5	1.9	1.7	1.1	1.6
December 2004	105.4	105.8	104.6	2.1	1.8	1.3	1.7
November 2004	105.6	105.7	104.7	2.4	1.7	1.2	1.8
October 2004	105.2	105.2	104.1	2.3	1.4	0.9	1.7
September 2004	105.0	104.8	104.1	1.8	1.5	1.0	1.6
August 2004	104.8	104.7	103.8	1.8	1.6	1.0	1.7
July 2004	105.0	104.8	104.0	2.3	1.9	1.4	1.9
June 2004	105.1	104.8	103.8	2.5	1.7	1.3	1.8
May 2004	105.0	104.7	103.7	2.4	1.5	1.2	1.8
April 2004	104.1	104.0	103.5	1.7	1.8	1.2	1.8
March 2004	103.9	103.7	103.3	0.8	1.3	1.1	1.2
February 2004	103.5	103.7	103.0	0.7	1.2	1.0	1.2
January 2004	103.3	103.7	102.8	1.3	1.5	1.5	1.5
December 2003	103.2	103.6	102.8	2.1	2.1	1.6	2.1
November 2003	103.1	103.1	103.0	1.6	1.8	1.8	1.7
October 2003	102.8	102.9	102.7	1.6	1.8	1.8	1.7
September 2003	103.1	103.0	102.6	2.2	1.7	1.9	1.9

August 2003	102.9	102.8	102.2	2.0	1.5	1.7	1.7
July 2003	102.6	102.5	102.1	2.1	1.9	1.8	1.9
June 2003	102.5	102.3	102.1	2.6	2.1	2.1	2.0
May 2003	102.5	102.1	102.2	2.8	2.4	2.5	2.2
April 2003	102.4	102.3	101.7	2.9	2.1	2.7	2.1
March 2003	103.1	103.0	102.0	4.2	2.8	3.1	2.7
February 2003	102.8	102.9	101.8	4.7	3.0	3.3	2.9
January 2003	102.0	102.4	101.3	4.5	3.3	3.4	2.9
December 2002	101.1	101.5	100.7	3.8	2.8	3.3	2.4
November 2002	101.5	101.6	101.2	4.4	3.2	3.1	3.0
October 2002	101.2	101.3	100.9	3.2	2.5	2.5	2.4
September 2002	100.9	100.8	100.9	2.3	2.5	2.2	2.3
August 2002	100.9	100.7	100.7	2.5	2.4	2.3	2.3
July 2002	100.5	100.3	100.2	2.1	2.0	2.1	2.0
June 2002	99.9	99.6	100.0	1.2	2.1	2.1	1.9
May 2002	99.7	99.4	99.8	1.1	2.1	2.0	2.0
April 2002	99.5	99.5	99.6	1.7	2.3	1.9	2.1
March 2002	98.9	98.8	99.2	1.9	2.2	1.7	2.1
February 2002	98.2	98.4	98.8	1.4	2.3	1.4	2.1
January 2002	97.6	98.1	98.1	1.3	1.9	1.3	1.9
December 2001	97.4	97.7	98.0	0.7	1.7	1.2	1.6
November 2001	97.2	97.4	98.1	0.6	1.8	1.3	1.7
October 2001	98.1	98.1	98.4	1.9	2.2	1.8	2.1
September 2001	98.6	98.4	98.4	2.6	2.3	2.0	2.3
August 2001	98.4	98.2	98.3	2.8	2.4	2.0	2.3
July 2001	98.4	98.1	98.2	2.7	2.5	2.0	2.4
June 2001	98.7	98.4	97.9	3.4	2.2	1.8	2.4
May 2001	98.6	98.4	97.7	3.9	2.3	1.9	2.5
April 2001	97.8	97.8	97.4	3.5	2.2	1.9	2.3
March 2001	97.1	97.1	97.1	2.4	1.9	1.7	1.9
February 2001	96.8	96.9	96.6	2.9	1.7	2.0	1.9
January 2001	96.3	96.8	96.3	3.0	1.8	1.9	1.9
December 2000	96.7	97.0	96.4	3.2	1.7	1.9	2.0

November 2000	96.6	96.8	96.4	3.2	1.5	1.8	1.8
October 2000	96.3	96.3	96.3	2.8	1.3	1.5	1.6
September 2000	96.1	95.9	96.2	2.7	1.1	1.3	1.5
August 2000	95.7	95.5	96.0	2.6	1.2	1.5	1.6
July 2000	95.8	95.6	95.8	2.9	1.2	1.6	1.7
June 2000	95.5	95.3	95.8	2.8	1.3	1.5	1.6
May 2000	94.9	94.7	95.5	2.4	1.1	1.4	1.4
April 2000	94.5	94.4	95.3	2.2	1.2	1.3	1.3
March 2000	94.8	94.8	95.3	3.0	1.3	1.6	1.7
February 2000	94.1	94.3	95.0	2.7	1.3	1.6	1.6
January 2000	93.5	94.0	94.6	2.2	1.2	1.5	1.5
December 1999	93.7	94.0	94.8	2.6	1.4	1.7	1.7
November 1999	93.6	93.7	95.0	2.2	1.4	1.6	1.6
October 1999	93.7	93.6	95.1	2.3	1.5	1.6	1.7
September 1999	93.6	93.5	95.2	2.6	1.9	1.9	1.9
August 1999	93.3	93.2	94.9	2.1	1.6	1.5	1.6
July 1999	93.1	92.8	94.7	1.9	1.5	1.5	1.6
June 1999	92.9	92.6	94.6	1.6	1.5	1.6	1.5
May 1999	92.7	92.6	94.5	1.5	1.4	1.4	1.5
April 1999	92.5	92.5	94.2	1.6	1.3	1.4	1.5
March 1999	92.0	92.0	94.1	1.0	1.2	1.1	1.3
February 1999	91.6	91.8	93.8	0.7	1.0	0.9	1.1
January 1999	91.5	91.8	93.5	0.7	1.0	1.0	1.1
December 1998	91.3	91.6	93.5	1.0	1.3	1.3	1.3
November 1998	91.6	91.6	93.7	1.2	1.4	1.3	1.5
October 1998	91.6	91.6	93.7	1.1	1.3	1.3	1.3
September 1998	91.2	91.1	93.4	0.7	1.1	1.2	1.3
August 1998	91.4	91.3	93.4	0.9	1.2	1.3	1.3
July 1998	91.4	91.2	93.3	1.0	1.3	1.2	1.3
June 1998	91.4	91.2	93.2	1.0	1.2	0.9	1.3
May 1998	91.3	91.1	93.2	1.1	1.3	1.3	1.3
April 1998	91.0	91.0	93.0	0.9	1.2	1.1	1.2
March 1998	91.1	91.1	93.0	1.0	1.4	1.2	1.3

February 1998	91.0	91.1	92.9	1.0	1.5	1.4	1.4
January 1998	90.9	91.1	92.6	1.1	1.4	1.1	1.4
December 1997	90.4	90.6	92.3	0.8	1.3	0.8	1.1
November 1997	90.5	90.5	92.4	0.9	1.2	1.0	1.1
October 1997	90.6	90.6	92.5	1.5	1.9	1.6	1.5
September 1997	90.6	90.6	92.4	1.7	1.8	1.5	1.5
August 1997	90.6	90.6	92.3	1.8	2.0	1.5	1.7
July 1997	90.5	90.4	92.1	1.7	2.0	1.5	1.6
June 1997	90.5	90.3	92.1	1.7	2.2	2.1	1.8
May 1997	90.3	90.2	92.0	1.5	2.1	1.5	1.7
April 1997	90.2	90.2	91.9	1.7	2.2	1.8	1.8
March 1997	90.2	90.2	91.7	1.9	2.1	1.8	1.9
February 1997	90.1	90.1	91.5	2.3	1.9	1.6	1.8
January 1997	89.9	90.0	91.3	2.2	2.1	1.7	1.9
December 1996	89.7	89.9	91.1	2.2	2.1	1.8	1.9
November 1996	89.7	89.7	91.3	1.9	1.9	1.4	1.7
October 1996	89.3	89.4	90.8	1.8	1.7	1.3	1.6
September 1996	89.1	89.1	90.8	1.5	1.7	1.2	1.4
August 1996	89.0	89.0	90.5	1.5	1.7	1.3	1.3
July 1996	89.0	88.9	90.3	1.3	1.7	1.4	1.3
June 1996	89.0	88.9	90.1	1.5	1.7	1.3	1.4
May 1996	89.0	88.9	90.1	1.5	1.7	1.6	1.4
April 1996	88.7	88.7	89.9	1.4	1.6	1.6	1.3
March 1996	88.5	88.5	89.8	1.5	1.6	1.5	1.3
February 1996	88.1	88.1	89.8	1.3	1.7	1.5	1.3
January 1996	88.0	88.0	89.4	1.6	1.7	1.6	1.4
December 1995	87.8	87.9	89.2	1.7	1.8	1.7	1.5
November 1995	88.0	87.9	89.6	2.1	2.4	2.3	1.9
October 1995	87.7	87.8	89.3	2.3	2.4	2.5	2.1
September 1995	87.8	87.8	89.3	2.2	2.4	2.5	2.0
August 1995	87.7	87.7	89.0	2.2	2.5	2.6	2.1
July 1995	87.9	87.8	88.8	2.6	2.4	2.5	2.1
June 1995	87.7	87.7	88.6	2.7	2.3	2.4	2.1

May 1995	87.7	87.7	88.6	2.9	2.4	2.5	2.2
April 1995	87.5	87.4	88.5	2.5	2.1	2.1	1.9
March 1995	87.2	87.2	88.4	2.1	2.1	2.1	1.8
February 1995	87.0	87.0	88.3	1.9	2.0	1.8	1.6
January 1995	86.6	86.6	87.9	0.6	2.0	2.2	1.7

1. Core CPI: The CPI excluding eight of the most volatile components (fruit, vegetables, gasoline, fuel oil, natural gas, mortgage interest, inter-city transportation and tobacco products) as well as the effect of changes in indirect taxes on the remaining components. CANSIM identifier for this series is V41693242.

2. CPI-XFET: The CPI excluding food, energy and the effect of changes in indirect taxes.

3. CPIW: In this measure, each component of the total CPI is multiplied by an additional weight that is inversely proportional to the component's volatility, so that the more volatile the component the less it influences the overall index.

Commodity Price Index 1982-90=100 (U.S. dollars)
Indice des prix des produits de base (dollars É.-U.); 1982-1990#100

	Total *Total*	Excluding Energy *Énergie exclue*	Energy *Énergie*	Food *Alimen-tation*	Industrial Materials *Matières industrielles*
1995	106.17	125.21	70.62	108.08	132.17
1996	110.25	123.74	85.05	119.36	125.52
1997	106.22	118.44	83.39	106.71	123.20
1998	89.97	103.57	64.58	92.68	108.00
1999	96.02	105.17	78.94	88.28	112.03
2000	113.71	108.80	122.87	93.95	114.84
2001	107.85	101.34	118.83	96.31	103.86
2002	101.45	94.69	112.50	94.55	95.13
2003	121.82	103.00	153.38	101.76	103.94
2004	146.82	125.02	183.32	114.76	129.93
2005	180.70	129.90	266.53	116.25	136.28
2006	193.16	153.44	260.04	119.30	168.71
2007	208.75	168.58	276.31	138.29	182.26

Appendix M Fixed Link Socio-Economic Study



C·I·P·S
Cambium Indigenous Professional Services

Fixed Link Socio-Economic Study

2022-03-01
Reference No.: 17-1019-001

Prepared for:

Chippewas of Georgina Island First Nation

Our Spirit is **What Sets Us Apart**

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1.0 INTRODUCTION

1.1 THE CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

The Chippewas of Georgina Island First Nation is located both on and off the east shore of Lake Simcoe and is approximately 100 km north of the Greater Toronto Area (GTA). Georgina Island First Nation Reserve No.33 consists of four separate land masses. There are three separate islands (Georgina Island, Snake Island, and Fox Island) and a small acreage located at Island Grove on the mainland. The primary community centre is located on Georgina Island lies approximately 3 km off the southern shore of Lake Simcoe.

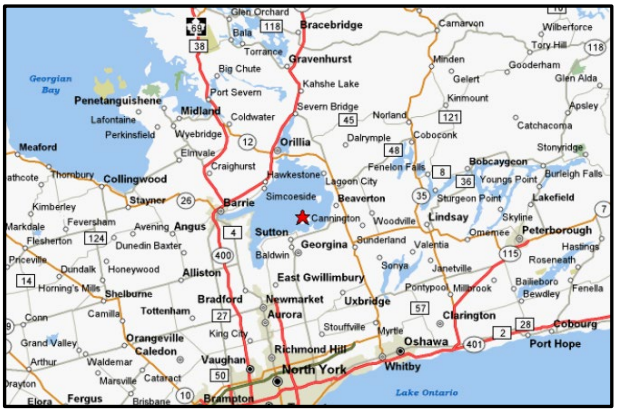


Figure 1 - Central Ontario

1.2 THE FIXED LINK PROJECT

The majority of the population of the First Nation resides on the largest Island, Georgina Island. Georgina Island is only accessible by the Aazhaawe Ferry during the spring, summer and autumn months of the year and by airboat or ice road during the winter months. GIFN is proposing to build the Georgina Island Fixed Link (Fixed Link), a combination of bridge and causeway, that will connect the First Nation's reserve on Georgina Island to its lands on the mainland.

The Aazhaawe Ferry's operational life cycle is coming to an end and the reliance on ferry service has caused significant health and safety issues for the GIFN community. This project will eliminate the need for risky crossings for community members and provide safe, reliable Island accessibility across all seasons and all-weather conditions. This legacy project will position the community to protect the environmental, cultural, social and economic future of the community for the next Seven Generations. The Georgina Island Fixed Link presents an opportunity for investment in a safer, more dependable, and cost-effective transportation alternative to allow continuous access for both pedestrians and vehicles to cross Lake Simcoe from Georgina Island to the mainland.

A study completed in 2008 by Neegan Burnside demonstrated the potential costs and detailed some options for a fixed link. This was a surface look at the opportunity and did not fully explore the implications of a fixed link to Georgina Island. Since 2008, two key considerations make this the right time for the community to fully establish a plan for a fixed link for the community. The community currently has the financial means to undertake the project and the community members have instructed leadership to formalize the communities' desire to establish a fixed link. With financial and community support for the project, the Chippewas of

Georgina Island are prepared to move forward to fully understand the scope and implications of an infrastructure project of this magnitude. Figure 2 provides a timeline of key project benchmarks for the Fixed Link Project.

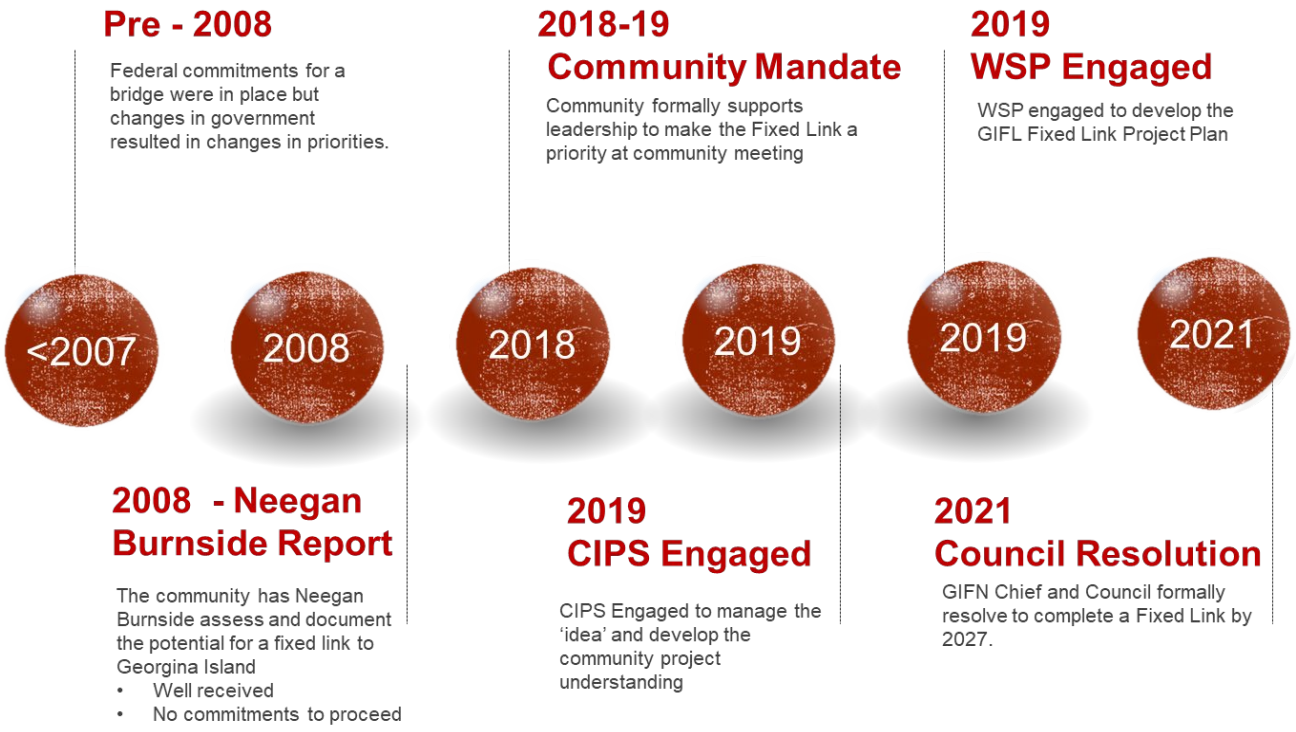


Figure 2 – *Fixed Link Decision Benchmarks*

This study examines the socio-economic considerations of the Fixed Link. This portion of the project is one component piece required by the community in their Fixed Link Project Plan process.

2.0 ABOUT GEORGINA ISLAND FIRST NATION

It is apparent that the Georgina Island First Nation has the potential for economic growth due to its geographic location in the province. An evaluation of the First Nation is required to determine the areas where the First Nation can capitalize on opportunities.

The First Nation is governed by an elected band council, consisting of one chief and four councillors. There is an administration building, a health centre, a police station, a fire hall, and a community centre. As well, the Island children attend a two-classroom school until Grade 5, and there is a daycare for infants and toddlers. A church, the community centre and an outdoor rink provide opportunities for the community to gather for various events.

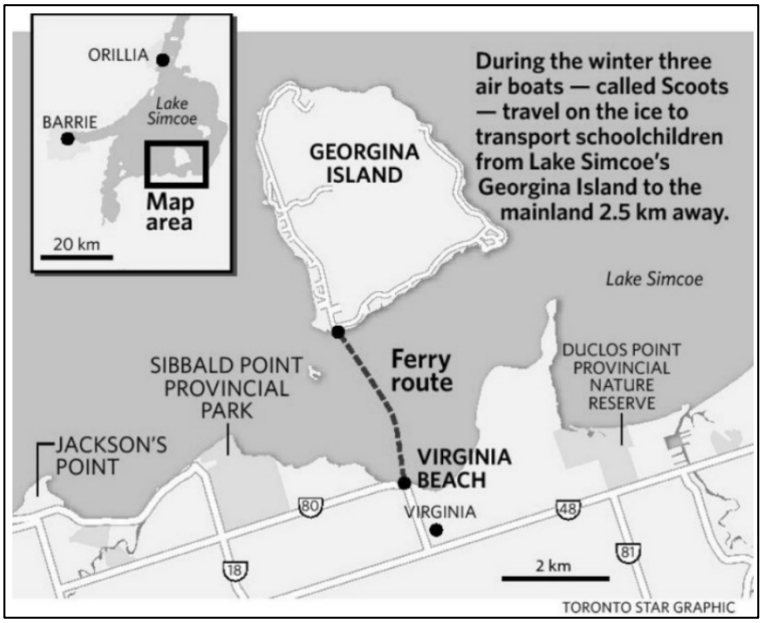


Figure 3 - Georgina Island

The community buildings and most residential structures are centralized on the eastern and western shores providing their membership with easier access to local services. The First Nation has beautiful, undeveloped Lake Simcoe shoreline and has excellent highway proximity to Highway #12 and Highway #48 leading directly from the GTA to the northern cottage regions. Georgina Island is only accessible by the Aazhaawe Ferry during the spring, summer, and autumn months of the year and by scoot or ice road during the winter months. The ferry can carry up to 18 cars and there is comfortable cabin space for 50 walk-on passengers.

2.1 REGISTERED MEMBERSHIP POPULATION

The main population of the reserve reside on the largest Island, Georgina Island. As of 2019, 179 of 618 band members permanently reside on the Island's land mass of approximately 15 km^2, which is 4.5 km long and 3.2 km wide with an area of 1,416 hectares (3,499 acres). The community's registered membership demographics are provided in Table 1, as of 2019.

2.2 GEORGINA ISLAND FIRST NATION DEMOGRAPHICS[1]

DATA LIMITATIONS

As a First Nation community, Georgina Island First Nation members are generally reluctant to participate in federal census activities. The result is that marginalized, lower income, youth and those who believe in a strained federal government/First Nation relationship are often under-represented in statistical data provided by census-based sources.

POPULATION

As of 2016, Georgina Island has a total population of 261 people. Overall, the population is declining at a rate of 0.3% per year over the past 15 years from 2001 to 2016. In the last two censuses, its populations declined by 14 people, an average decline rate of 1% per year from 2011 to 2016. First Nations or persons with Registered or Treaty Indian status make up 84% of the total population.

Residency of Registered Member	Number
Registered Males On Own Reserve	96
Registered Females On Own Reserve	111
Registered Males On Other Reserves	1
Registered Females On Other Reserves	0
Registered Males On Own Crown Land	0
Registered Females On Own Crown Land	0
Registered Males On Other Band Crown Land	0
Registered Females On Other Band Crown Land	0
Registered Males On No Band Crown Land	0
Registered Females On No Band Crown Land	0
Registered Males Off Reserve	341
Registered Females Off Reserve	362
Total Registered Population	**911**

Table 1 - Registered Membership Population (2019)

AGE

Georgina Island has a median age of 41 years old. The largest population is the age group between 55 and 59 years old, and the least populated age group is 85+ years old. 66% of the population are in the working age group between 15 to 64 years old, while 25.7% make up the younger population which will be a part of labour force in less than two decades.

GENDER

The most recent census did not provide gender statistics for Georgina Island, but as of the 2019 registered membership, 42% of people were registered female members living within Georgina Island, and 37% of people were registered males also living within the community.

[1] *https://townfolio.co/on/chippewas-of-georgina-island-first-nation/demographics*

HOUSEHOLD INCOME

Georgina Island First Nation members have, in general income levels that exceed the federally determined low-income cut-off. GIFN members are also reported to earn more than the 2016 national median income of $44,160 per year. Although income levels are considered positive, engagements and key person interviews indicate that disposable income is often much less. The Health Impact Assessment prepared by Intrinsik in 2021 indicated the need for multiple vehicles and additional costs of the ferry and transportation as a contributor to health stressors within the community.[2]

EMPLOYMENT

In the last two censuses, Georgina Island First Nation employment rates grew by 8.4%, an average growth rate of 1.7% per year from 2011 to 2016. A growing employment rate reflects positive economic conditions in the community and implies that people looking for a job are getting matched to an employer.

Overall, the participation rate in Georgina Island is growing at a rate of 1% per year over the past 5 years from 2011 to 2016. In the last two census, its participation rates grew by 5.2%, an average growth rate of 1% per year from 2011 to 2016. An increase in participation rate means that higher proportions of people residing in the community are involved in the labour force and contributing to the community's economy. A breakdown of the labour force is available in Figure 4.[3]

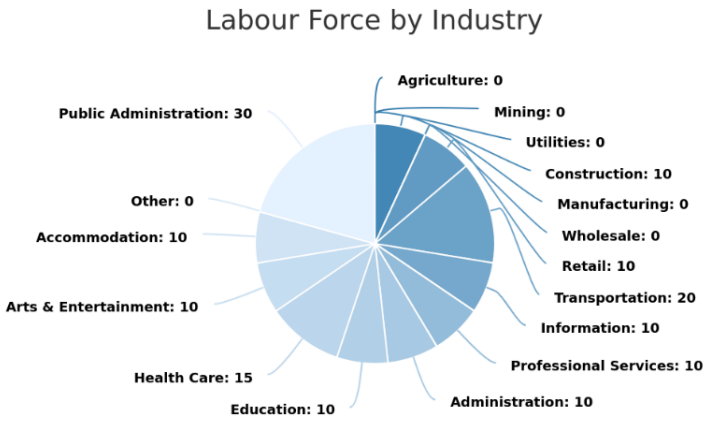


Figure 4 - Labour Force by Industry (2016)

2.3 COST OF LIVING

Cost of living for residents of Georgina Island is higher than Ontario averages. Ontario is Canada's largest province and is one of the most expensive provinces on a cost basis. This is partially explained by the province

[2] *GIFN Transportation Health Impact Assessment, Intrinsik, 2021*
[3] *https://townfolio.co/on/chippewas-of-georgina-island-first-nation/labour-force*

having some of the highest housing costs in Canada, especially around the Greater Toronto Area (GTA), where 48% of Ontarians call home.[4]

ELECTRICITY

With 84% of residents being First Nations, costs associated with delivery for electricity are not incurred due to the On Reserve First Nations Delivery Credit from Hydro One, implemented July 1, 2017, resulting in a lower average monthly electricity bill. However, the Ontario Fair Hydro Plan was only promised for four (4) years, and the future of electricity pricing is unknown. As per the updated Community Energy Plan (CEP) for Georgina Island (2018), electricity is the most common energy type for space-heating used year-round in residential and seasonal residential sectors.[5]

PROPANE

Propane is the second most common energy type used for space heating in both the year-round residential and seasonal residential sectors. Propane is supplied the community by Budget and Superior Propane and delays due to freezing and thawing seasons on Lake Simcoe do occur for the community so propane must be pre-ordered at times during the year, compounding costs for residents.[5]

INTERNET

Internet in the community is provided by Xplornet and Bell Communications. Internet connectivity has been historically poor, but a new connection in 2021 has improved access to community buildings. Many individual households' connections are established wirelessly. Costs associated with internet would be consistent with other local municipalities. As Internet access improves across households, the quality of Internet who must work from home or within band facilities will improve.[6]

HOUSING

From the 2016 census, 91% of families owned their homes, with the remaining 9% renting their home. Housing prices on First Nations have been historically lower due to standards set by the First Nation itself to ensure homes are affordable for members, or due to the value placed on dwellings that reside on leased lands. This may differ to some degree for cottages located on lakefront. Costs associated with renting on a First Nation have also remained lower than regional averages due to a decreased access to services that are available outside of communities. It can be expected that costs associated with housing/ renting would be lower than regional averages.

[4] *https://wowa.ca/cost-of-living-canada#toronto*
[5] *GIFN Update to Community Energy Plan – 2019 – Cambium Aboriginal Inc.*
[6] *https://www.yorkregion.com/news-story/10301954-georgina-gets-connected-high-speed-internet-coming-soon/*

FOOD AND ESSENTIALS

Food costs for residents of Georgina Island can be expected to be higher than mainland residents due to the added element of transportation. Georgina Island does not currently have any grocery or convenience stores available, and residents must travel to nearby centres to shop for essentials.

TRANSPORTATION

Transportation costs in Ontario are also some of the highest in Canada, with car ownership and associated insurance premiums being high as well. Many Georgina Island residents must travel by vehicle to the mainland for education, employment, essential services, social and recreation activities. Residents of the community must also carry comprehensive insurance for their personal vehicles, for the purposes of crossing an ice-road, resulting in higher-than-average premiums. From the updated CEP, 80% of transportation energy use between 2014-2017, was by the residential and seasonal residential sectors.[7]

CHILDCARE

Childcare provided by Niigaan-Naabiwag Child Care Centre, for members of Georgina Island is subsidized by the federal government, but for the purposes of cost of living, it has been included. Members who reside outside the community but wish to take advantage of subsidized childcare must transport their children to the facility within the community, thus incurring additional risks/costs of transportation, and ferry wait times.

SUMMARY

The cost of living on Georgina Island is higher than local and regional averages. Higher costs of living due to the nuances of 'island life' would be mitigated (close to resolved) significantly by the construction of a fixed link.

2.4 PAST AND CURRENT BUSINESSES

Community and membership have tried many ventures over the past 10 years. Some were an attempt to reach the tourism market, some were designed to reach an external goods and services market. At the present time, there are very few ventures operating as full-time. This limited economy is the direct result of the community's island location.

Table 2 illustrates the operations that are either operational today or were established and closed, and the type of ownership structure in place.

[7] *GIFN Update to Community Energy Plan – 2019 – Cambium Aboriginal Inc.*

GIFN Ventures Past and Present			
Business Name	**Service**	**Still Operational?**	**Ownership**
Neezh Meegwunun Family Campground	Camping	Y	Privately owned
Island B&B	Weekly cottage rental	Y	Privately owned
Big Canoe Cabin Rentals	Angler accommodation	Y	Privately owned
Other Private Cottages	Weekly and seasonal cottage rentals	Y	Privately owned
Island Crafts	Small craft store	N	Privately owned
Island Arcade	Light fare and convenience items	N	Privately owned
Island on the Lake Horse Trail Rides	Horse back riding	N	Privately owned
Virginia Beach Marina	Marina, Restaurant, Fuel Boat Storage and Repair	Y	FN owned
Georgina Island Tourism Company	Nanabush Trails management, interpretive guides and maintenance	N	FN owned
Aazhaawe Ferry Service	Car and person ferry	Y	First Nation owned
Island View Business Centre	Small Business Centre (mainland)	Y	FN owned
Tobacco Trails	Cigarettes and Lottery (mainland)	Y	FN Owned
Daawegamig	Cannabis Products (mainland)	Y	FN Owned

Table 2 - GIFN Businesses

2.5 FIRST NATION ORGANIZATION

The most recent organizational chart (2017) is provided in Figure 5.

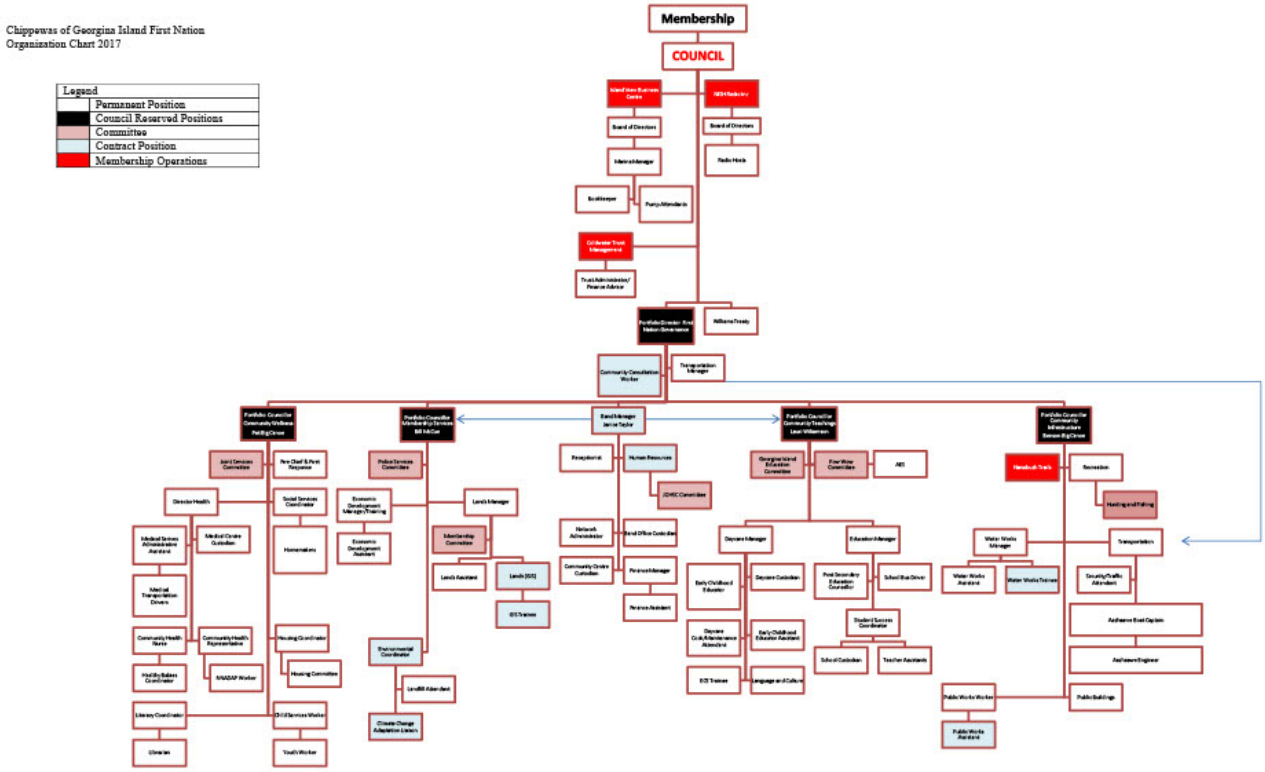


Figure 5 - Georgina Island First Nation Organizational Chart (2017)

2.6 COMMUNITY SWOT ANALYSIS

The results of a community engagement session determined the strengths, weaknesses, opportunities, and threats reveals the following for the First Nation (without a fixed link):

2.6.1 *GEORGINA ISLAND STRENGTHS*

- Extensive land base with shore access to Lake Simcoe and lake access to Lake Couchiching;
- Centrally located within the Lake Simcoe Region which boasts an already established and renowned tourism infrastructure.
- Surrounded by a local population in excess of 5 million (1.5 hours drive radius);
- Located on the Trent Severn Waterway which is travelled by thousands of boaters every year;

- Located on world famous Lake Simcoe waters for anglers wishing to fish year-round for perch, walleye, whitefish, lake trout, pike, muskie and bass;
- Centrally located to over 280 resorts, bed and breakfasts, farming accommodations and campgrounds.
- Within a ten-minute drive to Sibbald Point Provincial Park, one of the most popular parks in Ontario (70,000 people per year).
- Market is centrally located in a highly populated and developed part of the country.
- Access to markets is relatively easy given the highly organized tourism industry and current infrastructure in place.
- The Island community provides the opportunity for a rare transportation experience in Ontario (car, ferry / boat, All Terrain Utility Vehicle, walking etc.).
- The Island community offers an element of isolation over other tourism products offered in the area.
- The rich culture provides another unique element currently not satisfied in the southern Ontario marketplace.
- First Nation is within an hour drive of the GTA - Simcoe County's top market.
- First Nation is centrally located within prime cottage country.
- First Nation is within the proximity of numerous seasonal activities, and tourism attractions.
- First Nation has developed and launched a premier internet website www.georginaisland.com;
- Commercial presence in the community has a strong and consistent theme.
- Current tourist impression is favourable.
- Local tourism infrastructure is in place now and fully operational.
- Private tourism industry is now in the development stages (business development); and
- Both the community and its membership have good access to capital.

GEORGINA ISLAND WEAKNESSES

- Local waterfront is not fully developed.
- Local market base is very small.
- During the shoulder seasons, island access is poor and not appealing to most tourists. Therefore, shoulder seasons are a very low activity period for existing businesses.
- Many tourists will not travel an ice road in winter.
- There are only 100 accommodation spaces available at peak times and less during shoulder and winter seasons.
- There are only four accommodation alternatives for potential visitors.
- There are no formal eating establishments available for dining.
- Local tourism businesses have difficulty making initial contact with tourists to attract them to their businesses due to the location of the community.

OPPORTUNITIES FOR GEORGINA ISLAND

- The community has a good mix of complimentary support businesses which provides for a more "market sharing" operating environment. Duplication of services and products is extremely low;
- Support businesses to have the opportunity to ride the marketing "coat tails" of the community's Tourism Company. Therefore, entrepreneurs can place more emphasis on advertising locally to attract the tourist to their businesses.

- The level of First Nation commercial regulation is low; and
- Proximity to the GTA provides a world class market opportunity for many ventures.

THREATS TO GEORGINA ISLAND FIRST NATION

- Overbearing and uncontrolled tourists will be opposed by local community members.
- Overuse of existing land base.
- Overuse of ferry system may create a reaction by local community members.

SUMMARY

A wide range of research and statistics have been compiled to determine whether there is a market opportunity for Georgina Island First Nation. Upon review of the information, there is a definite market opportunity for a community. Many weaknesses and threats can be reduced or removed through the construction of a fixed link. The Georgina Island First Nation offers a prime location to offer venues that are:

- Sufficiently removed from the fast-paced world of concrete and day to day life demands.
- Sufficiently located within a region where travel is fostered, and visitors are welcome.
- Sufficiently located within excellent proximity to a major market.
- Suitable to provide most of the population with a marketable experience in a number of areas including wildlife viewing, aboriginal culture, plant life, water activities, hiking and guiding.

3.0 THE REGIONAL UNTAPPED MARKET

The Chippewas of Georgina Island First Nation are within one of the most prosperous demographic markets in Canada. This market includes the following Ontario counties, districts, regions, or single-tier municipalities within 100 km:

- Durham Region
- City of Kawartha Lakes
- Peel Region
- Peterborough County
- Muskoka Region
- Simcoe County
- Toronto Region
- York Region

The reliance on a ferry boat to reach the mainland creates limited access to this market. Travel delays, inconsistent travel and other barriers that are apparent result in new entrepreneurs unable to access the direct, non-substantial market of the Island community.

As of the 2016 census, the total populations of counties, districts, regions or single-tier municipalities located within 25km of Georgina Island is more than 2.3 million people, and within 50 km of the community was nearing 2.5 million people, with Muskoka Region included. The total population of counties, districts, regions or single-tier municipalities located within 100 km of Georgina Island is very substantial, and growing area (over 6.5 million

people) and includes the Greater Toronto Area and most of the Golden Horseshoe population. It is understood that portions of these district municipalities or regions may extend beyond 100km, but for the purposes of this report, they have been included in their entirety. Table 3 outlines the populations, on a regional basis.

Population of County/Districts/Municipalities Near GIFN (Census 2016)				
County/District/Municipality /Region	**Within 25km** Durham Region City of Kawartha Lakes Simcoe County York Region	**Within 50km** Durham Region City of Kawartha Lakes Muskoka Region Simcoe County York Region	**Within 100km** Durham Region City of Kawartha Lakes Peel Region Peterborough County Simcoe County Toronto Region York Region	**Ontario**
Total Population	**2,310,844**	**2,371,403**	**6,622,949**	**13,448,494**

Table 3 - Regional Population

3.1 REGIONAL POPULATION[8]

DURHAM REGION

As of 2016, Durham region has a population of 645,862 people. Overall, the population of Durham region is growing at a rate of 1.8% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 37,738 people, an average growth rate of 1.2% per year from 2011 to 2016.

CITY OF KAWARTHA LAKES

As of 2016, The City of Kawartha Lakes (CKL) has a population of 75,423 people. Overall, the population of CKL is growing at a rate of 0.6% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 2,204 people, an average growth rate of 0.6% per year from 2011 to 2016.

[8] *https://townfolio.co/find-community-data?keyword=*

MUSKOKA REGION

As of 2016, Muskoka has a population of 60,599 people. Overall, the population of Muskoka is growing at a rate of 0.9% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 2,552 people, an average growth rate of 0.9% per year from 2011 to 2016.

PEEL REGION

As of 2016, Peel region has a population of 1,381,739 people. Overall, the population of Peel region is growing at a rate of 2.6% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 84,925 people, an average growth rate of 1.3% per year from 2011 to 2016.

PETERBOROUGH COUNTY

As of 2016, Peterborough County has a population of 138,236 people. Overall, the population of Peterborough County is growing at a rate of 6.2% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 3,308 people, an average growth rate of 0.5% per year from 2011 to 2016.

SIMCOE COUNTY

As of 2016, Simcoe County has a population of 479,650 people. Overall, the population of Simcoe County is growing at a rate of 1.8% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 33,587 people, an average growth rate of 1.5% per year from 2011 to 2016.

TORONTO REGION

As of 2016, Toronto region has a population of 2,731,571 people. Overall, the population of Toronto region is growing at a rate of 0.7% per year over the past 15 years from 2001 to 2016. In the last two census, its populations grew by 116,511 people, an average growth rate of 0.9% per year from 2011 to 2016.

YORK REGION

As of 2016, York region has a population of 1,109,909 people. Overall, the population of York region is growing at a rate of 1.5% per year over the past 5 years from 2011 to 2016. In the last two census, its populations grew by 77,385 people, an average growth rate of 1.5% per year from 2011 to 2016.

SUMMARY

The populations for district municipalities/regions above can be observed to be increasing from 2011 to 2016 at an average rate of 1.0%. With Simcoe County, York and Peel Regions having the largest increases at 1.5%, 1.5% and 1.3% respectively.

3.2 GENDER AND AGE[9]

DURHAM REGION

As of the 2016 Census, overall, women outnumber men by 16,515 people. The 20 to 24 years old age cohort exhibits the largest discrepancy with a difference of 1,430 people between the sexes. Furthermore, majority of the population is between the ages 50 to 54 years old, comprising 8.5% of the population.

The largest population of Durham is the age group between 50 and 54 years old, and the least populated age group is 85+ years old. 67.6% of the population are in the working age group between 15 to 64 years old, while 26.6% make up the younger population which will be a part of labour force in less than 2 decades.

CITY OF KAWARTHA LAKES

As of the 2016 Census Overall, women outnumber men by 855 people. The 20 to 24 years old age cohort exhibits the largest discrepancy with a difference of 190 people between the sexes. Furthermore, majority of the population is between the ages 55 to 59 years old, comprising 9.1% of the population.

The largest population of CKL is the age group between 55 and 59 years old, and the least populated age group is between 80 and 84 years old. 61.6% of the population are in the working age group between 15 to 64 years old, while 21.3% make up the younger population which will be a part of labour force in less than 2 decades.

MUSKOKA REGION

As of 2016, overall, women outnumber men by 165 people. The 20 to 24 years old age cohort exhibits the largest discrepancy with a difference of 230 people between the sexes. Furthermore, majority of the population is between the ages 55 to 59 years old, comprising 9.1% of the population.

The largest population of Muskoka is the age group between 55 and 59 years old, and the least populated age group is between 80 and 84 years old. 61.9% of the population are in the working age group between 15 to 64 years old, while 20.3% make up the younger population which will be a part of labour force in less than 2 decades.

PEEL REGION

As of 2016, overall, women outnumber men by 24,340 people. The 15 to 19 years old age cohort exhibits the largest discrepancy with a difference of 4,470 people between the sexes. Furthermore, majority of the population is between the ages 50 to 54 years old, comprising 7.8% of the population.

[9] *https://townfolio.co/find-community-data?keyword=*

The largest population of Peel region is the age group between 50 and 54 years old, and the least populated age group is 85+ years old. 68.9%% of the population are in the working age group between 15 to 64 years old, while 26.6% make up the younger population which will be a part of labour force in less than 2 decades.

PETERBOROUGH COUNTY

As of 2016, overall, women outnumber men by 4,695 people. The 0 to 4 years old age cohort exhibits the largest discrepancy with a difference of 245 people between the sexes. Furthermore, majority of the population is between the ages 55 to 59 years old, comprising 8.2% of the population.

The largest population of Peterborough County is the age group between 55 and 59 years old, and the least populated age group is between 80 and 84 years old. 62.8% of the population are in the working age group between 15 to 64 years old, while 22.9% make up the younger population which will be a part of labour force in less than 2 decades.

SIMCOE COUNTY

As of 2016, overall, women outnumber men by 8,045 people. The 20 to 24 years old age cohort exhibits the largest discrepancy with a difference of 1,415 people between the sexes. Furthermore, majority of the population is between the ages 50 to 54 years old, comprising 8.33 per cent of the population.

The largest population of Simcoe County is the age group between 50 and 54 years old, and the least populated age group is 85+ years old. 65.5% of the population are in the working age group between 15 to 64 years old, while 25.2% make up the younger population which will be a part of labour force in less than 2 decades.

TORONTO REGION

As of 2016, overall, women outnumber men by 104,420 people. The 0 to 4 years old age cohort exhibits the largest discrepancy with a difference of 3,790 people between the sexes. Furthermore, majority of the population is between the ages 25 to 29 years old, comprising 8.5% of the population.

The largest population of Toronto region is the age group between 25 and 29 years old, and the least populated age group is between 80 and 84 years old. 69.8% of the population are in the working age group between 15 to 64 years old, while 20.9% make up the younger population which will be a part of labour force in less than 2 decades.

YORK REGION

As of 2016, overall, women outnumber men by 28,395 people. The 20 to 24 years old age cohort exhibits the largest discrepancy with a difference of 2,970 people between the sexes. Furthermore, majority of the population is between the ages 50 to 54 years old, comprising 8.31 per cent of the population.

The largest population of York region is the age group between 50 and 54 years old, and the least populated age group is 85+ years old. 67.8% of the population are in the working age group between 15 to 64 years old, while 26% make up the younger population which will be a part of labour force in less than 2 decades.

The regional population is comprised of slightly more women (53%) than men (47%). In 2016, within a 25 km distance from Georgina Island 49% of the population were male and 51% were female. This discrepancy grows slightly as a greater area is evaluated. Within 100 km of Georgina Island, 52% of the population was female.

SUMMARY

The regional age distribution illustrates that 67-68% of the local population is between the ages of 15-64. Overall, in all areas of age distribution, there is a substantial market opportunity for each group. Given the size of the Island and the small amount of potential space for visitors, opportunities that are developed for any age category will generally carry a market size that will warrant investments. Table 4 illustrates the age distribution.

Population Age Distribution by Geographic Distance 2016 Census								
Population	Within 25km		Within 50km		Within 100km		Ontario	
	Total	%	Total	%	Total	%	Total	%
0-14	400,760	17.3	408,380	17.2	1,079,935	16.3	2,207,975	16.8
15-64	1,550,090	67.1	1,587,625	67.0	4,532,310	68.4	8,988,870	68.4
65 <	359,995	15.6	375,435	15.8	1,010,750	15.3	1,950,585	14.8

Table 4 - Regional Population Distribution

3.3 HOUSEHOLDS AND INCOME

Within the primary market (25km), there are over 840,000 households and this number increases dramatically to over 2.5 million households for districts/municipalities included in the range of 100km, half of all Ontario dwellings. Table 5 shows households within market reach.

The average income per household within the local region is moderately higher than the Ontario average. Within Ontario, the average household income is almost $75,000. Within the primary market area (25km), the average

family income is over $78,000. This difference is notable when assessing household purchasing power- an examination of the households within 100km also show an income larger than the Ontario average. The difference is less significant, however, and over the next five years is expected remain in line with Ontario averages. In other words, the area currently showing the largest income growth is the group within the local market. Table 6 illustrates household median income.

Range	Total Dwellings (2016 Census)
Within 25km	848,857
Within 50km	895,064
Within 100km	2,588,590
Ontario	5,169,175

Table 5 - Regional Dwellings Totals

Range	Household Median Income (2016 Census)
Within 25km	$78,405
Within 50km	$75,979
Within 100km	$76,117
Ontario	$74,260

Table 6 - Regional Household Median Income

Along with having higher household incomes, a larger portion of households are in the top percentiles for income ranges. Approximately 67% of households within the local market (25km) have an income over $60,000 per year and has the lowest percentage of households earning below the poverty line (less than 5%). The more favourable

of the statistics is that throughout all households within the more regional markets, the largest earning groups are those that earn between $40k-$60k, $60k-80K and over $100k. Table 7 outlines these trends.

Household Income Distribution By Geographic Distance (2016 Census)				
Household Income	**Within 25km**	**Within 50km**	**Within 100km**	**Ontario**
Under $20k	**49,865**	**52,025**	**230,980**	**476,605**
$20k - $40k	**101,695**	**106,220**	**356,575**	**985,225**
$40k - $60k	**108,375**	**112,800**	**359,460**	**797,440**
$60k - $80k	**102,570**	**106,540**	**318,975**	**699,350**
$80k - $100k	**94,055**	**97,290**	**272,390**	**591,845**
Over $100k	**343,080**	**350,205**	**887,545**	**1,404,545**

Table 7 - Regional Household Income Distribution

It becomes quite evident as the research is gathered and assembled that the local area and the surrounding communities provides a significant market opportunity for the proposed ventures within the Georgina Island First Nation. Within the local market the key variables are:

i. there are over 800,000 households.

ii. the average household income within this area is $78,405.

iii. nearly 70% of the households have an income greater than $60,000 per year. Given these facts and understanding that the Georgina Island First Nation has limited access to these markets now, it is undeniable, that opening the community to this market base would be a real economic opportunity for the community and membership.

4.0 SOCIO-ECONOMICS BACKGROUNDER

Social economics (Socioeconomics) is a branch of economics that focuses on the relationship between social behavior and economics. It examines how social norms, ethics, emerging popular sentiments, and other social philosophies influence consumer behavior and shape public buying trends. It uses history, current events, politics, and other social sciences to predict potential results from changes to society or the economy.

For the purposes of this study, we will be focussing on the potential changes to the Georgina Island First Nation resulting from the construction of a Fixed Link. This report is the first phase of socioeconomic analysis intended to assist leadership in their pursuit of a Fixed Link.

At this time, the full economic impacts of construction are unknown, however construction and development costs are anticipated to be in excess of $225 Million.

4.1 UNDERSTANDING THE SOCIAL ECONOMICS OF INFRASTRUCTURE DEVELOPMENT

4.1.1 *WHAT IS A SOCIO-ECONOMIC IMPACT ASSESSMENT?*

Performing a socio-economic impact assessment is a way of setting out the various effects of a project in a clear and structured way. A socio-economic impact assessment weighs the socio-economic cost against the socio-economic benefit. As far as possible, the analysis includes the consequences for all participants in society and all kinds of impacts, for example:

i. Social impacts (health, recreation)
ii. Economic impacts (can include effects on employment)
iii. Environmental impacts (soil, air, and water quality)
iv. Cultural Impacts/Impacts to Indigenous Rights and Culture (access to traditional foods, medicines, traditional lands, and resource use)

The impacts should, if possible, be described in economic terms. Thus, a socio-economic impact assessment differs from, for example, an environmental impact assessment, which focuses on the environmental and health-related effects from a scientific perspective.

4.2 HOW IS ECONOMY AFFECTED BY LARGE INFRASTRUCTURE PROJECTS?

4.2.1 *THE POSITIVE ECONOMIC IMPACTS OF BRIDGES*

In an article published by Bridge Masters on Mar 16, 2018, entitled, *The Positive Economic Impact of Bridges*, they identified that economists have recognized three key things bridges do that propel economic activity.

i. Bridges are a critical component of infrastructure, making it possible to ship raw materials and finished goods to factories, warehouses, suppliers, distributors, stores, and end-consumers. Bridges also facilitate travel so consumers can purchase goods and services in their own communities and beyond. When a bridge closes (or doesn't exist), economic activity slows or grinds to a complete halt.

ii. Wages earned by bridge construction and maintenance workers have a positive economic impact when used to buy things at local businesses. An investment in wages, and the related consumer spending that results from bridge construction, is proven to pay off many times over.

iii. Bridges increase cash flow when they join two places that complement each other economically.

In addition to above, economic benefits of the bridge in comparison to a ferry/ice road include[10]:

i. Negating the need to operate the ferry, thus avoiding the on-going costs of operation. Those costs include the contract outlays for the ferry operation, equipment rentals, fuel and utilities expenses, and costs of staff positions. These costs also include provision for ferry refits and ancillary facilities and equipment.

ii. Allowing for disposition of the existing ferry and alternative use of other water crossing vehicles.

iii. Benefits attributable to commercial and non-commercial traffic include the value of time saved compared to the ferry and ice road.

iv. Regularizing of traffic movement to allow for local, regional, and provincial economic stimulation.

v. Immediate opportunity for local and regional public transit services into Georgina Island to further reduce costs associated with transportation.

4.2.2 *ECONOMIC IMPACT OF BRIDGE INFRASTRUCTURE*

Every four years, the American Society of Civil Engineers releases a Report Card for America's Infrastructure. It documents the condition and performance capabilities of all types of infrastructure across the United States, including bridges, roads, highways, utilities, schools, municipal buildings, and more. The report takes the form of a

[10] *https://reviewboard.ca/upload/project_document/EA03-008_Appendix_12_-_Nichols_Benefit-Cost_Analysis__Feb_2003.pdf*

school report card. Each infrastructure category gets its own letter grade, and the overall network receives a score as well. The report also provides information on how the evaluators arrived at the grades.

The latest infrastructure report was released in 2017, and the grade for all types of infrastructure was a shockingly low D+. It came as a surprise to many that the nation's bridges received a somewhat more respectable grade of C+. Why the higher score? The primary reason cited is the recognition that bridges are a critical component of national and local economies, especially when compared with things like municipal buildings and schools.

In addition, unsafe (or questionable) transportation routes often result in higher insurance premiums and expose municipalities to the risk of costly lawsuits resulting from accidents and injuries. This is another key driver of spending on bridge construction and maintenance.

4.2.3 *ECONOMIC IMPACT OF BRIDGE WORKER WAGES*

Another monetary benefit generated by bridge development and maintenance projects is the impact of government spend on worker salaries and the use of these wages to purchase goods and services. Cash spent by workers doesn't just pay off once. It does so repeatedly.

Here is a simple explanation of how this multiplier works:

i. A government entity or agency (or public-private partnership) commits to funding a bridge construction, repair, or maintenance project.

ii. They contract the project work to a private firm.

iii. The firm uses a significant percentage of the government money (or money generated through a public-private partnership) to hire people to work on the project.

iv. The workers spend a significant percentage of the money they receive in wages on goods and services, with most of the money going to local businesses.

v. People selling the workers goods and services earn income and spend it at other businesses. Firms may also need to hire more people to handle increased consumer traffic. These new employees are paid for their services and eventually use that money to buy things.

This process plays out repeatedly, creating a multiplier effect, increasing the value of the original investment in a bridge construction project to more than that of the cash originally put into it. Experts set this multiplier at a factor of 1.5, meaning that every dollar spent on bridge worker salaries typically generates $1.50 in economic benefit. Most of the benefit happens in local economies, making it worthwhile for governments to use taxpayer dollars or cash generated through bonds or public-private partnerships on bridge infrastructure projects.

4.2.4 *ECONOMIC IMPACT OF NEW CASH FLOWS*

This is one of the greatest economic opportunities for the First Nation population. As a community that has many barriers to reaching commercial markets, community members have difficulty selling goods and services as well as purchasing goods and services. Investment in a fixed link would result in new business venture opportunities for members. It would also result in the community paying less for goods and services as they can now reduce shipping costs and or shop from a greater variety of goods and service providers. Either benefit will result in cash in the pockets of the community.

4.2.5 *TOURISM*

Georgina Island is situated in the prosperous Ontario Regional Tourism (RTO) Zone 6 – also known as the Central Counties. The Central Counties has a population of over 2 million people, residing within over 670,000 households.[11] Tourism in Central Counties is an increasingly significant contributor to economic growth. The retention of businesses and services in the area is increasingly dependent on visitor spending, resulting in nearby economies investing heavily in attracting those visitors.

From the RTO Zone 6 visitor profile survey in 2018, Cultural Sampling, Attraction to Nature and Ecological Lifestyle scored as the highest social values in the survey.[12] With GIFN being the larger of two First Nations located in this zone, the addition of a Fixed Link will provide a definite opportunity for Georgina Island to provide these unique experiences to visitors with existing or with new businesses. The construction of a fixed link, connecting Georgina Island to the mainland will provide easy, and regular access to and from Georgina Island and contribute to the growth of the local tourism sector.

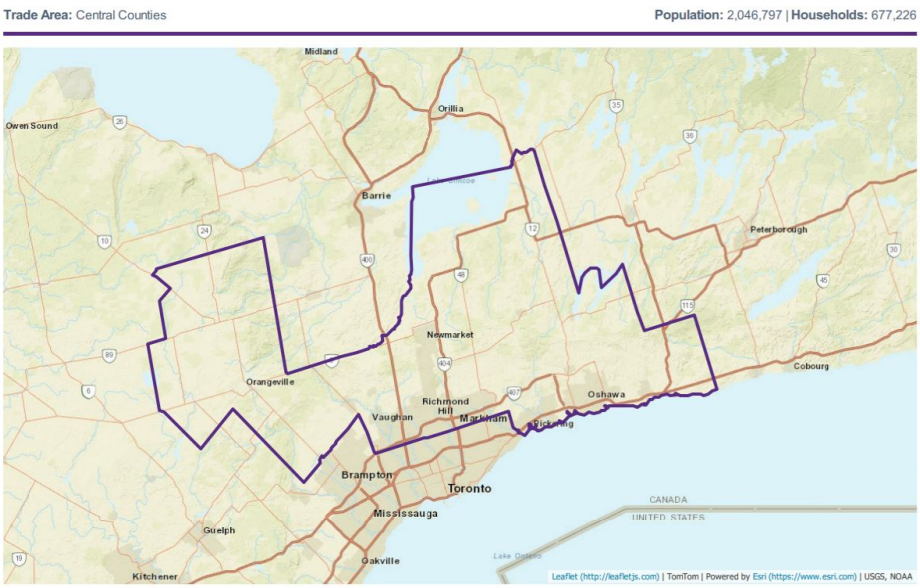


Figure 6 - Central Counties

[11] *https://centralcounties.ca/wp-content/uploads/Central-Counties-Demographics.pdf*
[12] *https://centralcounties.ca/wp-content/uploads/RTO6-CCT-Visitor-Research-Program-Report-Fiscal-Year-2018-2019.pdf*

4.2.6 *COVID-19 PANDEMIC*

In March of 2020, the COVID-19 pandemic (the pandemic) emerged in Ontario, forcing many industries to either close or operate at a reduced capacity. These measures and the hardships with public health measures has forced many tourism businesses to lay off staff with concerns of cashflow to pay for fixed costs such as rent, utilities and existing debt. From a survey and report released in October 2020, by the Tourism Industry of Ontario (TIAO), it was estimated that tourism businesses were suffering a 69% revenue decline at that time.[13]

Further pandemic waves, and a regression into more stringent physical distancing protocols has caused sectors like restaurants, bed and breakfast and other local tourism attractions even further hardships, which are yet to be fully understood as the pandemic continues. At the beginning of the pandemic, Georgina Island First Nation leadership decided to limit access to the island, for the protection of community health.This choice, which was in the best interests of the community, has had obvious impacts to local businesses both on the island and mainland.

As well, Indigenous Peoples experience a more significant burden of noncommunicable and infectious diseases generally, and this is related to social and health inequities stemming from invasion and subsequent colonisation. The Island closure impacted the momentum of the fixed link project as stakeholder meetings and community engagements regarding the fixed link have either been rescheduled for times when public health measures have relaxed or switched to virtual options, which most of the work force has become familiar with. As well community members experienced increased challenges in accessing cultural practices due to public health protocols, lack of ability to travel to communities due to lockdown measures, increased fear/concern surrounding contracting the virus and the shutdown of recreational activities such as sports, entertainment, cultural gatherings, and family vacations. Close living quarters also impacted mental health, especially in cases of unhealthy emotional and physical situations for women, children, and LGBTQ2S+ peoples as a non-exhaustive list.

Further, because of the heightened public health protocols, community members experienced lack of culturally safe health care and access to personal protection equipment (PPE). Meetings and engagements regarding the fixed link have either been rescheduled for times when public health measures have relaxed or switched to virtual options, which must of the work force has become familiar with. The impacts of COVID-19 are ongoing and will serve as a generational case study for the economy and how it adapts as we continue in this new normal.

In response to the pandemic and Island closure, Georgina Island First Nation (GIFN) entered into a six-month commercial agreement with Drone Delivery Canada Corp. (DDC). Dated July 30, 2020, the agreement was established with the assistance of DDC sales agent Air Canada, and the Pontiac Group. DDC's drone delivery platform was crucial to limit person-to-person contact on its island ferry service by transporting COVID-19-related cargo like personal protection equipment (PPE), hygiene kits, test kits, test swabs, among other goods. This project

[13] *https://centralcounties.ca/wp-content/uploads/Covid-19-Provincial-Survey-8-Report-TIAO-October-8-2020.pdf*

was not successful and did not provide a plausible for solution for a number of reasons pertaining to the weather uncertainties of the Island community.

5.0 COMMUNITY OPERATIONS IMPACTS

There are multiple impacts that a fixed link would have for the community. At an engagement session of First Nation management, many impacts were viewed from either a positive or negative lens. All of these are significant areas of impact for the community that will require development and/or mitigation plans. The demands this will place on First Nation administration are considered significant and will directly impact community-based service levels from human resource capability standpoint. Moreover, there will be significant financial costs association with opportunity development and negative impact mitigation. The following impacts were reported.

5.1 CULTURAL IMPACTS

When considering connecting the community to Southern Ontario, the element of cultural impacts, which are dominantly negative, cannot be underestimated. Immediate or tangible effects may be obvious, like the risk of culturally significant areas facing potential exposure or pressure due to increased visitors to the community. Some other effects may be not as immediate or visible, like the potential loss of Island identity due to community members choosing alternative employment on the mainland or re-locating completely to the mainland.

5.1.1 *POSITIVE IMPACTS*

Positive cultural impacts include, but are not limited to:

- Off-reserve members or public having an increased desire to seek-out Georgina Island cultural activities, with access being regularized due to a fixed link vs. ferry.

5.1.2 *NEGATIVE IMPACTS*

Negative cultural impacts include, but are not limited to:

- Culturally Significant Area exposure, pressure, and potential destruction.
- Traditional food and medicine areas on the island facing increased exposure due to increase in visitors.
- Loss of Island identity due to students re-locating to mainland schools, community members seeking better employment on the mainland and assumed increase developments within the community.

These impacts will need to be revisited and monitored as the construction of a fixed link nears completion to prevent and mitigate potential loss of spiritually or culturally significant areas or plants and wildlife, that are critical to the quality of life for the community.

5.2 ECONOMIC DEVELOPMENT IMPACTS

Overall, it is strongly believed that the fixed link will have a net positive impact on the community. The simple fact that the access to commercial markets becomes simple via a trustworthy transportation route is the key reason for the positive feelings towards the fixed link and the economy.

5.2.1 *POSITIVE IMPACTS*

The community views the following as positive impacts:

- Increased Employment opportunities
- Airboat Rescue Agreements possible with Town and surrounding areas
- Partnerships with small business between Band and others
- Opportunities for Band Members to start or expand small businesses
- More access to markets in the GTA
- The overall size of GI's economy is expected to grow.
- Lower costs for food and other everyday necessities as travel time and ferry costs are eliminated and potential for businesses supplying necessities within community.

5.2.2 *NEGATIVE IMPACTS*

The community views the following as negative impacts:

- There will be a significant need to develop communication plans to realize procurement benefits – this is currently not in place.
- There are limited by-laws/by law enforcement for development to take place in a positive way – this will need to be developed, supported and enforced.
- There may be negative effects to things like fishing access points or other points of interest in the community – there is nothing formal in place to manage possible development of sites of significance in the community.
- The small amount of community expenditures will flow outside of the community more easily. What used to be a 1.5-hour trip to get items of convenience can be reduced to 10-15 minutes. The local market will reduce as a result of a fixed link.

5.3 EDUCATION IMPACTS

It is believed that there will be a net positive impact to the education within the community. Although many concerns pertaining to the social 'island' fabric of the community being somewhat lost by the fixed link, it is believed that education will become better in the long run.

5.3.1 *POSITIVE IMPACTS*

The community views the following as positive impacts:

- It is believed that the fixed link will be a managed entry point (toll station) allowing for better security and scrutiny of visitors. This will result in a safe school / student environment
- One of the most significant benefits will be that kids are able to stay at home throughout the whole school year without billeting during freeze up and thaw season.
- Students will be able to travel, uninterrupted, by bus or personal vehicle to school rather than bus/scoot/bus in the winter months or bus by ferry during warmer months. This will reduce travel time to and from school, will negate tardiness or absenteeism due to unexpected ferry issues.
- Increased time for extra-curricular offerings.
- Students will be able to have more opportunity for youth employment.
- There will be the opportunity to attract and hire qualified teachers at a at a more competitive salary, rather than those having to cross on ferry boat.
- Parents residing off territory will be able to send kids to Community School to retain their “island identity’ and teachings.

5.3.2 *NEGATIVE IMPACTS*

The community views the following as negative impacts:

- Kids Safety – if the fixed link is not monitored, there will be many more people coming and going through the community
- There may be a need for a Residency By-law to support education, taxation if population begins to grow.
- More kids staying to attend school or off reserve sending kids to Community School creating a bigger demand on the current education system
- Fear that school needs to be closed due to parents pulling kids out and sending them to mainland schools causing numbers to fall

5.4 EMERGENCY SERVICES

It is believed by administrative staff that emergency services will require significant changes to the way it operates if a fixed link were constructed. Due to the change to the status quo required, the community would see the impact to emergency services (not to be confused with overall health to be discussed later) to be negative. At the present, the community has significant emergency services for a community of its size – being served by local, First Nation

members. This has real value to the community and the change in emergency services that may result would be considered negative.

5.4.1 ***POSITIVE IMPACTS***

The community views the following as positive impacts:

- Ambulance Services quicker and more reliable especially in winter months.
- Ambulances cannot travel on ice and stretcher can't fit in scoot.
- There would be a reduction in overall costs of services from the hourly rates being charged now.
- There would be cost savings for equipment and maintenance of that equipment.
- The current Georgina Island emergency responders could have new agreements put in place where services are contracted out to Township/Region for Airboat Rescue, Fire and other EMS Supports
- There should be closer to 24/7 services across all services resulting in a more safe, secure community
- There may be a decrease in homeowner insurance with the perceived increase access to services.

5.4.2 ***NEGATIVE IMPACTS***

The community views the following as negative impacts:

- The current services offered may be eliminated with the construction of the fixed link.
    - The loss of Emergency Services would eliminate the current culturally appropriate and sensitivities that is beloved by the community and there is a fear that there is no need for Island Services.
    - Community specific jobs would be lost as a result
- Current First Nation staff may be lost as the community cannot compete with compensation packages on the mainland Emergency Services
- Increased traffic, economic activity and crime may all result in increased crime potential placing a higher demand on emergency services

5.5 ENVIRONMENT

Although construction will have many impacts to the environment, it is believed that they will be mitigated to the extent they are in any other bridge construction project. This comfort, along with the security and safety of the route, as well as the elimination of a potential environmental disaster with a ferry accident, the net impact is viewed as positive for the environment.

5.5.1 ***POSITIVE IMPACTS***

The community views the following as positive impacts:

- Looming fear of diesel spill or other catastrophe with the current ferry route.
- Climate change and weather effects everything with current transportation system from ice road stability to ferry boat traveling in extreme weather events. This uncertainty will be eliminated as a result of a fixed link.
- Off territory service providers and not for profit groups will be able to better monitor the Island's unique ecosystems for protecting against invasive species and protecting for species at risk.
- The fixed link will allow for a possible Waste Transfer Station over the current landfill located near the centre of the community. The waste transfer station would reduce the potential for negative environmental impacts due to landfill.

5.5.2 ***NEGATIVE IMPACTS***

The community views the following as negative impacts:

- Increase in development may cause environmental issues such as flooding and biodiversity decrease.
- Potential increase in visitors - may increase illegal harvesting of plants and animals or destruction of important cultural medicines.
- Potential increase in the number and volume of invasive species.
- Road salt run-off into Lake Simcoe causing an increase in sodium levels.
- Foreign animals crossing to the community affecting ecosystems.
- Significant change in the natural view with a large, fixed link becoming a part of the landscape.
- Potential change of water flow and the effects on Lake Simcoe habitats.
- People bringing waste for disposal to the community at the Landfill site.
- Increase use of landfill due to more people and visitors may shorten landfill life span.
- Need for by-laws to be implemented and enforced pertaining to the environment and protections mechanisms.

5.6 HEALTH IMPACTS

The primary supporting measure for the community will be the improvement in health and health services. Regularized access to health care services will improve greatly if a fixed link is constructed. Reduced travel time and transportation costs will lower costs of food and necessities, improving mental health. The elimination of loss of life due to ice road related accidents will clearly improve the community's mortality rate but will also improve overall community mental health. Whether it is worrying that someone is safe coming home to the stresses of the

ice road being safe, to the significant community grieving that occurs when an accident does take place, overall community health would improve with a fixed link.

5.6.1 *POSITIVE IMPACTS*

The community views the following as positive impacts:

- Ambulance Services quicker and more reliable especially in winter months which means much faster access to health care.
- More services can be offered in the community from health professionals.
- Safe access to winter scheduled appointments.
- Better food security and access to nutrient foods.
- Less physical and mental stress for everyday living such as going out to get groceries or running other household errands.
- Potential for members remain on Georgina Island and receive medical care and long-term care access 24/7.
- Health services required confidentiality or discretion can be sought after as there is perceived no privacy or confidentiality of health services offered in the community.
- Lower costs for food and other everyday necessities as travel time and ferry costs are eliminated, reducing stresses on residents, improving mental health.

5.6.2 *NEGATIVE IMPACTS*

The community views the following as negative impacts:

- There will be a loss of local services and on territory jobs in the health services as many will be perceived as duplication once the government designation of remote location is lost.
- Current health services professional may be lost as the First Nation cannot compete with mainland pay scales.

The direct impacts of current transportation can be fully reviewed in the GIFN Transportation Health Impact Assessment study completed in 2021 by Intinsik.

5.7 HUMAN RESOURCES IMPACTS

The human resource potential for community members will be net positive. As access to direct transportation for employment improves, so too does the opportunity for employment. On the flip side, the community may begin to run into human resource retention issues. As the employment market expands and becomes affordable (time wise in travel and money wise in the cost of the ferry) there is a real threat of the First Nation being less competitive as an employer of choice. From a community socioeconomic benefit, the fixed link will be positive. From a First Nation operations standpoint, the fixed link would be net negative.

5.7.1 ***POSITIVE IMPACTS***

The community views the following as positive impacts:

- Greater opportunity for training.
- Opportunity for a more qualified work force to be developed with access to employment related services off territory.
- Reduced commute time to off territory employment.
- Opportunity to schedule more training.
- Hiring of By-law Officers possible as new sector developed as a part of the community's growth.
- More qualified/educated members coming home to work.
- More opportunities for members to be employed.
- Succession planning possible.
- New employment opportunities to staff potential controlled access stations to the fixed link, as well as increased requirement of road maintenance.

5.7.2 ***NEGATIVE IMPACTS***

The community views the following as negative impacts:

- Loss of quality employees to mainland opportunities.
- The community will have a hard time competing with mainland for pay scale.
- There may be less opportunity for less qualified members trying to remain on territory as the market of job seekers increases to include filling positions on the Island.

5.8 LANDS IMPACTS

As growth occurs, stresses on the current, limited lands of Georgina Island will occur. The effects of a fixed link on the overall lands for the community will be noticed and will be a net negative to the community leadership.

5.8.1 ***POSITIVE IMPACTS***

The community views the following as positive impacts:

- Members wanting to move home will be more likely to return.
- Opportunity for a more qualified work force in the lands department – instead of sourcing outside consultation may be able to attract local service providers.
- Can get experts and services needed at market rates without paying the 'Island premium'.

5.8.2 ***NEGATIVE IMPACTS***

The community views the following as negative impacts:

- No Land Use Management system in place to control the development/people
- Hard to enforce action on undesirable activities pertaining to community lands and land policy
- Conservation plans, By-laws and Land Use Plan needs to be in place, implemented and enforced
- Members want different laws than cottagers/visitors to the Island
- No communication plans or by-laws in place to regulate lands in a meaningful, proactive manner

5.9 SOCIAL/RECREATION

A fixed link is a critical infrastructure perquisite to support the advancement of Georgina Island and their access to essential services The construction of a fixed link will be a net positive when social and recreation impacts are considered. Social impact is considered as a consequence or effect of decisions or intervention undertaken which led to development. It can also be considered as a social consequence of development or the issues that directly or indirectly affect people. As for the impacts for Georgina Island specifically, they are expanded on below.

5.9.1 ***POSITIVE IMPACTS***

The community views the following as positive impacts from the construction of a fixed link:

- Reduction in the Hauling of groceries, gas etc. during scoot season
- More opportunity for physical activities/ extra curricular activities
- Increased social activities planned and reduction in absence and cancellations due to transportation issues
- Can make social plans without worry of the ferry schedule and weather-related changes to that schedule
    - Can host dinners, friends over with out having to stay the night
    - Community Members can stay home in the winter months without having to worry about job or health issues that may be seriously impact by ferry
- Recreation opportunities increase as ferry schedule may not fit recreation offerings off territories
- Ability to fit employment opportunities to any schedule, not just the ferry schedule

5.9.2 ***NEGATIVE IMPACTS***

The community views the following as negative impacts from the construction of a fixed link:

- There may be an increase in crime and access to drugs and other narcotics.
- Community members may be exposed to negative comments or racial stereotyping by participating in mainland base recreation and social improvement programs.

- There is strong fear that the community may lose Island identity and a significant piece of what it means to be a Georgina Islander.

As mentioned above, the social and recreation impacts are expected to be a net positive, but the negative impacts listed above will need to be addressed and mitigated near project completion. Mitigation measures may include but are not limited to:

- Further enhancement or reinforcement of essential services such as health, social and police services.
- Controlled access (gates) of fixed link and security (cameras, persons).
- Enhancement of cultural activity offerings both within community, and nearby schools.
- Continued consultation with the community during all stages of construction
- Implementing clear signage for pedestrians and vehicle operators to ensure smooth transition once the fixed link is operational
- Developing a governance structure that steers and facilitates system-based community development.

5.10 TRANSPORTATION

The most obvious changes will occur in the transportation segment of community operations. There will be many positives from the development of a fixed link, like regularized access to public transportation, reduced demand and long wait times to access the ferry for crossing. From a recent Health Impact Assessment Survey – Access to Transportation Options to and From the Island – responses including cottagers as a reason for their response totaled 43. These questions included:

- Which time of the year would be of the greatest concern for you accessing emergency healthcare services on the mainland?
- Do the costs to use the ferry, airboat and other current transportation options pose a financial hardship for you?
- How have the uncertainties in the current transportation options to and from the island impacted your physical, emotional, and mental health?
- What changes can be made to the current transportation options (i.e., ferry, scoot, etc.) for the Island to improve your overall mental, physical, and emotional health?
- What other potential transportation option(s) to and from Georgina Island would improve your overall mental, physical, and emotional health?

- What do you see as the main advantages or disadvantages of the transportation option(s) to travel to and from Georgina Island you identified in the question above?
- Please list the ways (if any) that the current Island transportation affects your participation in recreational activities:

but the loss of community jobs on the ferry will significantly hurt the community in the short term. Ferry boat positions require skills and leadership, are considered good jobs in the community, and twelve of those positions would be lost or seriously downsized. There may be potential to recover or lessen some of these position losses with redirection for security positions as it pertains to potential tolls for the fixed link.

5.10.1 *POSITIVE IMPACTS*

The community views the following as positive impacts:

- Ferry is too small for current community demand and will need to be replaced in the mid/near future.
- Varying schedule due to demand on service, goes back and forth almost all the time now.
- Scoots are overused and endure a lot of wear and tear, this will be alleviated
- Boat fuel and repairs and maintenance costs will be much less than the costs of managing the fixed link.
- Alleviate dangers and inconvenience of transportation of dangerous goods
- Decrease time and costs of construction projects as materials can be delivered on demand rather than being based on ferry boat.

5.10.2 *NEGATIVE IMPACTS*

The community views the following as negative impacts:

- Twelve community members and spares will require retraining and new employment
- People are discouraged learning the ferry trade due to community initiative pertaining to the fixed link
- More traffic in community will result in additional wear and tear on the roadsSeasonal Influxes

From a recent Health Impact Assessment (HIA) Survey – Access to Transportation Options to and From the Island – explanations including ‘cottagers’ as a reason for their response totaled 43[14]. These questions included:

- Which time of the year would be of the greatest concern for you accessing emergency healthcare services on the mainland?

[14] *Health Impact Assessment – Access to Transportation Options to and From the Island, Intrinsik, 2021*

- Do the costs to use the ferry, airboat and other current transportation options pose a financial hardship for you?
- How have the uncertainties in the current transportation options to and from the island impacted your physical, emotional, and mental health?
- What changes can be made to the current transportation options (i.e., ferry, scoot, etc.) for the Island to improve your overall mental, physical, and emotional health?
- What other potential transportation option(s) to and from Georgina Island would improve your overall mental, physical, and emotional health?
- What do you see as the main advantages or disadvantages of the transportation option(s) to travel to and from Georgina Island you identified in the question above?
- Please list the ways (if any) that the current Island transportation affects your participation in recreational activities

Year	Total Number of Passenger Vehicle Trips	Winter (5%)	Spring (20%)	Summer (45%)	Fall (30%)	Difference (Summer-Spring)	Difference (Summer-Fall)
2009	153,000	7,650	30,600	68,850	45,900	38,250	22,950
2010	121,500	6,075	24,300	54,675	36,450	30,375	18,225
2011	123,300	6,165	24,660	55,485	36,990	30,825	18,495
2012	129,600	6,480	25,920	58,320	38,880	32,400	19,440
2013	128,850	6,443	25,770	57,983	38,655	32,213	19,328
2014	121,500	6,075	24,300	54,675	36,450	30,375	18,225
2015	122,400	6,120	24,480	55,080	36,720	30,600	18,360
2016	163,800	8,190	32,760	73,710	49,140	40,950	24,570
2017	136,575	6,829	27,315	61,459	40,973	34,144	20,486
2018	126,450	6,323	25,290	56,903	37,935	31,613	18,968
2019	164,250	8,213	32,850	73,913	49,275	41,063	24,638
TOTAL	**1,491,225**	**74,561**	**298,245**	**671,051**	**447,368**	**Avg. = 33,891**	**Avg. = 20,335**

Table 8 - Total Ferry Passenger Vehicle Trips

From the varying responses to questions above from the HIA survey, the seasonal influxes due to cottagers and summer tourists causes additional strain on both the ferry and community as a whole. Table 8 illustrates the influx from seasonal passenger vehicle trips from 2009-2019. Seasonal passenger vehicle trip percentages are based on community knowledge, provided from the Transportation Manager of GIFN. It is presumed that ferry passenger vehicles during Spring (March 20 - June 21) consists almost entirely of community members (staff, families, etc.) and that ferry passenger vehicles during Fall (September 22 - December 21) consists again of mainly community

members, but to a lesser extent than the Spring season. The influx of passenger vehicle trips in the Summer, versus Spring and Fall is between 20,000 and 33,000 from 2009-2019, which can be attributed to seasonal visitors.

Impacts like easy access island residences, mainland emergency healthcare or recreational activities, due to long ferry wait times would be mitigated with an alternative transportation option such as a fixed link.

5.10.3 *PUBLIC TRANSPORTATION*

It is expected that the construction of a fixed link will provide an increased opportunity for public transportation in comparison to the current ferry system. The current ferry provides space for fifty walk-on passengers during operating hours (7am-7pm) and pedestrians must wait for ferry to arrive either to the Island, or to Virginia Beach before proceeding to their destination. It is the communities desire, for historical importance, for the design of the fixed link to include a multi-use pedestrian path. From the Community Visioning Workshop, 63% of participants were interested in including a multi-use path or other form of connection and part of the Fixed Link Study. In the event of unfavourable weather and winter months, options such as a community shuttle bus, car-pooling or public transit busses can accommodate pedestrians to allow persons to reach their destinations.

Given Georgina Island's location in proximity to large municipalities like York and Simcoe, it can be anticipated that the preliminary discussions for public transportation will take place while the fixed link is being constructed. Access to centres like Newmarket, Orillia and Barrie can be achieved in approximately one hour, if travelling from the mainland. This can be projected as a priority for the community, for this access to be pursued in alignment with the completion of a fixed link, and ideally expanded upon. Having public transportation agreements into the community in place, for the completion of the fixed link will allow for those who relied on the walk-on passenger option of the ferry, to continue to have modes of transportation.

From the GIFN Community Skills Inventory Survey (2019), 41% of respondents were asked to indicate a barrier to employment. Transportation or the lack of driver's licence accounted for 21% and 21% of responses, respectively. The impact of the construction of a fixed link and how pertains to public transportation can be viewed as a positive as it creates the potential for safe, regularized public transit routes to and from the community, to access essential services, education opportunities, employment, as well as contribute to the local and regional economies.

5.10.4 *ACCESS CONTROL & TOLLS*

Several community engagement workshops were carried out by WSP with Georgina Island leadership, community members as well as staff. From an access control standpoint, the vision of the workshop attendees for the fixed link were to:

- have a two-lane cross-section with one lane in each direction;
- incorporate a multi-use path for cyclists and pedestrians;

- have enhanced security and controlled access with ideally an attendant positioned at a guard booth; and
- generate revenue for GIFN by charging a toll to visitors to the island.

WSP has carefully reviewed of information developed to date, and has created recommendations for security crossings for the fixed link:

For this application, a layered approach to both vehicle and pedestrian control is recommended, considering both high traffic and normal operational hours.

1. During peak traffic times, a gate arm solution is recommended. This would provide high throughput at a low cost compared to other options.
2. It is recommended to provide pedestrian/cyclist control in the form of either a turnstile or gate.
3. Residents of the GIFN and Cottagers should be given a credential to allow for quick access, plus access in times when the gate house is not attended.
4. A Card Reader and intercom be designed for deployment of off hours. A card reader would be for approved users of the crossing, while the intercom would be to assist with technical issues or to advise visitors when they are permitted to cross.
5. To enhance security after-hours and to avoid unauthorized access, it is recommended to design for a sliding gate. This will close the gap in fencing that is prevalent with the gate arm and still allow for pedestrians crossing. The gate will need to be coordinated with emergency services to ensure efficient access to Georgina Island in the event of an emergency.

As mentioned above, with the expected employment losses due to a ferry no longer in operation, the opportunity for some of these staff to be redirected to potentially manned-toll stations, security positions or additionally required road maintenance will be explored. Employment Opportunities

6.0 EMPLOYMENT OPPORTUNITES

The Chippewas of Georgina Island First Nation will, as the study phases of the project commence provide the following unique employment opportunities

6.1 GEORGINA ISLAND FIXED LINK SECRETARIAT

The Georgina Island Fixed Link Secretariat has already developed a youth-based position for this project, the Georgina Island Fixed Link Community Liaison. The community liaison position is currently filled by a youth member of the community. The liaison is supported by an employment program GenPower, supported by Indigenous Clean Energy. Taking a future-focused approach, the program introduces Indigenous youth to the growing clean energy sector in Canada and around the globe, and the broad range of energy careers that exist today as well those that are beginning to emerge. In addition to engagement and project management support duties, the Liaison position will achieve the following objectives through the completion of the program:

a. Explore the range of careers that encompass the energy sector;

b. Gain exposure to clean energy projects through mentorship and on-the-land learning camp;

c. Enhance understanding of the current and future energy landscape in Canada and globally;

d. Develop leadership and essential employability skills;

e. Leverage existing skills and experience to launch a career in the energy sector;

f. Build a network of support with ICE's community; and

This position is intended to grow from a support to a leadership role for the Fixed link as experienced is gained.

6.2 SUMMER AND YOUTH OPPORTUNITIES

BEAHR Indigenous training programs (Eco Canada) offer locally customized learning that provide accessible and meaningful career development to First Nation, Métis and Inuit members to overcome barriers to employment and develop competencies needed to actively contribute to Canada's growing environmental sector.

The courses offered provide introductory training to those who want to work in the environmental sector in Canada. Graduates will have all the necessary technical, cultural, safety and soft skills required to secure meaningful environmental employment. We offer two streams, Workforce Training and Technician Training. The latter gives you further recognition if you already have environmental experience or training.

GIFN will begin to provide BEAHR certified or unique opportunities for youth that includes on the job support. The summer of 2022 will provide a job shadowing opportunity for all high school and post- secondary aged youth. Managed by the GIFL Secretariat, the community will assign youth workers to shadow field professional as they

undertake study work. With core training in field-based health and safety and the GIFL Environment Principles, youth will be encouraged to shadow study team members as they complete the multitude of activities over the course of the next two years.

The intent of this program will be to inspire youth and to build a legacy of knowledge of what work was completed and what results of the studies mean. This integration with western science will allow for community-based understanding of processes. It will also enhance work experiences to become more employable in the future.

6.3 CASUAL EMPLOYMENT OPPORTUNITIES

There are a number of Georgina Island members that will realize project-based employment opportunities over the course of the next three years:

- Many members are currently certified harbour pilots and meet the necessary insurance requirements to transport study teams on the ice.
- Caterers will be provided opportunities to support team meals and field teams.
- There will be the need for traditional based services for meeting openings, closings and areas where traditional knowledge is being shared.
- Those with boats, ATV's/UTV's and vans may be required to transport field teams around the Island.

These types of positions will be offered through a 'community roster'. The roster will identify skill sets and abilities to be offered to contractors on the Island. These opportunities will provide a more robust resume and experiences following their service. The GIFL Secretariat will continue to monitor and project the number of casual employment opportunities as the project continues, and demand is better understood.

6.4 FIRST NATION EMPLOYEE DEVELOPMENT

There are a number of skill development opportunities that will be offered as a result of the Fixed Link project. Employees at the First Nation will be able to learn through direct relationships with suppliers about their job, the analysis and interpretation of data and the recommendations that result from this work. The overall internal skill development for current employees as the First Nation will result in:

- A better understanding of the local environment
- A better understanding of western science-based methods of data collection on lands
- A better understanding of how to integrate community based ecological and traditional knowledge into western based scientific studies

- A better understanding of project management, deliverable assessment and financial modeling for projects being undertaken on community lands.
- A better understanding of the IAAC process to respond to other proponent's projects more effectively.

6.5 EMPLOYMENT THROUGH PROCUREMENT INITIATIVES

There will be $2M worth of studies occurring over the next 18 months. These studies will require many team members from many different contractors. The GIFN procurement process is intended to award 'points' to those projects that incorporate employment opportunities for:

a. Members of the Chippewas of Georgina Island First Nation

b. Members of Williams Treaties ally communities

c. Members of the Indigenous community at large including Metis and Huron Wendat community members

The GIFL Secretariat will continue to monitor and project the number of employments through procurement opportunities available, as the project continues and project deliverables, scopes of work are identified.

7.0 EVALUATING COMMUNITY SOCIO-ECONOMIC EFFECTS OF FIXED LINK

The potential fixed link project will have a significant impact on the social and economic factors of the GIFN community. The development of the project is expected to boost the local economy of GIFN and the surrounding area, both through the creation of direct and indirect jobs during construction and as a result of increased access to the community by the fixed link. The demand for a variety of skills and labour that is involved with the construction of a fixed link will be identified as the project progresses and procurement priority will be created for members and family members of Georgina Island to fill these demands.

In addition, the bridge will provide year-round road access between Georgina Island and the mainland once completed. The availability of access to and from Georgina Island is expected to have a number of long-term effects on the community as a whole. Upon completion of the fixed link, the community anticipates a demand for land development both residential and commercial, as a direct result of the regularized access created to the island.

In an attempt to quantify the socio-economic impacts of the GIFN fixed link project, the Community Well-Being Index (CWB) from Indigenous and Northern Affairs Canada has been used as a basis.

7.1 COMMUNITY WELL-BEING INDEX

The Community Well-Being (CWB) index provides a systematic method of measuring the socio-economic well-being for individual communities across Canada, and consists of the 4 following components:

- Education;

- Labour Force Activity;
- Income; and
- Housing.[15]

Scores in each of the CWB index components listed above are calculated using available census data for individual communities. Table 9 outlines the methodology for calculating the individual CWB index components.

Methodology for Components of the Community Well-Being Index

Component	Description
Education	The education component is composed of the following 2 variables: • high school plus: the proportion of a community's population, 20 years and over, that has obtained at least a high school certificate. For simplicity's sake, this proportion is often referred to in this document as high school completion rate, even though it includes individuals who did not obtain a high school certificate, but did acquire a credential beyond the high school level • university: the proportion of a community's population, 25 years and over, that has obtained a university degree at the bachelor's level or higher The high school plus variable accounts for two thirds of the education component, while the university variable accounts for one third.
Labour Force Activity	The labour force activity component is composed of the following 2 equally-weighted variables: • labour force participation: the proportion of a community's population, aged 20 to 64, that was involved in the labour force during the week preceding census day, that is census reference week. • employment: the percentage of a community's labour force participants, aged 20 to 64, that were employed during census reference week.
Income	The income component of the CWB index is defined in terms of total income per capita, in accordance with the following formula: $Income\ Score = \left(\frac{Log(income\ per\ capita) - Log(\$2{,}650)}{Log(\$75{,}000) - Log(\$2{,}650)}\right) \times 100$

[15] *https://www.sac-isc.gc.ca/eng/1345816651029/1557323327644*

Housing	The housing component comprises equally weighted indicators of housing quantity and quality: • housing quantity: the proportion of a community's population living in dwellings that are not crowded as measured by having no more than one person per room • housing quality: the proportion of a community's population living in a dwelling that is not in need of major repairs

Table 9 - CWB Index Components

7.2 CURRENT COMMUNITY WELL-BEING INDEX SCORES

The average CWB index scores for First Nations and non-Indigenous communities in Ontario are also provided in Table 10.[16]

Current CWB Index Score of Georgina Island First Nation in Comparison to the Provincial Averages

Component	*Georgina Island First Nation*	*Ontario First Nations Average*	*Ontario Non-Indigenous Average*
Education	56	38	60
Labour Force Activity	83	72	83
Income	71	53	81
Housing	89	70	93
Overall CWB index Score	75	59	79

Table 10 - CWB Index Scores

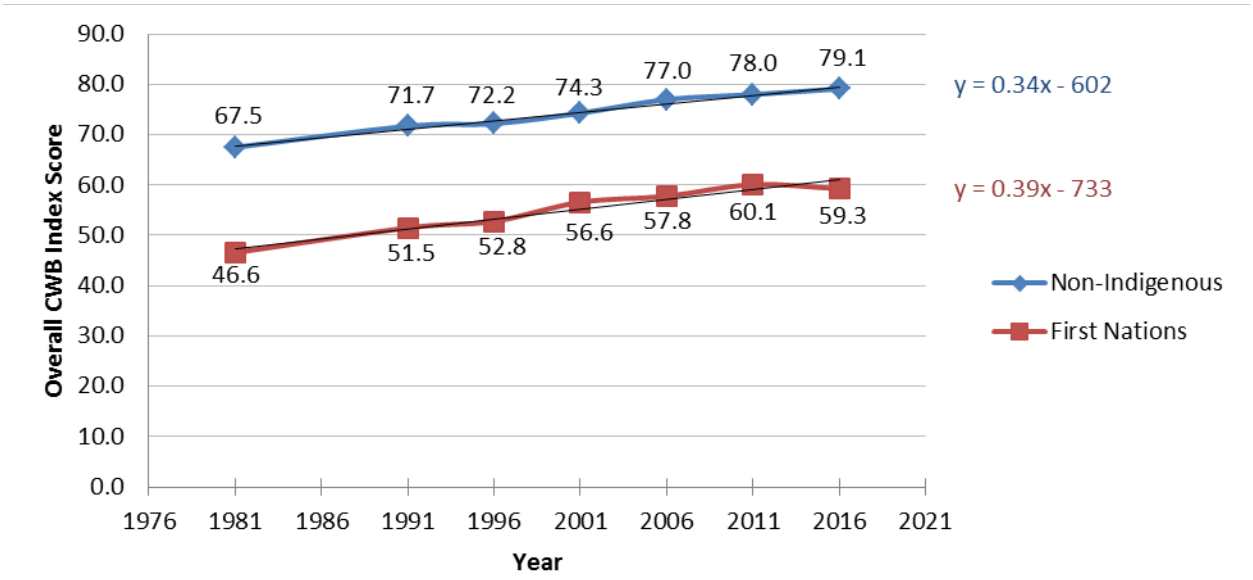
Currently, GIFN`s CWB index scores significantly exceed the Provincial First Nations average in every category but are slightly under the Provincial non-Indigenous community scores. Although GIFN scores high in CWB index in comparison to other Ontario First Nations, it is recommended that GIFN strive to meet or exceed the average non-Indigenous community scores in relation to CWB index.

[16] *https://www.sac-isc.gc.ca/SAC-ISC/CWB/index-map-en.html*

7.3 TRENDS IN COMMUNITY WELL-BEING INDEX SCORES

Figure 6 shows the trends in CWB index scores for First Nations and non-Indigenous communities in Ontario from 1981 to 2016. The CWB index scores of both groups have increased over this timeframe.[17]

Assuming a simplistic linear trend from 1981 to 2016, the CWB index score of Ontario First Nations communities in Ontario have increased at rate of about 0.39 per year, slightly faster than non-Indigenous Ontario communities, which have increased at a rate of about 0.34 per year.



Average Overall CWB Index Score for Ontario First Nations and Non-Indigenous Communities

Figure 7 - CWB Index Scores

For the purposes of our analysis, the effects of the slightly higher CWB index growth rate in Ontario First Nations in comparison to non-Indigenous communities will be considered negligible when considering future trends due to the amount of time it would take for this rate difference to have any significant impact. Furthermore, there are limiting factors that will restrict these rates of growth from continuing indefinitely.

7.4 ANTICIPATED IMPACT OF FIXED LINK ON COMMUNITY WELL-BEING INDEX SCORE

Overall, the fixed link project is anticipated to have a significant positive impact on GIFN's overall CWB index score. The sections below outline how the fixed link will impact each of the four CWB index components.

[17] *https://www.sac-isc.gc.ca/SAC-ISC/CWB/index-graphs-en.html*

7.4.1 *EDUCATION CWB INDEX COMPONENT*

It is anticipated that the fixed link project will have a long-term positive impact to the education component of GIFN's CWB index.

As described in the above table, the education component of the CWB index for GIFN is based on two factors;

- the percentage of the GIFN population (20 years and older) that has obtained at least a high school certificate; and
- the percentage of the GIFN population (25 years and older) that has obtained at least a university bachelor's degree.

The percentage of the population that has a high school certificate is weighted higher than the university degree component. It is also important to note that the education component of the CWB index is based on the population residing within the community. As such, increasing the percentage of the population that has received an education that remains within the GIFN community is also an important consideration.

The fixed link project is expected to impact the education component of GIFN's CWB index as follows:

- **Increase the ability of the GIFN population to complete high school.** The fixed link project will increase year-round access to the GIFN community. As a result, it will aid in reducing the burden currently encountered by GIFN elementary students and their families. Located on Georgina Island, the Waabgon Gamig School has 2 classrooms with students from kindergarten to Grade 5.[i] GIFN students Grade 6 and above are required to attend school located outside of the GIFN community. Being an island community, this presents several unique challenges. GIFN students attending school outside of the community experience longer than average transportation times due to the ferry crossing. In addition, although the Aazhaawe ferry is reliable, the transportation of students to and from the island is susceptible to delays and cancellations associated with the operation of the ferry. Finally, the lack of dependable transportation to and from the island in winter months is an issue, with most students being required to billet on the mainland during these timeframes, putting stress on elementary students and their families. The fixed link project is expected to eliminate these challenges, ultimately increasing the ability for GIFN students to complete high school.

- **Increase the ability of the GIFN population to attend university.** As discussed above, the fixed link project is expected to increase the ability for the GIFN population to complete high school. This will translate into an increase in the overall education of the GIFN population and should result in a higher participation rate in postsecondary education amongst residents, including university. Please note that since in most cases, postsecondary students will leave the community to complete their studies, access to the community created by the fixed link project is not expected to significantly impact university completion of the GIFN population directly. Instead, the fixed link project is expected to increase the overall high school completion rate of the population, which will in turn increase the percentage of the community that is eligible to attend university and other postsecondary studies.

- **Increase the desire for community members with an education to reside within the GIFN community.** As discussed above, increasing the percentage of the population that has received an education that

remains within the GIFN community is an important consideration. Overall, the fixed link project is expected to make it easier for residents that reside on Georgina Island to access well-paying jobs outside of the community, increasing the ability for the educated population to remain within the community.

The following potential issues have been identified:

- The increase in access to schools outside of the GIFN community may result in the Waabgon Gamig School becoming seemingly less essential than it is currently viewed. However, the benefits that students obtain by attendance to the Waabgon Gamig School in relation to community and cultural identity cannot be understated. As a result, it is recommended that the school continue to operate regardless.[18]

7.4.2 *LABOUR FORCE ACTIVITY CWB INDEX COMPONENT*

The potential fixed link project is expected to have a positive impact to GIFN's labour force activity CWB index component, both in the short-term and long-term.

As described in the table above, the labour force activity CWB index component is based on two equally weighted factors:

- The percentage of the population, aged 20 to 64, that are either employed or unemployed (but able to work);[19] and
- The percentage of the population that can work (the labour force participants), aged 20 to 64, that are employed.

The labour force activity CWB index component is calculated using census data, which includes employment statistics for the week prior to census day (referred to as census reference week).

The fixed link project is expected to impact the labour force participation component of GIFN's CWB index as follows:

- **Jobs created during construction of the fixed link project.** Initial estimates put the total project cost at between $60M to $200M. As a rough estimate, every $1M of construction creates about 5 man-years of employment.[19] Based on these initial values, it can be expected that between 300 to 1,000 man-years of employment will be created over the course of the project. The GIFN population will have access to this employment.

- **Greater access to jobs outside of GIFN once the fixed link is complete.** Increasing access to and from the community is expected to have a significant impact on access to employment opportunities for residents of Georgina Island. Overall commute times will be reduced for GIFN workers employed outside of the community, and the potential for delays and cancellations associated with the operation of the ferry will be eliminated. Furthermore, reliable year-round access to and from Georgina Island will be established.

[18] *http://georginaisland.com/community-services/waabgon-gamig-school/*
[19] *Proposed Fixed Link Study – Preliminary Evaluation of Engineering and Environmental Alternatives (Fline No: FCO10428). 2008. Neegan Burnside.*

These factors will help to reduce the unique challenges experienced by the population of the island community in relation to obtaining and maintaining employment.

- **Increase in employment opportunities within GIFN.** The fixed link project has the potential to boost tourism within GIFN, resulting in a boost to employment opportunities from an increase in local business on the island. In addition, ongoing maintenance and the potential for manned tolls will create direct jobs associated with the operation of the fixed link.

- **Increase in desire for community members with employment to reside within the GIFN community.** Similarly, to the education component described above, increasing the percentage of the population that is employed and remains within the GIFN community is an important consideration. Overall, the fixed link project is expected to make it easier for residents that reside on Georgina Island to access well-paying jobs outside of the community, increasing the ability for the employed population to remain within the community.

The following potential issues have been identified:

- The Aazhaawe Ferry currently employs a number of GIFN community members. The fixed link will eliminate these employment opportunities. However, the employment benefits that the fixed link will bring to the GIFN community are expected to far exceed the loss of employment associated with the discontinuation of the ferry. Furthermore, community members currently employed in relation to the Aazhaawe Ferry could be reassigned to work associated with maintenance and manned tolls associated with the proposed fixed link.

7.4.3 *INCOME CWB INDEX COMPONENT*

The potential fixed link project is also expected to have a positive impact to GIFN's income CWB index component, both in the short-term and long-term. These positive impacts are primarily related to increases related to education and labour force activity component increases, as described above.

As described in the table above, the income CWB index component is based on income per capita of the population.

The fixed link project is expected to impact the income component of GIFN's CWB index as follows:

- **Income from increased labour force activity.** The fixed link project is expected to increase employment opportunities for the GIFN population during construction itself, as well as through ancillary benefits such as creating greater access to jobs outside of GIFN and increasing employment opportunities within the community. This is expected to increase the community's employment rate and provide higher paying jobs, both of which will increase overall income per capita amongst the GIFN population.

- **Income from increased education.** The fixed link is expected to increase GIFN's education CWB index component, ultimately resulting in a higher employment rate and access to higher paying jobs for community members. Both of these factors will increase overall income per capacity amongst the GIFN population.

- **Income from increased residence within GIFN.** As previously described, the fixed link project is expected to make it easier for residents that reside on Georgina Island to access well-paying jobs outside of the community, increasing the ability for the employed population to remain within the community and ultimately increasing income per capita.

7.4.4 *HOUSING CWB INDEX COMPONENT*

The fixed link project is expected to increase GIFN's housing CWB index component by improving both the quantity and quality of housing available within the community.

As described in Table 1, the CWB index housing component is based on two equally weighted factors:

- The quantity of housing, measured as the percentage of a community's population dwelling in homes that are not overcrowded; and
- The quality of housing, measured as the percentage of a community's population dwelling in homes that are not in need of major repairs.

The fixed link project is expected to impact the housing component of GIFN's CWB index as follows:

- **Reduction in overcrowding and housing repairs from increased income.** The increase in income expected to result from the benefits of the fixed link project is anticipated to help improve the housing CWB index component in two ways. First, higher levels of income will help to reduce overcrowding within the community as community members will be better positioned to either build new homes with greater resident capacity, renovate existing homes to increase resident capacity, or move to larger homes as required. Secondly, higher levels of income will help to better position community members to complete repairs on their homes as needed, helping to increase the quality of overall housing stock within GIFN.

- **Increased access to cost-effective materials and labour.** An increase in transportation costs as a result of the Aazhaawe ferry is currently a fact of life within the GIFN community. The fixed link project will help to reduce additional transportation costs associated with the ferry, especially goods and services. Specifically, to housing, this reduction in transportation costs will result in access to better priced construction materials and labour. Again, this is expected to help reduce overcrowding in the community as members will be better positioned to increase resident capacity as needed. GIFN residents will also be better positioned to complete home repairs as needed, as the overall cost of these repairs will be reduced.

The following potential issues have been identified:

- Improved access to Georgina Island is expected to significantly increase demand for homes within the community. In fact, improvements to education, labour force activity, and income CWB index components are partly dependent upon this fact. However, there are limitations to housing growth within the community, particularly the availability of developable land within the community. This challenge is compounded due to the island nature of the community. It is recommended that GIFN proactively consider this issue and include room for housing growth in its planning processes moving forward.

Appendix N Fixed Link Engagement Plan



CHIPPEWAS OF

GEORGINA ISLAND FIRST NATION

Fixed Link Engagement Plan

February 24, 2022

Georgina Island First Nation approach to fulsome engagement for the Fixed Link Project

GIFL

A Project For Seven Generations

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Introduction

The Chippewas of Georgina Island First Nation is located both on and off the south shore of Lake Simcoe and is approximately 100 km north of the Greater Toronto Area (GTA). The First Nation is governed by an elected band council, consisting of one Chief and four Councillors.

Georgina Island First Nation Reserve No.33 consists of four separate land masses. There are three separate islands (Georgina Island, Snake Island, and Fox Island) which lie approximately 3 km off the southern shore of Lake Simcoe, and a small acreage located at Island Grove on the mainland. The largest nearby centre of population is the village of Sutton, which is located 6.5 km to the southwest of the First Nation.

The majority of the population of the First Nation resides on the largest Island, Georgina Island. Georgina Island is only accessible by the Aazhaawe Ferry during the spring, summer and autumn months of the year and by airboat or ice road during the winter months.

GIFN is proposing to build the Georgina Island Fixed Link (Fixed Link), a combination of bridge and causeway, that will connect the First Nation's reserve on Georgina Island to its lands on the mainland. The Aazhaawe Ferry's operational life cycle is coming to an end and the reliance on ferry service has caused significant health and safety issues for the GIFN community.

This project will eliminate the need for risky crossings for community members and provide safe, reliable Island accessibility across all seasons and all-weather conditions. This legacy project will position the community to protect the environmental, cultural, social and economic future of the community for the next Seven Generations. The Georgina Island Fixed Link presents an opportunity for investment in a safer, more dependable and cost-effective transportation alternative to allow continuous access for both pedestrians and vehicles to cross Lake Simcoe from Georgina Island to the mainland.

The Project has been a desire of the community for many years. The community has identified enhancement of community health and safety, increased access to health services, employment and educational opportunities and reduced climate change impacts as some of the direct primary community benefits of the Georgina Island Fixed Link.

The Chippewas of Georgina Island First Nation (GIFN) have developed the GIFL Secretariat to support the administrative and technical elements of the Fixed Link Project. The Secretariat will conduct project engagements on behalf of the Chippewas of Georgina Island First Nation Chief and Council. This document will detail the engagement plan to be followed by the Secretariat.

The Fixed Link Engagement Plan

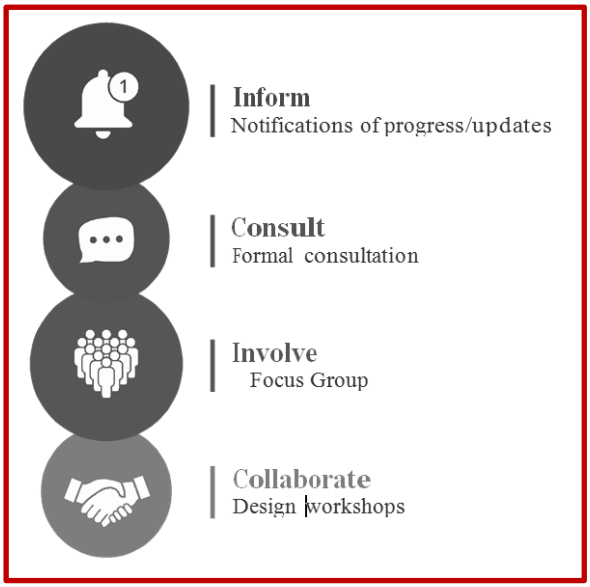
The Fixed Link Engagement Plan (FLEP) is an initial guide to engagement used to inform on-going stakeholder engagement through the various stages of Project development, construction, and operation. The FLEP is considered a working document that will evolve over all stages of the Fixed Link project. The FLEP seeks to define a technically and culturally appropriate approach to engagements.

The FLEP is a useful tool for managing communications between GIFN and their stakeholders. The key objectives of the FLEP can be summarized as follows:

- To differentiate between project specific engagement activities and the Crown's Duty to Consult and Accommodate.
- To differentiate between internal and external engagement requirements
- Guide GIFN to build mutually respectful, beneficial and lasting relationships with project stakeholders their departments and their assigns.
- Identify the most effective methods and structures through which to disseminate project information, and to ensure regular, accessible, transparent and appropriate project communication and interaction.
- Develop an engagement process that provides stakeholders with an opportunity to influence project planning and design.
- Define roles and responsibilities for the implementation of the FLEP.

Engagement Spectrum

Throughout this project, stakeholders will have opportunities to influence decisions in different ways. Sometimes regulatory or other requirements means there is less scope for influence. In other cases, GIFN will be able to collaborate with stakeholders to come up with solutions together. The engagement spectrum is a tool commonly used to categorize the different approaches to take.



The engagement spectrum is presented simply as Inform, Consult, Involve and Collaborate. This is the process of how stakeholders will be engaged throughout the project process. There will be varying depths of engagement depending on the audience or purpose. For instance, design elements of the Fixed Link would involve workshops to get the most appealing end product. The results of environmental studies and reports may simply require information disseminated to stakeholders. If the community is working through formal federal, provincial or

internal permitting processes, the depth of information from this same study would be much deeper than the presentation of data to the community members. For that reason, GIFN, as an Indigenous community in Canada must be particular about the purpose and audience of engagement activities. GIFN must be aware of and manage engagements based on this spectrum.

It will be extremely important for the GIFN leadership to be clear with stakeholders about the level of engagement, consultation and influence that is possible on any particular portion of this project. GIFN will be the project proponent and as such must manage various objectives, audiences and formal requirements. To serve that need, initial clarity on terminology is provided through the remainder of this section.

Engagement vs. Consultation

For the purposes of the FLEP, a clear, distinct difference between the terms engagement and consultation must be made. This plan is specific to project engagements while formal consultation plans will be developed as required. The definitions to be used are below:

CONSULTATIONS

In the Haida and Taku River decisions in 2004, and the Mikisew Cree decision in 2005, the Supreme Court of Canada held that the Crown has a duty to consult and, where appropriate, accommodate when the Crown contemplates conduct that might adversely impact potential or established Aboriginal or Treaty rights. The Court explained that the duty stems from the Honour of the Crown and the Crown's unique relationship with Aboriginal peoples. In more recent decisions, the Court further explained that: the duty to consult is a constitutional duty; applies in the context of modern treaties; officials must look at treaty provisions first; and where treaty consultation provisions do not apply to a proposed activity, a "parallel" duty to consult exists. The Court has also clarified, that depending on their mandate, entities such as boards and tribunals may also play a role in fulfilling the duty to consult; that high level strategic decisions may now trigger the duty to consult; and that the duty applies to current and future activities and not historical infringements.

The Chippewas of Georgina Island First Nation are signatories of the Williams Treaties and recognized Indigenous people of Canada. As such, the First Nation will respect the Nation to Nation relationship with the federal government of Canada and will demand the same in return. For the purposes of this document, the term Consultation refers to the formal requirements set out or triggered through the formal Duty to Consult and Accommodate requirements of the federal government of Canada. For the most part, Consultation is not the theme of this document and formal Duty to Consult and Accommodate Consultations will be guided by separate processes determined by the Nations consulted.

STAKEHOLDER ENGAGEMENT

Engagement is the systematic identification, analysis, planning and implementation of actions designed to educate, inform and influence stakeholders. For the purposes of this document, engagement is much less formal than consultation activities, more often voluntary and is intended to ensure the internal and external stakeholders are aware of, and able to provide input to, the ongoing development of the Fixed Link Project over time.

Engagement Principles

Stakeholder Engagement involves interactions between identified groups of people and provides stakeholders with an opportunity to raise their concerns and opinions (e.g., by way of meetings, surveys, interviews, focus groups, etc.) and ensures that this information is taken into consideration when making project decisions. GIFN will ensure that engagement will be free of manipulation, interference, coercion, and intimidation, and conducted on the basis of timely, relevant, understandable and accessible information, in a culturally appropriate format. GIFN will maintain a set of principles defining core values underpinning interactions with stakeholders.

These principles are as follows:

- GIFN is **Committed** to understanding, engaging and identifying stakeholders early in the project development process;
- GIFN will engage with **Integrity** by completing engagements in a manner that fosters mutual respect and trust;
- GIFN will engage with **Respect** ensuring the rights, cultural beliefs, values and interests of stakeholders are recognized.
- GIFN will remain **Transparent** throughout engagements by ensuring concerns are responded to in a timely, open and effective manner;
- GIFN will encourage **Inclusiveness** by encouraging and supporting broad participation by appropriate stakeholders; and

The end result of the application the engagement principles is to foster **Trust** through open and meaningful dialogue that respects and upholds the core beliefs, values and opinions of the Chippewas of Georgina Island First Nation and their Membership.

In order to build trust, engagements will be managed in a consistent, uniform manner to establish a ‘brand of information dissemination and stakeholder interaction’ that the community can predict, understand and rely upon.

Defining Engagement Stakeholders

The IFC's Handbook on Stakeholder Engagement (2007) defines stakeholders as "persons or groups who are directly or indirectly affected by a project, as well as those who may have interests in a project and/or the ability to influence its outcome, either positively or negatively."

The following Engagement Stakeholders have been identified:

The Chippewas of Georgina Island First Nation Members

The GIFN Member residents of the Island will be key stakeholders in this project and will be engaged with throughout the project. This engagement stakeholder group has a deeper, more personal interest in the project than other stakeholder groups and is comprised of both on and off-reserve members.

Williams Treaties Allies

The Chippewas of Georgina Island First Nation will engage with our Williams Treaties allies. These indigenous communities include:

- Chippewas of Beausoleil First Nation
- Chippewas of Rama First Nation
- Curve Lake First Nation
- Alderville First Nation,
- Hiawatha First Nation
- Mississaugas of Scugog Island First Nation.

As noted above, these engagements would be outside of the legislated Indigenous consultation requirements that would include additional formal engagement with the Metis Nation and the Huron Wendat peoples.

Governments and Leadership

GIFN will engage with the respected leaders of the following governments:

- Metis Nation of Ontario
- Huron Wendat Confederacy
- Federal government of Canada
- Provincial Government of Ontario
- Regional Municipality of York
- Town of Georgina

Public and Community Groups

The Chippewas of Georgina Island have determined the key criteria for inclusion as a stakeholder to be:

- whether the group is located near the project area or the potential effects of the Project;
- whether the group uses or has interest(s) in Lake Simcoe;
- whether the group has direct and/or local interest(s) in the Project (e.g. living in or owning property near the Project);
- whether the group has previously expressed interest in the Project; and,
- whether the group has expert knowledge related to the anticipated effects of the Project (e.g. expertise in environmental, legal, social, or health conditions).

Through an evaluation and with support of the Impact Assessment Agency of Canada, GIFN has identified the following non-Indigenous stakeholder groups that will be engaged throughout this process:

- Georgina Island Cottagers Association
- Georgina Trail Riders Snowmobile Club
- Rescue Lake Simcoe Coalition
- Friends of Strawberry Island
- Carden Field Naturalists
- Snake Island Cottagers Association
- South Lake Simcoe Naturalists
- Ontario Water Centre
- Innisfil District Association
- Simcoe County Greenbelt Coalition
- North Gwillimbury Forest Alliance
- AWARE Simcoe
- Bayshore Village Association
- Barilla Park Residents Association
- Concerned Citizens of Ramara
- Innisfree Ltd. DeGrassi Point
- Lake Simcoe Association
- Lake Simcoe Region Conservation Authority (LSRCA)
- Nature Barrie
- North Mara Beach Residents Association
- Orillia Naturalists Club
- Save Our Simcoe (SOS): Beaverton
- The Ontario Headwaters Institute
- Windfall Ecology Centre
- York Simcoe Nature Club
- Lake Simcoe Watch
- Save the Maskinonge
- High Park Nature
- Ontario Rivers Alliance
- Nature League of Collingwood
- Ecojustice
- Georgina Chamber of Commerce and Tourism Information Center
- Ontario Federation of Anglers and Hunters
- Ontario Streams
- Sail Georgina

Engagement Management

Formal vs. Informal Engagements

All engagements pertaining to the Fixed Link will be considered official engagements, meaning they will be documented and archived in an Official Engagement Register. This does not necessarily mean that all engagements must also be considered formal events.

There are many examples of community engagement that are informal in nature that would also be considered an official engagement. A community information booth at the annual GIFN Christmas Bazaar was used to engage the community during the Fixed Link Project Plan Development phase. This engagement was very informal, fun and loosely documented. It was considered an official engagement that provided great value for community leadership.

For the purposes of the FLEP, engagements are defined as follows:

Formal Engagements: Stakeholders are engaged in a prescribed, programmed manner generally with a direct intention. For example, a scheduled community meeting, leadership meeting, stakeholder survey would all be considered formal engagements.

Informal Engagements: Stakeholders are engaged in a flexible and sometimes ad-hoc manner with generally with less formal agenda or reporting requirements. For example, a community pop-up event, a storytelling exercise or social media poll may all be considered informal engagements. Informal engagements are very valuable and although agendas and elaborate set-ups may not be required, they will be used as a tool to support engagement with stakeholders.

Regardless of the classification, formal or informal, all of the information gathered will be completed with the engagement principles in mind. The information exchange that takes place should be valued, documented and interpreted to ensure the best possible outcomes for the Fixed Link Project.

Stakeholder Engagement Considerations

GIFN will be pay particular attention to the following considerations when planning for stakeholder engagement:

Stakeholder Engagement Takes Time and Resources

GIFN will be sure to secure and commit the required time, human and financial resources required to effectively undertake this engagement plan. This commitment extends to:

- Ensuring no willing stakeholder should be excluded from the process of engagement.
- Engagement may require an education process about the concept of engagement itself.
- These commitments may require additional budget and time to complete to their fullest.

ENGAGEMENT RAISES EXPECTATIONS

Stakeholders can have unrealistically high expectations of benefits that may accrue to them from a project. As such GIFN, from the outset, must be clear on what they can and cannot do, establishing a clear understanding of their roles and responsibilities.

ENGAGEMENT SHOULD BE REPRESENTATIVE

Cultural norms and values can prevent stakeholders from freely participating in meetings and engagement activities. Often there are conflicting demands within a community, and it can be challenging for a project to identify stakeholders who are representative of common interests. GIFN will endeavour to accommodate internal stakeholders' participation in engagement activities. GIFN will commit to ensuring engagement opportunities for external stakeholders are completed using the principles defined in the section above.

CONSULTATION FATIGUE

GIFN and their community members are well aware and often suffer from 'Consultation Fatigue'. First Nation members have a history of engagement processes where promises are unfulfilled, and their opinions and concerns are not taken into consideration. GIFN will ensure that engagement activities are understood, reported on and are held at times relevant to the projects benchmarks.

Official Engagement Register

The Chippewas of Georgina Island First Nation will maintain, throughout the duration of the Fixed Link Project, an Official Engagement Register. This register will provide a digital record of all engagements related to the Fixed Link Project. Whether an engagement is formal or informal, the Georgina Island First Nation will require engagement activities to be documented in the Official Engagement Register. This Register will, at a minimum, document the date, time, purpose, audience and outcomes of the engagement activity. The Official Engagement Register will also highlight any items that may require further action by the community resulting from engagement activities.

The Official Engagement Register will be maintained by Fixed Link Project Manager for Chief and Council.

Commmunity Engagement Authorities

The Chippewas of Georgina Island First Nation will manage engagement with the following personnel and roles:

Chief and Council

- Approval of engagements and consultations schedules, content audience and agendas
- Attendance by one member of chief and council or representative at any official engagement
- Delegate action items resulting from engagements as required
- Will develop and manage a Fixed Link Project Team to provide advisory support and direction requiring specific areas of expertise.

Fixed Link Project Manager

- The human resource in charge of managing the Georgina Island Fixed Link Secretariat
- A key element of the Secretariat is to manage Fixed Link Engagement and Consultations at the direction of Council
- The Fixed Link Project Manager is accountable for the maintenance of the Official Engagement Register

Georgina Island Fixed Link Secretariat

- The Fixed Link Project Manager will assign approved team resource(s) of the GIFL Secretariat to support the engagement activities defined in the FLEP

Information Quality Control

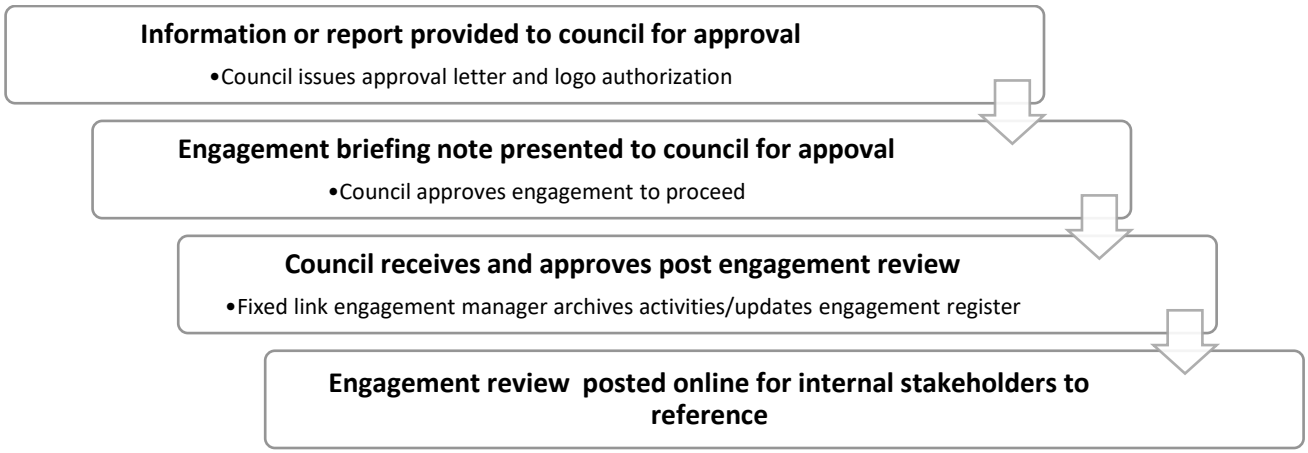
A project of this size, scope and regional visibility will require an information and accuracy quality and control mechanism. It is the responsibility of the Fixed Link Project Manager to manage information approvals and engagement requests.

APPROVED INFORMATION

GIFN Chief and Council will only permit information that has been reviewed and approved to be used in engagement activities. Council will require sufficient time to review information, reports and presentations to be used during engagement activities.

QUALITY CONTROL INTERNAL PROCESS

Fixed Link Engagement internal work flow will be as follows:



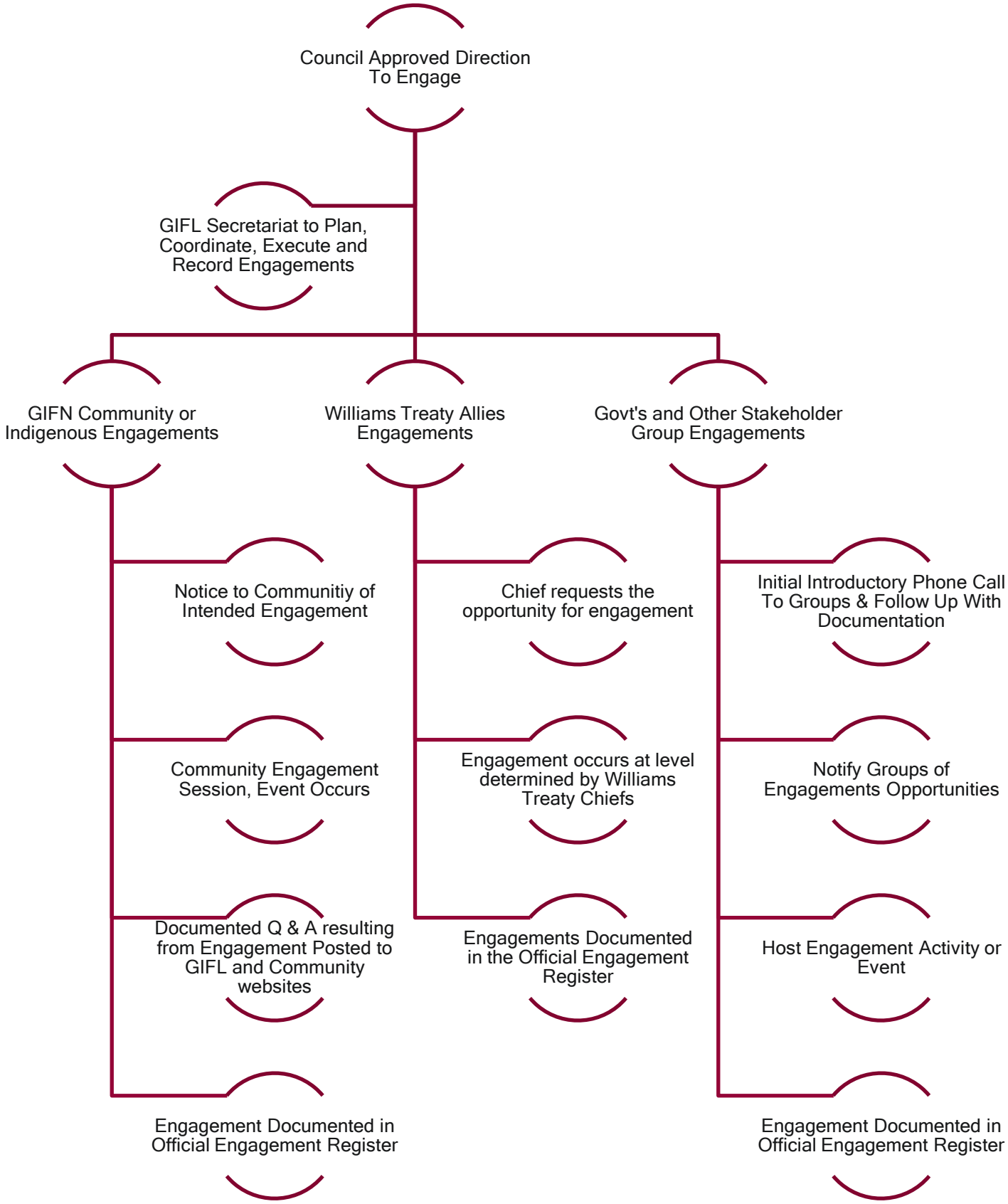
Approved Engagement Process

When deciding the frequency and the appropriate engagement technique used to engage a particular stakeholder group, the Chippewas of Georgina Island will consider three criteria:

1. The extent of impact of the project on the stakeholder group;
2. The extent of influence of the stakeholder group on the project; and
3. The culturally acceptable engagement and information dissemination methods.

In general, engagement is directly proportional to impact and influence. If the project has a big influence on a stakeholder and they have a big influence on the project, engagement (intensity and frequency) with that stakeholder group will increase. There are a variety of engagement techniques used to build relationships with stakeholders, gather information from stakeholders, consult with stakeholders, and disseminate project information to stakeholders.

The Chippewas of Georgina Island First Nation will endeavor to provide consistent forms of engagement throughout the project. As per GIFN engagement principles, the goal of engagement is trust. It has been determined that engagements do not need to be unique, custom or branded to be successful. A simple doctrine of 'engage with purpose' will ensure that stakeholders are only involved in engagement activities that are essential to the project be completed successfully. Optional engagements may be requested by Council to serve a strategic need, however, the FLEP will ensure that community and stakeholders are not overburdened with unnecessary engagements. The following engagement processes will take place:


Council Approved Direction To Engage
GIFL Secretariat to Plan, Coordinate, Execute and Record Engagements
GIFN Community or Indigenous Engagements
Williams Treaty Allies Engagements
Govt's and Other Stakeholder Group Engagements
Notice to Communitiy of Intended Engagement
Community Engagement Session, Event Occurs
Documented Q & A resulting from Engagement Posted to GIFL and Community websites
Engagement Documented in Official Engagement Register
Chief requests the opportunity for engagement
Engagement occurs at level determined by Williams Treaty Chiefs
Engagements Documented in the Official Engagement Register
Initial Introductory Phone Call To Groups & Follow Up With Documentation
Notify Groups of Engagements Opportunities
Host Engagement Activity or Event
Engagement Documented in Official Engagement Register

Approved Engagement Types

The GIFL Secretariat will have a number of approved engagement activities for the project. The following types of engagement are expected:

Engagement Type	Description
Phone Discussions	• The GIFL Secretariat will be able to engage with stakeholders via one on one phone interviews, discussions or group conference calls as desired.
E-Mail	• The GIFL Secretariat will have an engagement specific email address where any enquires may be addressed
Approved Publications and Information Pieces	• The GIFL Secretariat may produce publications and or information pieces as required or deemed necessary.
Small Stakeholder Meetings	• The GIFL Secretariat may host or attend small group stakeholder meetings as required or deemed necessary.
Large Stakeholder Information Sessions	• The GIFL Secretariat may host or attend large stakeholder information sessions as required or deemed necessary.
Press Releases	• From time to time, the GIFL Secretariat may issue press releases pertaining to engagement session dates. • It should be noted that any official press requests pertaining to the Fixed Link project would be directed to Chief and Council, not the GIFL Secretariat.
Social Media	• The GIFL Secretariat will maintain an outgoing information social media presence on Facebook and Instagram. The intent is to inform of engagement opportunities and would not host a discussion forum on the project.
Community Meetings	• The GIFL may host First Nation community meetings as directed by the Chief and Council. These meetings may be located on or off First Nation territory and may be deemed, “Members Only’ or another limiting factor to those that my be allowed to attend.
Other Informal Engagement Opportunities and Speaking Engagements	• From time to time, the GIFL may be presented with an engagement opportunity not on the approved list, such as a speaking engagement or attendance at an event. • All must be approved by Chief and Council prior to accepting invitations of this nature.

Engagement Schedules

Upon submission of the Initial Project Description to the Impact Assessment Agency of Canada, regularly scheduled engagement session will be provided. The frequency of these dates has been determined through initial discussions and presentations by the GIFL Secretariat Team

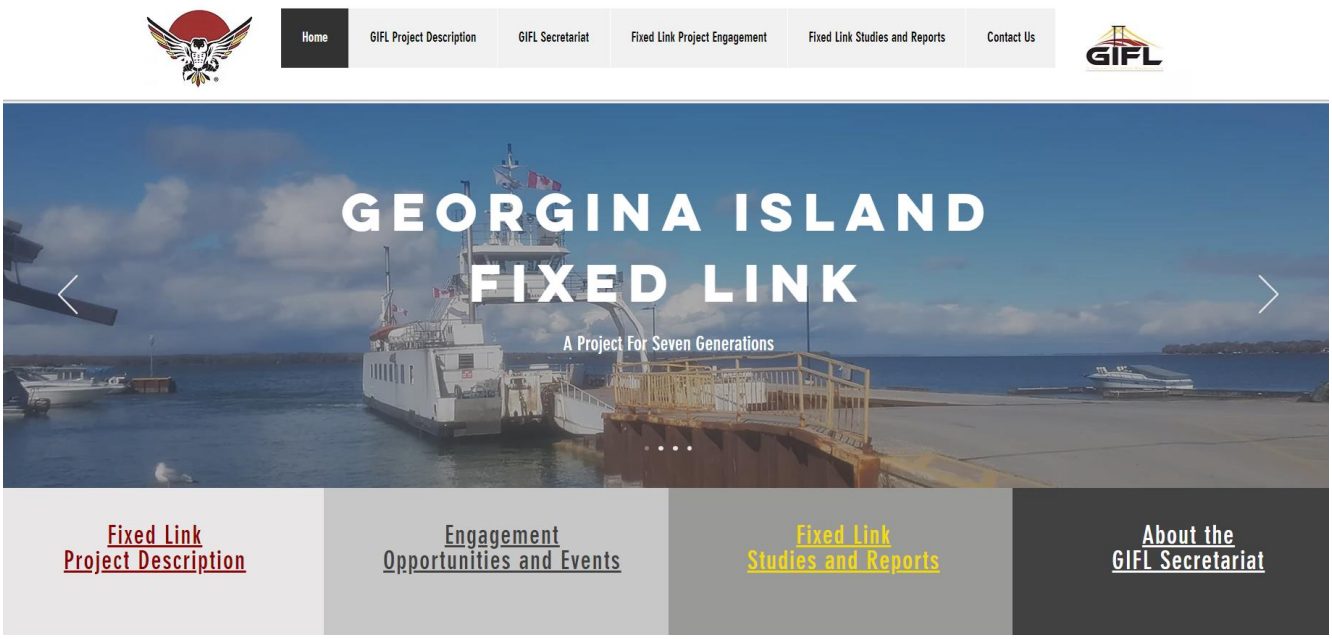
Engagement Stakeholders	Frequency	Notes
GIFN Members	• Community update meetings on a quarterly basis • Specific engagements on sectors, reports, community input will be scheduled as required.	• Community meetings will be held virtually or in person • Community will be given notice of opportunities for project-based inputs as they arise through project development
Williams Treaties Allies	• Updates to Williams Treaties Chiefs will be provided a scheduled meetings of the Williams Treaties Communities • Formal Duty to Consult requirements to be developed on a community-by-community basis	• The Chiefs are in consistent contact on a regular basis and letters of support from the project have been provided. • If required, GIFN will request special or ad hoc meetings with WTFN Chiefs
Governments and Leadership	• Updates are to be offered on a quarterly basis, depending on project progress and need. • Presentations to governments and leadership will be conducted as desired (either when desired or according to a fixed schedule) • Duty to Consult activities will be conducted for the Huron Wendat Confederacy and the Metis Nation.	• GIFL Secretariat has opened a line of communication through the website, email contact and presentations.
Public and Community Groups	• Public presentations will be conducted to determine impacts during the Impact Assessment process as required. • Organizations currently protecting Lake Simcoe may request presentations to their respective groups given the shared interest with the community of Georgina Island • A website has been developed at www.gifixedlink.com to share information, reports and updates on an ongoing, real time basis. ○ General public can subscribe for updates • Facebook pages has been developed to support general public engagement	• GIFL Secretariat has opened a line of communication through the website, email contact and presentations.

Open Communications

The GIFL Secretariat will make every effort to provide open lines of communications. In order to do that, the following measures have been put in place:

gifixedlink.com

The website www.gifixedlink.com has been established to provide real time updates to the public.



The public will be able to subscribe for updates and meeting announcements through the engagement contact management system.

Social Media

The GIFL Secretariat will maintain a primary social media page on Facebook. The link is as follows: https://www.facebook.com/gifixedlink

As updates are made to the websites or engagement opportunities are scheduled, they will be posted to the Facebook page to allow users to join.

e-Mail

The GIFL Secretariat will maintain an email address with a commitment for response within 24 hours. This address will be managed with the intent of inclusion in the formal engagement records.

IAAC Process

The GIFL Secretariat will support engagement and contact efforts undertaken by the Impact Assessment Agency of Canada.

Appendix #1

SAMPLE OFFICIAL ENGAGEMENT REGISTER

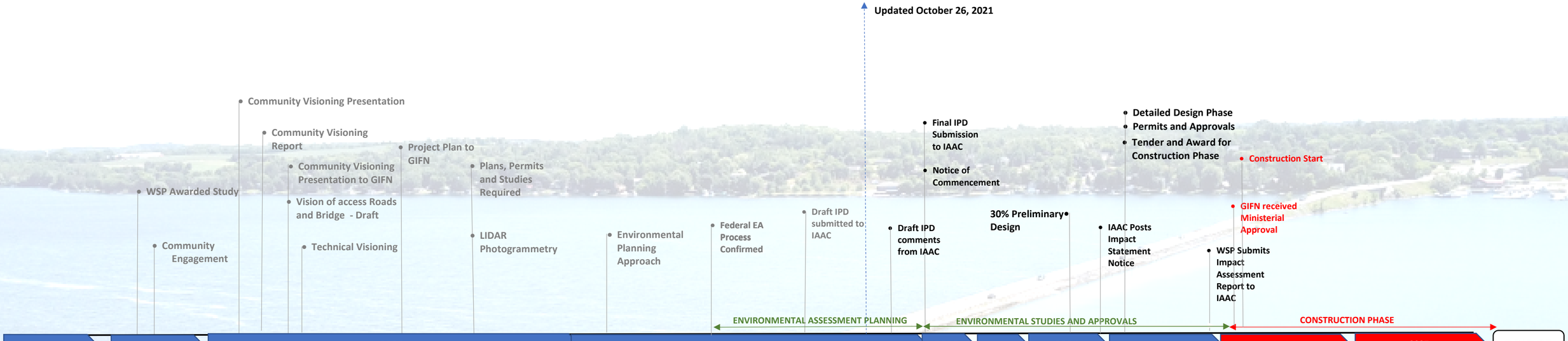
Fixed Link Sample
Engagement Register

No.	Date	Stakeholders / Audience	Engagement Spectrum	Approved Info Filed	Engagement Type	Issues and Concerns Raised	First Nation Action Items	Included in Consultation Record
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

Appendix O Draft Project Schedule

GEORGINA ISLAND FIXED LINK STUDY

TIMELINE



Historical Review:
2008–Neegan Burnside Study
-Community Survey
-Off Reserve Questionnaire
-Options (Alternatives) Review
Result: Bridge and or Causeway

October:
WSP Awarded Study

December:
Community Engagement

Community Visioning Report – confirm and expand on reasoning and requirements for a Fixed Link

Assessment of Technical Requirements (Studies, Permits, Approvals) in Engineering, Environmental, Water, Transportation - Municipal, Federal and various authorities.

Review of the Environmental Assessment processes and requirements to determine right path forward for GIFN and the project.

Specification documents are a comprehensive description of all the objectives for a project and contains all goals, functionalities and details required for a contractor to fulfill the of the Design details for the GIFL project.

Environmental Approval requires multiple levels of coordination, reporting and approvals.

Permits and approvals (non-EA) are assessed, prepared and submitted for approval.

Some design, plans and specifications may be addressed in parallel to the EA Process. This is dependent on the status of the process.
Consultations/ Engagements with Community, special interest groups and authorities having jurisdiction.

Note: Background image is James A Gifford Causeway - not the GIFL design..
Dates are approximate and will be updated as the project progresses.

Appendix P Draft Initial Project Description

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION FIXED LINK

Draft Initial Project Description of a Designated Project



September 2021

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PART A – General Information

1. The project's name, type or sector and proposed location.

Project name: Georgina Island Fixed Link
Type/Sector: Transportation
Proposed Location: Georgina Island, Ontario
Municipal Location: Town of Georgina, Regional Municipality of York (Lower Tier/Upper Tier)

2. The proponent's name and contact information and the name and contact information to the primary representative for the purpose of the description of the project.

GIFN Communication Protocol:

Mail/e-mail: All correspondence to be sent to the **Proponent Contact**, copy to **Primary Representative Contact**

Telephone: Direct all inquires to the **Proponent Contact**

Proponent:
Chief Donna Big Canoe
Chippewas of Georgina Island First Nation

Proponent Contact:
Sue Olguin
Senior Project Manager
WSP Canada Inc.
100 Commerce Valley Drive West,
Thornhill ON L3T OA1
647-963-0257; sue.olguin@wsp.com

Primary Representative Contact:
Mike Jacobs
Chief Executive Officer
Cambium Indigenous Professional Services
1109 Mississauga Street
Curve Lake First Nation, Ontario
K0L 1P0
Phone: (705) 872-7244;
m.jacobs@indigenousaware.com

3. A summary of any engagement undertaken with any jurisdiction or other party, including a summary of the key issues raised and the results of the engagement, and a brief description of any plan for future engagement.

Engagement Summary, Issues and Results

Before 2019, the GIFN retained consulting services of Neegan Burnside to complete an alternative assessment for a Fixed Link. As part of this study (completed in 2008) various agencies were engaged and issues pertaining to mitigation of environmental impacts were raised. The results of engagement during this 2008 study were the need for GIFN to retain and conduct additional details Project Planning for a Fixed Link.

In Winter of 2019, WSP Canada Inc. (WSP) was retained to develop a Draft Project Plan for the GIFN and identify a planning, design and construction plan for a Fixed Link. On November 4, 2019 WSP engaged

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the Chippewas of Georgina Island First Nation (GIFN) Chief and Council and presented their understanding of the background context, engineering options and work completed to date. The objective of the meeting was also to hold a visioning workshop with GIFN leadership to determine project need, project challenges issues, and a method for engagement within the community. An approach for community engagement (Visioning workshop for a Fixed Link) was also delivered. Key issues raised in this meeting related to the risks associated with the current Aazhaawe Ferry and inclement weather that has resulted in loss of life within the community, including safety, jobs, environment, access, and traditional knowledge. Youth, Elders and overall Community Health and Wellbeing (quality of life) were also discussed and matters pertaining to the historical importance of pedestrian footpath from the Mainland to the Island were discussed. The outcome of this meeting provided WSP and the GIFN Chief and Council with next steps to engage the GIFN community in the Fixed Link Study and to select a preferred alternative means for carrying out the technical investigation and future engagement that would be required.

Public Engagement

On December 3, 2019, a pop-up booth for the project was set up at the Georgina Island Annual Community Holiday Bazaar, which took place on December 3, 2019, in order to enhance outreach with members and cottagers. Present at the booth were representatives from the Consultant Team alongside members of the Georgina Island First Nation Economic Development Department. Project constraints and opportunities as well as schedule were presented to approximately 60 attendees. Members of GIFN and cottagers present at this pop-up event were presented with a Study Area Map and feedback pertaining to project issues, concerns and opportunities were collected. This pop-up event was also used to advertise a community-wide workshop. The event resulted in the identification of key issues and concerns that the community wanted to address as part of the Fixed Link Study, including land protection, security, route selection, tax impacts and effects on species.

A Community Visioning Workshop was facilitated by the project team at the Georgina Island Community Centre on January 13, 2020. Live questions were asked using Clicker Technology during a formal presentation, after which the 31 attendees were divided into 5 facilitated focus groups and asked to discuss the benefits and constraints in greater detail. More specifically, the groups focused on discussion about the potential positives, objections, enhancements, remediation related to the project, as well as other comments and suggestions. Panels around the room were provided to describe technical aspects of the project plan and schedule. Community members expressed a strong preference for continued communication by email and continuing to hold community meetings and events regarding the project.

The results of the Community Visioning Workshop informed Chief and Council of the Vision and objectives for a Fixed Link Study and the preferred alternative for undertaking this project on behalf of the community. As a result, 73% of participants were interested in seeing GIFN construct a combination of a causeway and bridge, and 63% were interested in including a multi-use path or other form of pedestrian connection as part of the Fixed Link Study. Furthermore, 63% of meeting participants saw an urgent need for a fixed link within the next year, though most understood the project will likely take from 5 to 10 years to complete. Participants identified water pollution, fish habitat and wildlife habitat as important environmental features to be protected. The comments from this workshop also indicated that the south-western shoreline of Georgina Island is the preferred location, consistent with previous studies and that the quality of life, healthcare and job creation were cited as top socio-economic

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concerns in the community which the Fixed Link is proposed to address. Other comments discussed: duration of construction, the duty to consult, who will complete the EA, other environmental concerns, access and security, and traffic expectations.

Federal Agencies

In Fall 2020, GIFN engaged the Canadian Infrastructure Bank (CIB) and held an introductory meeting with the Impact Assessment Agency of Canada to discuss the project and next steps. The outcome of this meeting was the identification that the Fixed Link falls under the designated project list under the Impact Assessment Agency because it is proposed to contain a contiguous causeway greater than 400 metres and crosses the Lake Simcoe. The result of this meeting led to the initiation of this Initial Project Description by the GIFN. Following that initial discussion, GIFN continued to work with the CIB as a potential funding partner. In August 2021, the CIB has issued a Memorandum of Understanding (MOU) for Chief and Council's consideration intended to offer 'Accelerator' project loan support for the upcoming development and study costs related to the project. This MOU for financial support is expected to be signed by Chief and Council by mid September 2021.

Community Interest Groups

On April 22, 2021, CIPS introduced the project to the Rescue Lake Simcoe Coalition (RLSC) to discuss details of the project, aspects of interest, processes for engagement and next steps. RSLC suggested the project promote reconciliation and protect the environment on the whole. During this conversation it was concluded that GIFN will engage the RLSC and all parties having the same Lake Simcoe protection goals as the community. RLSC did offer to promote meetings and inform their members of any relevant engagements to assist the community. With some technical details provided during this conversation, RSLC expressed interest regarding impacts and design aspects of the project with specific interest on impacts to Lake Simcoe and the Lake Simcoe Watershed. CIPS iterated that engagement will be ongoing with RSLC to find acceptable mitigation measures and to ensure project changes will protect the lake.

To follow up on this initial engagement with the RLSC, on July 22, 2021, Cambium Indigenous Professional Services (CIPS) met with non-for-profit (NFP) organizations with an interest in protecting Lake Simcoe using a list provided by IAAC. CIPS presented a project introduction that included the project background and understanding prior to the official IAAC process begin initiated. This meeting also served as the initial request for professional, invested eyes to join the community's lens to protect the Lake going forward. The participants expressed some concern about the impacts this Project may have to individual landowners on the Lake and how impacts may be mitigated. Generally speaking, it was acknowledged that the current diesel ferry system poses an environmental hazard to the Lake and more information about GIFN transportation options would be provided moving forward. It was noted that socio-economic benefits will be considered on both the positive and negative side. In addition, the Project Team will be hosting a session for individuals on the Lake to inform them of the Project intentions.

The following project NFP organizations were present or received access to the recorded presentation:

- Rescue Lake Simcoe Coalition
- Friends of Strawberry Island
- Carden Field Naturalists

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- South Lake Simcoe Naturalists
- Ontario Water Centre
- North Gwillimbury Forest Alliance
- AWARE Simcoe
- Lake Simcoe Association
- Nature Barrie
- Orillia Naturalists Club
- The Ontario Headwaters Institute
- Windfall Ecology Centre
- Lake Simcoe Watch
- Save the Maskinonge
- Ontario Rivers Alliance
- Ecojustice
- Sail Georgina
- Ontario Water Centre

Regulatory Agencies

On May 12, 2021, Cambium Indigenous Professional Services (CIPS), WSP and the Impact Assessment Agency of Canada (IAAC) met with the Ministry of Environment, Conservation and Parks (MECP) to coordinate environmental assessment requirements for the Fixed Link. MECP confirmed that an Individual EA will likely not be required; however, certain Class EA processes may apply. MECP also stated that the Municipal Class EA is not applicable, however, the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) Class EA may apply. MECP committed to providing reviews of submitted information pertaining to applicable *Environmental Assessment Act* requirements and will provide comment according to their policy areas.

On May 26, 2021, WSP met with the MNDMNRF to discuss EA processes and jurisdictions including potential works on shorelands and lake bottom under MNDMNRF jurisdiction. The MNDMNRF also confirmed Resource Stewardship and Facility Development (RSFD) Class EA requirements for lakebed and shoreline areas. The MNDMNRF stated that internal discussions are to confirm the consultation process including the Duty to Consult. The MNDMNRF requested to receive a copy of the Consultation List to confirm and/or update as required. The MNDMNRF communicated that a work permit is required under public lands to allow construction on the lakebed, which can occur as a result of an easement (or long-standing operational authority) or purchase. A purchase would relieve MNDMNRF of the requirement for long-term reviews going forward. The MNDMNRF stated that there are numerous authorizations including Public Lands Act, Fish and Wildlife, Lakes and rivers improvements.

On August 11, 2021, WSP and CIPS met with the Lake Simcoe Region Conservation Authority (LSRCA) to introduce the project and provide overview on the project status to date. It was noted that the proposed project will follow the Federal IA process as the project is on the list of Designated Projects, as well Lake Simcoe is navigable waters and will introduce specific permitting requirements. As part of this process, GIFN will be consulting with multiple groups as part of the draft Initial Project Description (IPD) process. The LSRCA confirmed that they do not have jurisdiction for this project but can participate to provide technical feedback and advise as needed. The LSRCA expressed general support for the project

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and provided a number of recommendations to ensure impacts/risks to Lake Simcoe are minimized and/or mitigated, specifically hydromorphological impacts since Lake Simcoe has portions with hydromorphological hazards. The LSRCA communicated that a Voluntary Project Review (VPR) process may be required and noted that they will need to discuss with the Board of Directors to identify what level of support could be provided to Project. GIFN will be presenting to the LSRCA Board in Fall of 2021 as a follow up. See Appendix F for meeting notes with the LSRCA.

Indigenous Communities

On July 15, 2021, Chief Donna Big Canoe met with the Williams Treaty First Nations (WTFN) Chiefs to introduce the Project and inform them of the community's formal Band Council Resolution initiating the Island's intent to construct a Fixed Link. Following up from the meeting, Chief Big Canoe reintroduced the Project on August 26, 201 requesting a Letter of Support from each community. As a result of this meeting, Georgina Island First Nation has received Letters of Support from each of the WTFN Chiefs on behalf of the following communities:

- Hiawatha First Nation (September 15, 2021)
- Chippewas of Rama First Nation (September 13, 2021)
- Mississaugas of Scugog Island First Nation (September 13, 2021)
- Alderville First Nation (September 13, 2021)
- Curve Lake First Nation (August 10, 2021)
- Beausoleil First Nation (September 15, 2021)

In the Letters of Support, The WTFN confirmed that they will follow an internal, agreed to process for the Consultation to ensure that indigenous consultation is occurring. GIFN informed all communities that regardless of the internal process, the IAAC will be contacting their consultation department on this process and that federal funds are available to support their consultation efforts pertaining to this Project. See Appendix F for a copy of the Letters of Support received from the WTFN.

On August 12, 2021, GIFN met with the Métis Nation of Ontario (MNO) to introduce the Project; to request project support; and to identify key consultation plans that may be required moving forward. The MNO expressed interest in any processes that would require archaeological studies or impacts as well identifying any potential socio-economic benefits that may be realized by the MNO citizens as a result of such a large infrastructure project. MNO was informed that a procurement plan is in development (completion Fall 2021) that does place a priority on Indigenous participation. GIFN also reiterated their equal concern for any potential archaeological and environmental impacts. The MNO will be preparing an MOU for GIFN Council's review and negotiation in the Fall of 2021 that details the formal relationship moving forward. Of particular note was the acknowledgement by GIFN and MNO of the unique opportunity for Indigenous people to be on both the Proponent and consultation sides of this Project to show how Consultation from an indigenous lens can occur. See Appendix F for meeting notes with the MNO.

Throughout the summer of 2021, GIFN has initiated, via email communications, initial consultation procedures required with the Huron Wendat community. A project presentation will be scheduled for the Fall of 2021 and initial discussions have specifically focussed on archaeology support and Huron Wendat participation during development. Further engagement will detail the consultation relationship moving forward.

Elected Officials

On August 31, 2021, Chief Donna Big Canoe (assisted by CIPS) provided a Project introduction presentation to the Member of Parliament (MP) for York Simcoe, Scott Davidson. This 30-minute presentation was provided as a courtesy to the MP to provide the required information to properly direct communications to the First Nation from constituents as the Project becomes public knowledge. During this meeting, MP Davidson expressed strong support for the Project and was supportive of the First Nation determining their own path for the future. MP Davidson has also offered to assist the GIFN leadership when requested. See Appendix F for meeting notes with MP Davidson.

Finally, GIFN have made initial contact with Caroline Mulroney's office (Member of Provincial Parliament (MPP) for Yok-Simcoe) to schedule a similar presentation as that provided to MP Davidson. This meeting is planned for October 2021 and will provide information to the MPP's office pertaining to how constituents can engage GIFN as well as to determine what the project relationship between GIFN Council and the MPP's office would be moving forward. GIFN will also enquire about the MPP's project role as the current Minister of Transportation for the province of Ontario.

Future Engagement

Following the engagement activities completed in the summer of 2021, GIFN has received feedback that continuous, transparent engagement is desired by all groups. The community has, with the help of Lake Simcoe Living scheduled a 'community at large' engagement for October 5th, 2021. This engagement session will be a virtual introduction to the greater Lake Simcoe community, primarily individuals. This session is being scheduled as a result of what the project team has heard so far from concerned Lake Simcoe protection groups.

The GIFN Chief and Council recognize that additional consultation with Indigenous leaders, agencies and landowners will be required for many portions of the Fixed Link Project that are not solely located on reserve lands. As a result, the community has a draft Community Engagement Plan to be finalized by GIFN leadership following the meeting with the MPP's office and the 'community at large' session on October 5th. Following these meetings, the engagement plan will be finalized and approved by Council and distributed to all stakeholders to inform them of the process to engage with the community moving forward.

See **Appendix E** for the Draft Fixed Link Engagement Plan.

4. A list of the Indigenous groups that may be affected by the carrying out of the project, a summary of any engagement undertaken with the Indigenous peoples of Canada, including a summary of key issues raised and the results of the engagement, and a brief description of any plan for future engagement.

The Government of Canada has a duty to consult, and where appropriate, accommodate Indigenous groups when it considers conduct that might adversely impact potential or established Aboriginal or treaty rights. The nature of this Project will trigger this obligation of the federal government. As the project proponent, GIFN will need to execute a formal Consultation Plan to ensure that impacts do not only impact their own community but those rights of other Nations. All the Chippewas of Georgina Island First Nation are signatories of the Williams Treaties and recognized Indigenous people of Canada. As such, the First Nation will respect the Nation to Nation relationship with the federal government of

Canada and request the same from the federal government of Canada. This relationship is documented by, “Characteristics of a Nation-to-Nation Relationship - Discussion Paper (February 2017) - Submitted to the Institute on Governance (Marcia Nickerson).

GIFN will maintain a set of principles defining core values underpinning interactions with stakeholders.

These principles are as follows:

- GIFN is Committed to understanding, engaging and identifying stakeholders early in the project development process;
- GIFN will engage with Integrity by completing engagements in a manner that fosters mutual respect and trust;
- GIFN will engage with Respect ensuring the rights, cultural beliefs, values and interests of stakeholders are recognized;
- GIFN will remain Transparent throughout engagements by ensuring concerns are responded to in a timely, open and effective manner;
- GIFN will encourage Inclusiveness by encouraging and supporting broad participation by appropriate stakeholders.

The end result of the application the engagement principles is to foster trust through open and meaningful dialogue that respects and upholds the core beliefs, values and opinions of the Chippewas of Georgina Island First Nation and their Membership.

In order to build trust, engagements will be managed in a consistent, uniform manner to establish a ‘brand of information dissemination and stakeholder interaction’ that the community can predict, understand and rely upon.

Communities considered to have real or asserted interactions with proposed site of the Fixed Link Study will be engaged. As the Duty to Consult and Accommodate requirement is the responsibility of the federal government, the First Nation will await and agreed to official list of parties required to be consulted. When this list is received evaluated and agreed upon, GIFN will communicate jointly and similarly to both leadership and designated consultation teams. The following constitutes the anticipated initial stakeholder list:

The Williams Treaties First Nations

- Curve Lake First Nation
- Hiawatha First Nation
- Alderville First Nation
- Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama First Nation
- Mississaugas of Scugog Island First Nation

As mentioned in Section 2 (p.8) above, a meeting was held with the Williams Treaty First Nations (WTFN) Chiefs to introduce the Project and seek support from the First Nations. Overall, the Project was well received, and all communities have provided a formal Support Letter for the Project. Please refer to Section 2 for a detailed summary of this meeting.

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Métis

As mentioned in Section 2 (p.8) above, a meeting was held with Métis Nation of Ontario (MNO) to introduce the Project to request project support and to identify key consultation plans that may be required moving forward. The MNO expressed interest in any processes that may require archaeological studies or impacts as well identifying any potential socio-economic benefits that may be realized by the MNO citizens as a result of such a large infrastructure project. The MNO will be preparing an MOU for GIFN Council review and negotiation in the Fall of 2021 that details the formal relationship moving forward. Please refer to Section 2 for a detailed summary of this meeting.

Huron Wendat

As mentioned in Section 2 (p.8) above, GIFN has initiated, via email communications, initial consultation procedures required with the Huron Wendat community. A Project presentation is planned for Fall of 2021 and initial discussions have specifically focussed on archaeology support and participation during development.

It is often identified through communications that other Indigenous communities or groups may have an ancestral or treaty tie to locations across Canada that have only been documented through the community's local oral traditions. If additional communities or organizations do get added to the above list, this will be noted in final reports and these additional stakeholders will receive a copy of the Detailed Impact Assessment.

5. Any study or plan, relevant to the project, that is being or has been conducted in respect of the region where the project is to be carried out, including a regional assessment that is being or has been carried out under section 92 or 93 of the Act or by any jurisdiction, including by or on behalf of an Indigenous governing body, if the study or plan is available to the public.

Two significant studies were completed in support of a Fixed Link, an Alternatives Assessment by Neegan Burnside in 2008 and a Terms of Reference, called a Fixed Link Project Plan completed by WSP in 2020 (in draft).

Neegan Burnside was retained by GIFN to complete a Preliminary Evaluation of Engineering and Environmental Alternatives (2008) as a first step toward realizing a fixed link between their island community and the mainland. The report focuses on a preliminary evaluation of routes and alternative crossing methods to begin to answer the question of how to provide a more convenient and consistent mode of travel for the residents and their visitors.

GIFN retained WSP to complete a Draft Project Plan while having consideration for the regulatory and legal parameters in place for major infrastructure projects in Canada that have the potential to impact the environment. The Draft Project Plan was developed to identify the suitable planning process, engagement process and environmental assessment guiding principles of the GIFN and community in order to construct a Fixed Link. These studies were funded by and are owned by the GIFN.

The GIFN has initiated these studies and therefore no regional government assessments have been carried out under section 92 or 93 of the Act.

6. Any strategic assessment, relevant to the project, that is being or has been carried out under section 95 of the Act.

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WSP Canada Inc. completed technical background review and analysis for a Fixed Link and provided GIFN a framework through which an environmental planning process would be required and a summary of environmental issues that would need to be investigated. There were no additional strategic assessments carried out under section 92 or 93 of the Act.

PART B – Project Information

7. A statement of the purpose of and need for the project, including any potential benefits.

The community currently relies on the Aazhaawe Ferry, which operates from the mainland to Georgina Island and has been funded by Indigenous Services Canada to date. The ferry can carry up to 18 cars and there is cabin space for 50 walk-on passengers. The Aazhaawe Ferry's operational life cycle is coming to an end and the current Ferry has caused significant health and safety issues for the community. This presents an opportunity for investment in a safer, more reliable and cost-effective transportation alternative to allow safer and continuous access from Georgina Island to the mainland. The GIFN community members engaged in preliminary studies for a Fixed Link, identified with the following future Vision Statement,

> "Chippewas of Georgina Island First Nation is a responsible and sustainable community that values safety and community health. A fixed link will offer the community with safe passage during all seasons while protecting the environmental, cultural, social and economic future of the community."

The proposed construction of a Fixed Link would have significant social and economic benefits to the GIFN community.

8. The provisions in the schedule to the Physical Activities Regulations describing the project, in whole or in part.

The Physical Activities Regulations (Clause 50) provides the rationale and description of the proposed undertaking and identifies why it is a regulated project. Clause 50 includes the "construction, operation, decommissioning and abandonment of a new permanent causeway with a continuous length of 400 m or more through navigable water."

Based on preliminary engineering studies and investigations and based on the fact that the Fixed Link is proposed to traverse Lake Simcoe (a navigable body of water) with a permanent causeway of greater than 400 m, the Fixed Link is a designated project by definition.

9. A list of all activities, infrastructure, permanent or temporary structures and physical works to be included in and associated with the construction, operation and decommissioning of the project.

The following permanent and temporary structures and related activities are required to construct the preferred alternative of a bridge/causeway connecting Georgina Island to the mainland:

Permanent structures:

a) Bridge with piers and foundations in the water;

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b) Causeway at both ends of the bridge to the shore including sheet piles walls and backfill or rockfill in shallow areas; and

c) Culverts may be required below the causeway to allow the water movement.

Temporary structures:

a) Temporary cofferdams at each pier for the construction of foundation and piers;

b) Temporary shoring for construction of culverts and causeways; and

c) Temporary barges may be required during construction.

Preliminary investigations have identified a suitable road network that will be close to the shoreline of Lake Simcoe, in order to accommodate the Fixed Link. A bridge would be constructed of approximately 3.5 m x 8.0 m and foundations in water of 1200 to 1500 m of approximately 14 m wide in addition to a causeway from each end for a total length of 2830 to 3100 m. A causeway of approximately 1000 m would span from Georgina Island connecting to a bridge structure of 1200 m which spans to another causeway of 500 m to the mainland's shore.

It is conceptualized that access roads near the existing Ferry location will be re-designed as a rural road with pavement, shoulders, and open ditches with an 18.0 m cross-section and any additional wider grading as required to match existing grades along the length of roadway, both on the mainland and on the island. The Fixed Link Project will require that some roadways will be re-aligned through both pre-disturbed and undisturbed areas, the roadway corridor will require preparation activities generally including removals and site preparations, construction staging and temporary power, earthworks and subsequent roadworks.

At this time, it is anticipated that underground servicing will be necessary to provide any storm system required to augment the drainage of the rural road and open ditches, and not include watermains or sanitary sewers. Stormwater management considerations may be necessary to address runoff from the road and open ditches, potentially including small roadside pond(s) and pre-treatment to protect downstream waters such as Lake Simcoe.

It is anticipated that aboveground infrastructure would include utility poles with overhead lines to extend electrical power along proposed realigned roadways in order to provide lighting. Temporary and permanent signage, and pavement markings will be required for traffic controls and roadway usage.

Safety and environmental considerations shall be top priorities at all times during the full project and may affect scheduling. Continued engagement and communications to guide and respect all stakeholders will be required as part of the assessment, design, and construction processes.

Decommissioning or abandonment are not anticipated for the proposed bridge and causeways.

The preliminary list of civil engineering drawings and associated deliverables may include:

- Cover Sheet;
- Notes;
- Details;
- Storm drainage plan;

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- Stormwater Management Plan, related documents (Functional Design Brief, SWM Report);
- Erosion and Sediment Control Plans;
- Grading Plans;
- Plan and profiles;
- Composite Utility Plans; and
- Intersection Plans.

9.1 Physical Activities Associated with Roadwork

A general list of physical activities for the roadworks as follows:

- Earthworks
    - Clearing trees and grubbing;
    - Rock clearing, to be confirmed with geotechnical report;
    - Protect or relocate existing utility poles;
        - Existing electrical poles and other utilities.
    - Erosion control;
        - Silt fences;
        - Sediment pond, outlet to lake.
    - Topsoil stripping and disposal;
    - Import soil to fill;
        - Cut to fill: approximate preliminary estimate of 650 m^3;
        - Import to fill: approximate preliminary estimate of 10,400 m^3.
- Road construction
    - Rough grading;
        - Pre-grade.
    - ROW configuration (18m);
        - Rural: ditch and shoulder;
        - Drainage;
        - Stormwater Management.
    - Import granular
        - Pavement structure;
        - Asphalt.
- Intersection works (at Black River Road and Bear Road)
    - Widening, turning lane;
    - Stop sign/controls, other signage, pavement markings;
    - Rural road;
        - Ditching.
    - Culvert for existing ditches;
- Fine grading and restorations of disturbed areas with topsoil, seed/sod, additional plantings as deemed appropriate by other disciplines including landscape and ecology;
- Utilities
    - Electrical/streetlighting/transformers/overhead lines;
        - Intersections;
        - Access roads or nearby road network;

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- Island.

In addition to the roadworks on the mainland and island, there are much larger efforts required for the two causeway segments to ramp the road on each approach to the bridge over the water crossing. A preliminary estimate of the total height of the bridge crossing above the water surface is the road centreline at top of asphalt would be some 28 m above the water surface. This height would allow for the pier height above the water to be 20 m and the bridge structure thickness for the balance.

A major part of the earthworks for the causeways and embankments related to the water crossing will involve the sourcing and placement of suitable fill via trucking on land and barges on water to place it. This process is a multiple step handling operation that requires significant project controls and monitoring. The rough order of magnitude estimate of the earthworks required for the causeways is 4.5 million cubic metres, of which some 2.5 million would be below water surface to fill from existing bottom of Lake Simcoe and leaving a navigable channel in the waterway under the bridge spans.

9.2 Physical Activities Associated with Bridge/Causeways

A high-level list of activities for the bridge/causeways are as follows:

- Marine survey and confirmation of subsurface geotechnical considerations for fill to be placed;
- Earthworks
    - Construction of foundations and piers will require a cofferdam around the foundation cap;
    - Dewatering from inside the cofferdam to the bottom of the concrete cap;
    - Sourcing and trucking of suitable fill to mainland handling area for subsequent loading onto the barges;
    - Barge operations in the water from mainland to both causeway construction areas;
    - Once ready, extending all roadworks construction activities as listed above on both causeways to each end of the bridge segment of the water crossing.

Notwithstanding impacts associated with the construction of foundations and piers, the remainder of the bridge is expected to have no impact on water except the use of barges to transfer materials and equipment. Causeway segments are considered to close the water section with possible culverts to allow water movements at certain locations according to required water studies.

In general, minimal maintenance is necessary for the proposed bridge and causeway. The bridge structure is intended to be a post-tensioned segmental box girder bridge of approximately 120 to 150 m and be supported on solid reinforced concrete piers supported on deep foundations to bedrock. De-icing material will be used on the top surface of the bridge and causeway to reduce the potential of deterioration due to salt application. Stainless steel reinforcing steel will be used according to Ministry of Transportation (MTO) directions and guidelines to reduce future maintenance of the structure. Ice breakers are intended to be constructed to avoid additional forces on the piers.

Temporary structures relating to the construction may include trailers, sheds, and bins for various phases and staging's of construction; also, any temporary moorings and docks related to construction in and on the water. No permanent structures are associated with the road itself, other than the bridge and structural elements (piers, etc.).

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Given the general scale of works for the roadway construction and normal practice, it is anticipated to be a multiyear process involving one General Contractor. All works will be subject to seasonality and weather conditions.

Site removals and preparations can be scoped and undertaken in a period of months once the other environmental considerations and full impact assessment are done. Earthworks may be expected to achieve the magnitude of estimated effort both on the mainland and island in the course of some 6-8 months. In addition, the much greater effort for the earthworks in the water for the crossing by the barge and placement of approximately 4.5 million cubic metres of suitable fill may be expected to require at least 2-3 years of operations.

Roadworks may proceed as temporary improvements along the road corridor to accommodate the construction activities necessary for the causeways and bridge, prior to the full construction of permanent roadworks to access the water crossing.

10. An estimate of the maximum production capacity of the project and a description of the production processes to be used.

The proposed bridge/causeway will provide a roadway link connecting local roads on the island on the north end and Black River Road (a local road) with a T-intersection on the south end. Traffic capacity on the bridge/causeway link will be impacted by traffic discharge rates on both ends. Given its connections, a lane capacity of a maximum of 400 vehicles per hour is projected, akin to the typical lane capacity for a local road. In addition, the vision is that the bridge link will have an enhanced security and controlled access according to the Community Visioning Workshop Summary Report. An entrance control like a guard booth is likely to be implemented. The entry control will slow down the traffic arrival rates and thus reduce the traffic demand per hour, compared to a free-flow traffic entry to the bridge. The Project design is envisioned to allow the regular passage of vehicles up to Class B (e.g. school purposes bus), to be confirmed through further study. Through the Project Visioning workshop and other outreach activities, access to the Island will be restricted to Community members, leaseholders and others by permission. The method of access will be determined.

A Transportation Study will be required, and further discussions should be held with York Region Transit and York Region District School Board to explore the potential for York Region Transit to operate a transit bus and for York Region District School Board to operate a school bus between the mainland and island to aid both residents and visitors without private vehicle access.

No precise estimate for the duration of construction is available as construction timelines depend on the constructability and contractor. However, construction should be ongoing for approximately 3-5 years to construct structural features. It is expected that causeways would be constructed first to allow access to the construction of the bridge. Roads would be constructed prior to causeways to allow access for trucks and heavy equipment. The phasing is also dependent on the availability and sourcing of backfill material. Preliminary design has not been developed to date. However, outline general bridge sections have been provided for general understanding.

11. The anticipated schedule for the project's construction, operation, decommissioning and abandonment, including any expansions of the project.

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See **Appendix D** for a draft project schedule which provides a complete timeline of the Fixed Link Study developed on February 19, 2021. In summary, Phase 1 (Planning Phase), of the Impact Assessment Agency of Canada (IAAC) process is expected to begin in late June 2021 and the Notice of Commencement will complete Phase 1 in early February 2022. Phase 2 (Impact Statement/Studies) of the IAAC process is expected to commence in early July 2022 with the IAAC projected to post the Impact Statement Notice in July 2025. Phase 3 (Impact Assessment) of the IAAC process is expected to begin in July 2025 and commence with submission of the Impact Assessment Report and Conditions to the Minister in September 2026. Phase 4 (Decision-Making) of the IAAC process is expected to commence in September 2026 with the Impact Assessment Report projected to receive Minister approval in October 2026. Construction commencement is anticipated in early 2024 with construction commencement and project completion scheduled for late 2026. No timelines for expected federal, provincial and municipal authorisations or permits and approvals is available at this time.

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12. A list of:

12 (a) potential alternative means of carrying out the project that the proponent is considering and that are technically and economically feasible, including through the use of best available technologies; and

Alternatives for a Fixed Link were developed through studies of preliminary analyses with GIFN in the Proposed Fixed Link Study – A Preliminary Evaluation of Engineering and Environmental Alternatives (2008) prepared by Neegan Burnside. These alternatives were presented to the community and can be re-evaluated for the purposes of documenting the full story of the EA planning process. The potential alternatives include:

i. Do Nothing

ii. Improve Existing Ferry and Ice Road Operations

iii. A Bridge

iv. A Combination of a Bridge and Causeway

Do Nothing – Not a Preferred Alternative

The Nation did not consider doing nothing as a preferred alternative. This is because the Aazhaawe Ferry is nearing the end of its lifecycle and would ultimately leave GIFN and cottagers on Georgina Island with no alternative to cross Lake Simcoe. Although cost-effective in the short-term, continued reliance on a ferry nearing the end of its lifecycle would not solve the issues involving food security, access, health and safety and more. The Preliminary Evaluation of Engineering and Environmental Alternatives (2008) prepared by Neegan Burnside describes the option to do nothing as not adequately addressing the transportation needs of GIFN. The report states that an ideal solution would provide a reliable all-weather transportation link from Georgina Island to the mainland, which would deliver positive benefits in health and safety, economic development, tourism and employment for the community. As such, the "do nothing" option does not satisfy the purpose and rationale for the project.

Improve Existing Ferry and Ice Road Operations – Not a Preferred Alternative

The Nation did not consider continuing and improving existing ferry operations and relying on ice roads during winter months as a preferred alternative. Reliance on a ferry is unsustainable, especially considering that the ferry is nearing the end of its lifecycle and continues to be a costly measure for travel. The Preliminary Evaluation of Engineering and Environmental Alternatives (2008) prepared by Neegan Burnside describes the option to improve existing ferry and ice road operations describes the issue of pack ice and corridor movement as being an ongoing issue. Health, safety, food security and general access issues in winter months would continue to persist. Furthermore, no system exists which could better institute the ice road system. Due to ice conditions and the depth of the channel, a bubble system for ice road transportation would not be feasible. Therefore, this alternative is not technically feasible and has potential impacts on aquatic habitat and existing recreation. This alternative does not fully address the purpose and rationale for the project.

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A Bridge – Not a Preferred Alternative

A bridge was considered by GIFN to be a preferred alternative as it serves as a road link. A road link would deliver many essential benefits such as improved access to the mainland, health and safety, food security, educational/recreational opportunities, tourism, etc. However, the construction of a bridge would not leverage sand islands in the vicinity of Georgina Island. The opportunity to construct a causeway along the sand islands which would then connect to a bridge to cross Lake Simcoe was viewed more preferably by GIFN as this option presents added cost-savings and reduces the length of a bridge, which leads to fewer environmental impacts in water.

A Combination of a Bridge and Causeway – Preferred Alternative

A roadway network including a combination of bridge and causeway would provide more reliable health care services to GIFN including: quicker ambulance service (especially during winter months), more reliable scheduling to accommodate visiting health practitioner travel and improved food security and easier/safer general access to Georgina Island in winter months. Equally significant is that the preferred alternative of a combination of a bridge and causeway would dramatically improve the safety of accessing the island from the mainland during winter months. Constructing a causeway along the sand islands takes advantage of local geography to reduce the length of the in-water bridge, therefore leading to fewer environmental impacts and greater cost-savings.

12 (b) potential alternatives to the project that the proponent is considering and that are technically and economically feasible and directly related to the project.

The GIFN Leadership and Community have already identified a preferred alternative solution – a combination of a bridge and causeway. The WSP technical team has worked with GIFN to draft feasible alternative designs that can be used in the EA and have done so for early scoping, understanding and identification of feasible funding options. The range of alternative designs are based on three preferred routes or alignments of a Fixed Link, displayed in **Figure 1**, including:

Option #1 – A Bridge and Causeway via Duclos Point on the mainland side;

Option #2 – A Bridge and Causeway via the existing ferry route between Virginia Beach Marina and Aazhaawe Simcoe Ferry Landing. ~2,830m in length, originates from an alternate Georgina Fist Nations property (to the West of Bay Vista) and terminates at Georgina Island; and

Option #3 – A Bridge and Causeway envisages the Link on the shoreline between a location near the Study route and Lee Farm Lane on the mainline side connected to the island via the Sand Islands with a connection to Chief Joseph Snake Road – possibly at the existing intersection of Chief Joseph Snake Road and Bear Road; ~3,100 m in length, originates from the Bay Vista Property and terminates at Georgina Island.

Alternative Design Option #3 was selected by the GIFN community due to high residential density concerns at Duclos Point associated with Option #1 and higher costs associated with bridge construction for Option #2. Option #3 leverages the Sand Islands and will require a smaller bridge than Option #2, therefore creating the possibility for a portion of the Fixed Link to be a more cost-effective causeway

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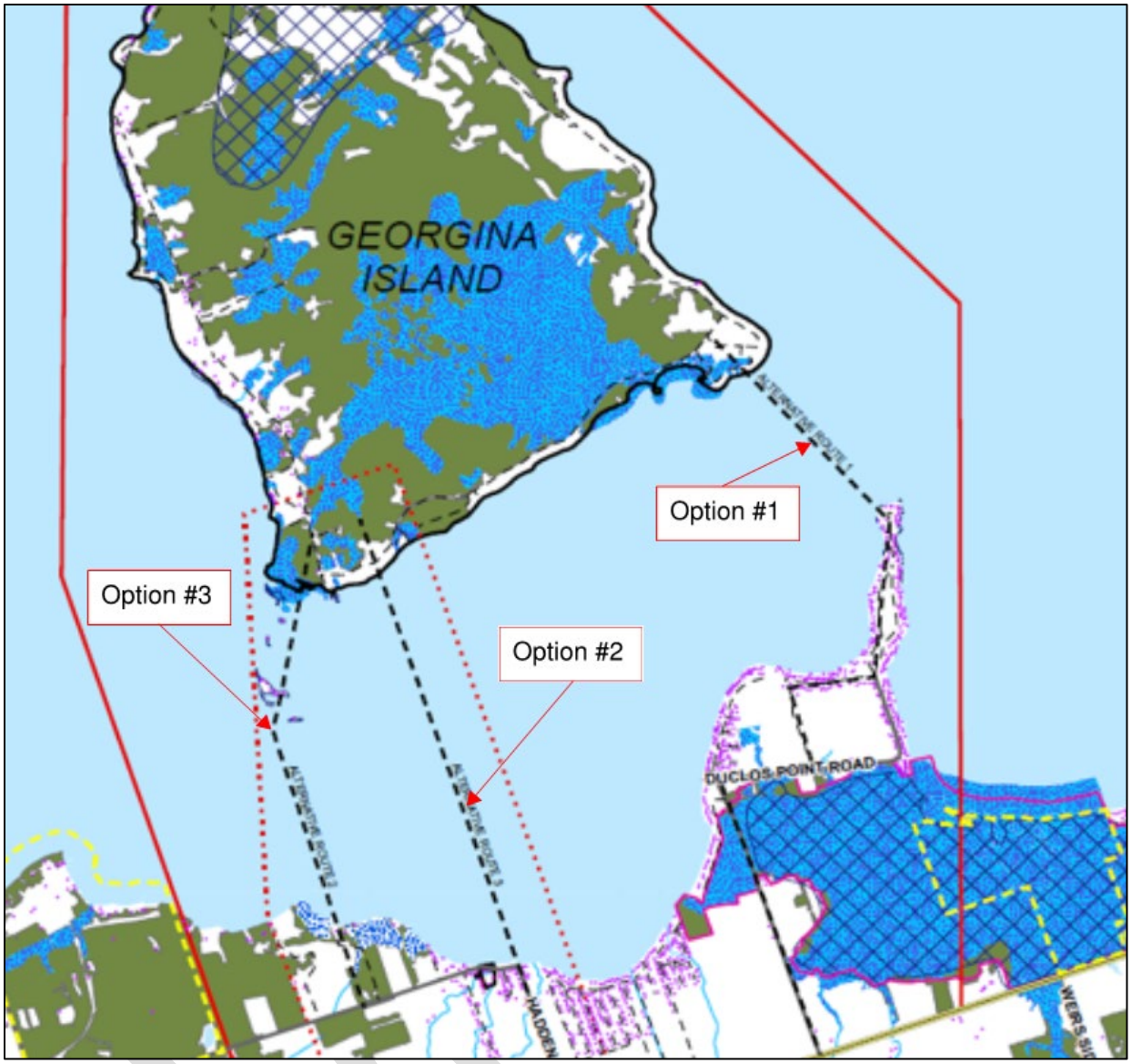

Figure 1: Alternative Designs for a Fixed Link

PART C – Location Information

13. A description of the project's proposed location, including

(a) its proposed geographic coordinates, including, for linear development projects, the proposed locations of major ancillary facilities that are integral to the project and a description of the spatial boundaries of the proposed study corridor;

See the following spatial boundary coordinates of the project limits, exhibited in **Figure 3** and **Figure 4**. Proposed alignment

List of coordinates:

- North: 44° 21’ 23” N ; 79° 18’ 16 W
- Northeast: 44° 21’ 37” N ; 79° 17’ 36” W
- Northwest: 44° 20’ 48” N ; 79° 18’ 40” W
- West: 44° 20’ 09” N ; 79° 19’ 00” W
- Southeast: 44° 19’ 31” N ; 79° 16’ 55” W
- Southwest: 44° 18’ 51” N ; 79° 19’ 46” W

No major ancillary facilities have been identified to date. The proposed alternative is a combination of a bridge and causeway (light blue route in **Figure 2**) that will provide access from the mainland to the southwest shore of Georgina Island. The study area encompasses the southwest tip of Georgina Island, and a mainland area from just east of Sibbard Point Provincial Park, to just south of Black River Road, and east to Hadden Road. The Study Area also includes the waters of Lake Simcoe between the mainland and southwest tip of Georgina Island.

(b) site maps produced at an appropriate scale in order to determine the project’s proposed general location and the spatial relationship of the project components;

See **Figure 2** for a site map of the Fixed Link aquatic and terrestrial features and **Figure 3** for a site map of Designated Natural Areas in proximity to the proposed works.

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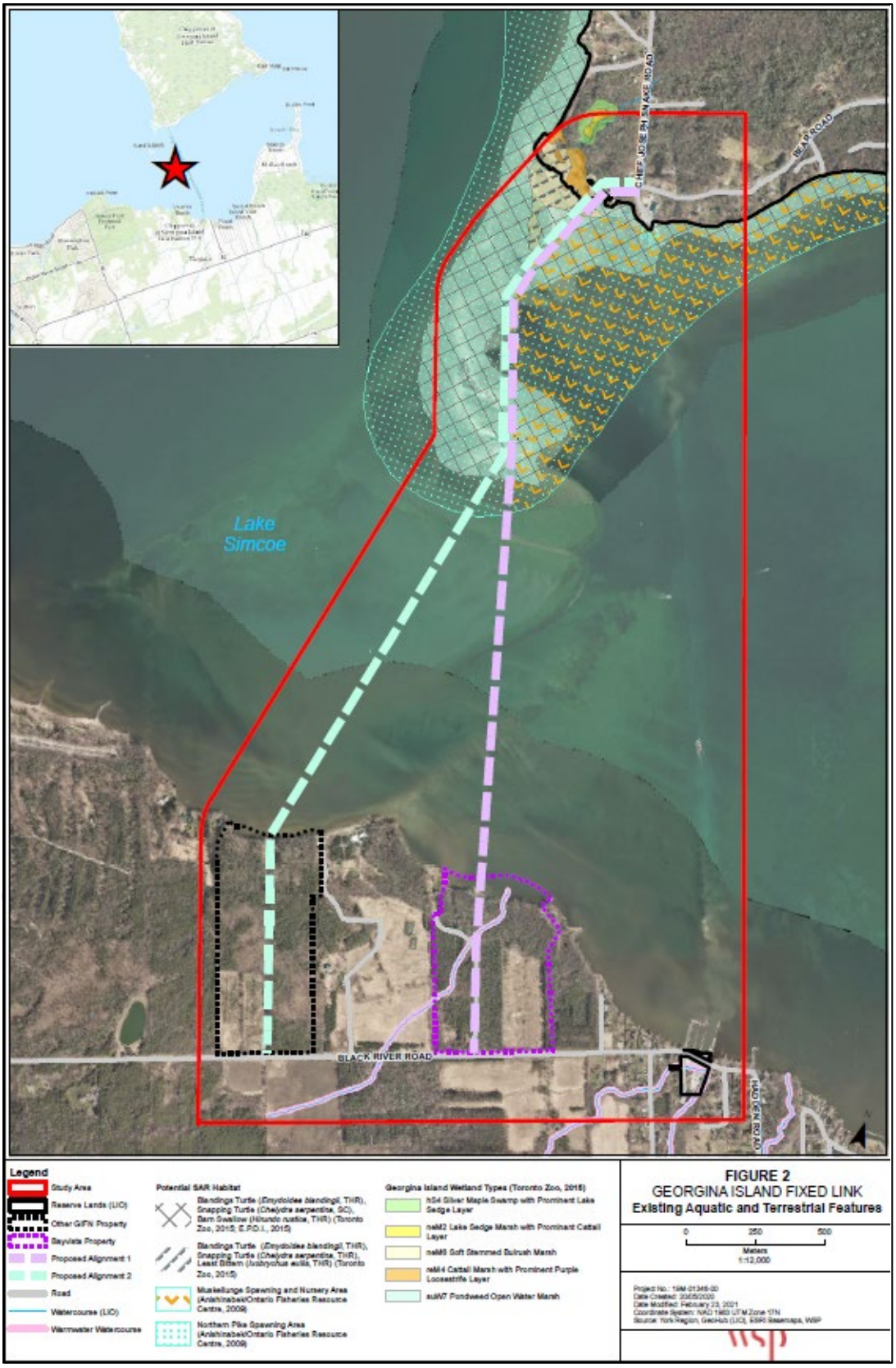

Figure 2: Fixed Link Existing Aquatic and Terrestrial Features

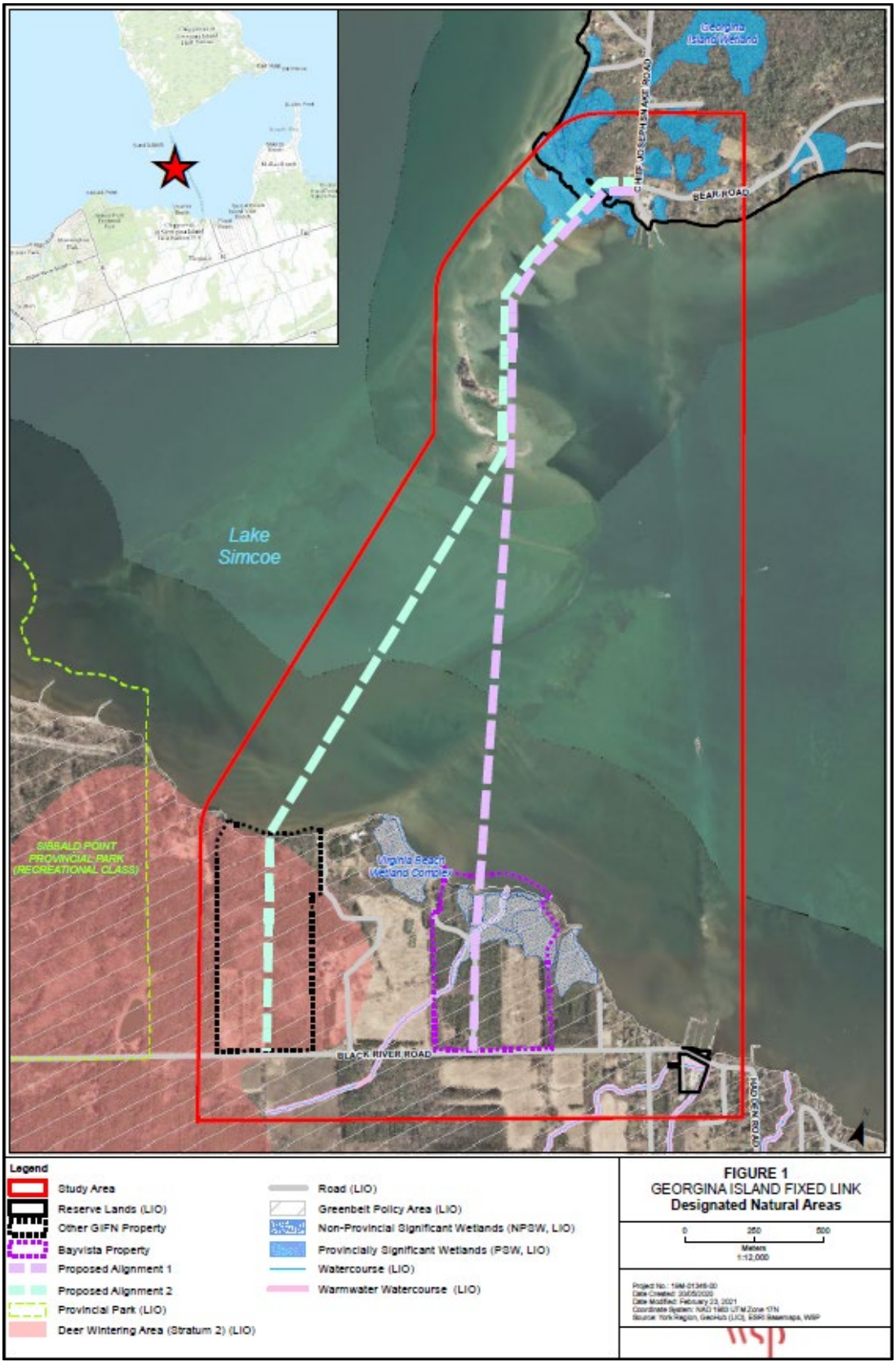

Figure 3: Designated Natural Areas

(c) the legal description of land to be used for the project, including, if the land has already been acquired, the title, deed or document and any authorization relating to a water lot;

See **Figure 4** and **Figure 5** for representations of land ownership and impacted communities as they pertain to the Fixed Link. No information relating to water lots has been provided by the Ministry of Natural Resources and Forestry. See **Figure 4** for the Land Ownership Plan for Georgina Island (2021) and **Figure 5** for the Land Use Plan (2007).

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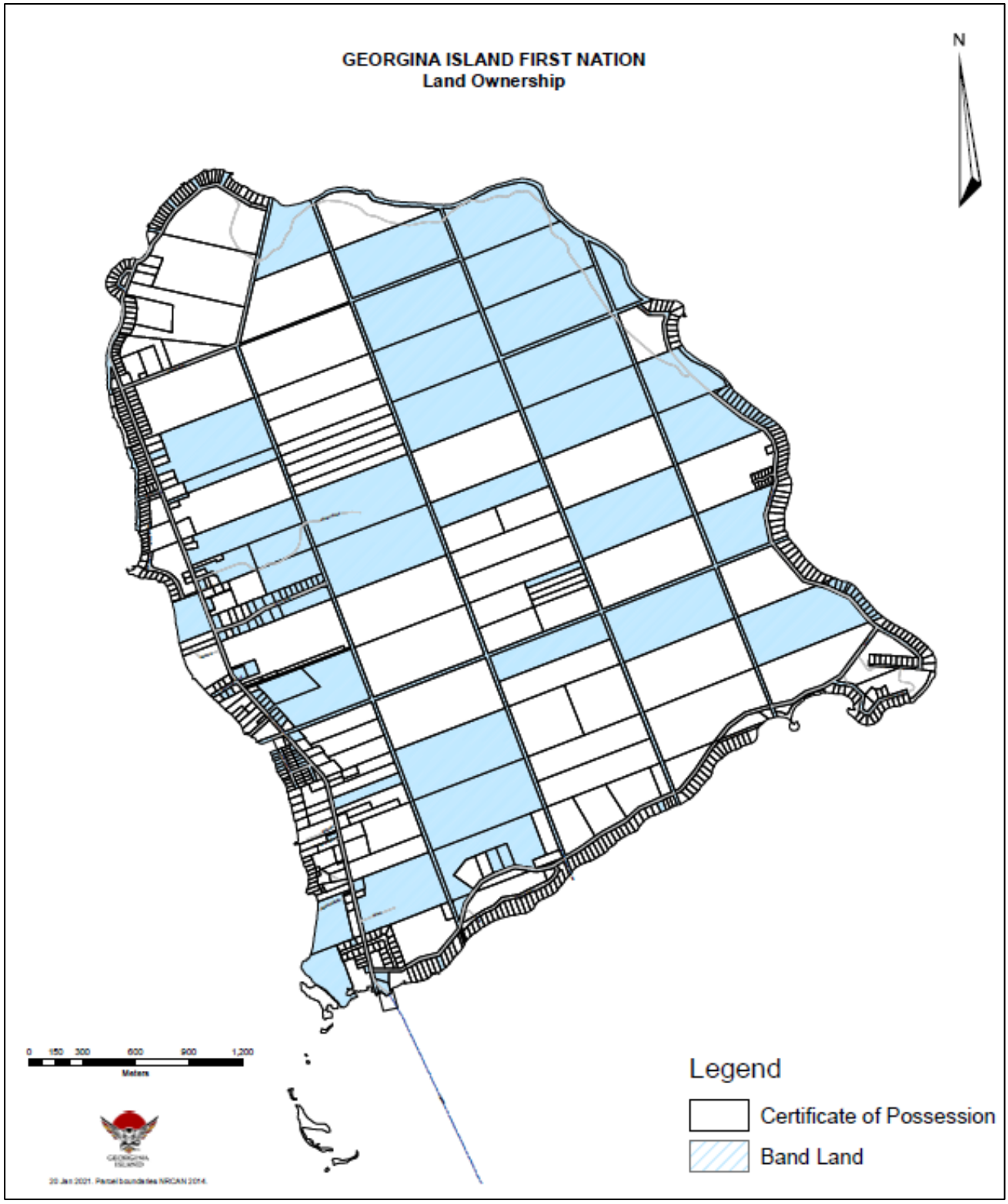

Figure 4: Georgina Island Land Ownership (2021)

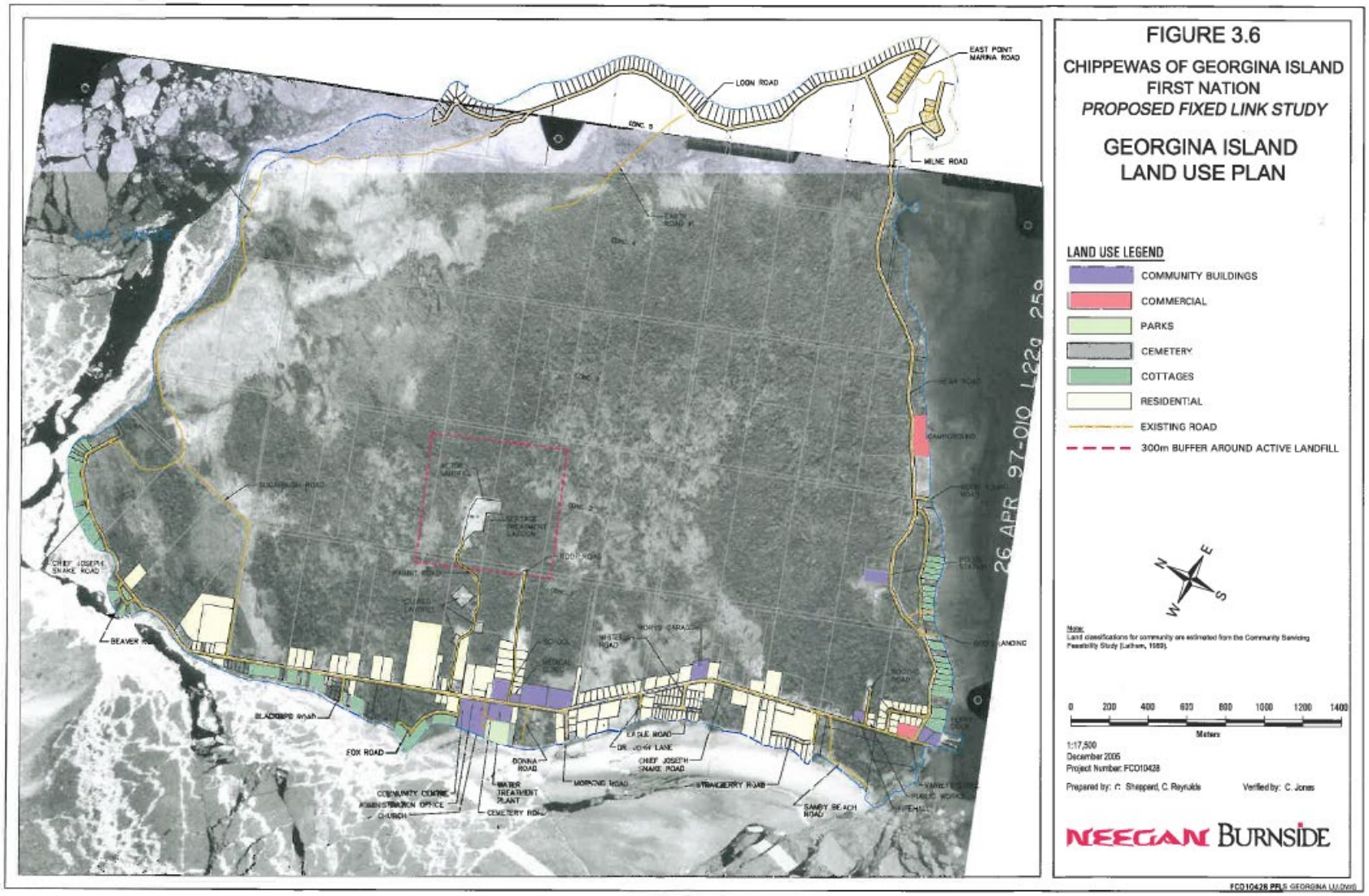

Figure 5: Georgina Island Land Use Plan (2007)

(d) the project's proximity to any permanent, seasonal or temporary residences and to the nearest affected communities;

GIFN land ownership includes Georgina Island (1,295 ha), Snake Island (133 ha), Fox Island (19 ha), Sand Island (4 ha) and Gravel Island (0.4 ha). The First Nation residents reside on Georgina Island, while Snake, Fox and Sand Islands are "surrendered lands" and are currently leased to cottagers (according to the First Nation web site there are about 227 cottage lots on Snake Island and approximately 64 lots on Fox Island. The Land Ownership Plan for Georgina Island (2007) is included as **Figure 5** and the Land Use Plan (2007) is included as **Figure 6**. Seasonal residences are leased to members of the public under agreement with GIFN on all islands.

According to the Fixed Link Socio-Economic Study (2019) prepared by CIPS, the community buildings and most residential structures are centralized on the eastern and western shores, with ample distance away from the project. The majority of the community's homes and community buildings are located on the west side of the island, along Chief Joseph Snake Road. Approximately 911 people live on Georgina Island. Cottages occupy lots along the northwest, south and eastern portions of the island. First Nation community buildings are concentrated in the area of Root Road. The community centre, administration office, school, medical clinic and water treatment plant are located along Chief Joseph Snake Road. The ferry dock, located in the southwest corner of the island, is the main access point for residents, cottagers and visitors.

(e) the project's proximity to land used for traditional purposes by Indigenous peoples of Canada, land in a reserve as defined in subsection 2(1) of the Indian Act, First Nation land as defined in subsection 2(1) of the First Nations Land Management Act, land that is subject to a comprehensive land claim agreement or a self-government agreement and any other land set aside for the use and benefit of Indigenous peoples of Canada; and

As detailed in the Preliminary Evaluation of Engineering and Environmental Alternatives (2008) prepared by Neegan Burnside, GIFN entered into a Framework Agreement on First Nation Land Management in 1996 with Her Majesty the Queen in Right of Canada. Under this arrangement, the Georgina Island Community voted, on February 5, 1997, to opt out of the land management provisions of the *Indian Act* and into their own land regime.

Georgina Island is entirely considered as reserve lands under the Williams Treaty (1923). Other GIFN property is located along the mainland of Lake Simcoe, between the Virginia Beach Wetland Complex and Sibbald Point Provincial Park. Therefore, the majority of the project is located on land subject to *First Nations' Land Management Act*.

(f) the project's proximity to any federal lands.

Besides GIFN's reserves, which are federal lands within the meaning of the Impact Assessment Act, there are no known federal lands in proximity to the project. However, the inherent purpose of the fixed link, and ultimately the preferred alternative, would traverse Lake Simcoe, which is deemed navigable waters by Transport Canada.

14. A brief description of the physical and biological environment of the project's location, based on information that is available to the public.

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Neegan Burnside was retained by GIFN to complete site reconnaissance for terrestrial ecosystems as part of a Proposed Fixed Link Study – A Preliminary Evaluation of Engineering and Environmental Alternatives (2008). Neegan Burnside found that Georgina Island is underlain by limestone bedrock which rises 8-10 m above Lake Simcoe on its northwestern and northeastern points. On these points, the bedrock is covered by only 10 to 15 cm of sandy or clay loams. To the south, the island slopes down into the lake with much of the land only 0.5 to 3 m above the lake. Off the south shore, there are shallow silts over clay, and off the island's southwest corner, currents have deposited a series of small islands and spits known as the Sand Islands. See **Figure 6** for the Study Area's surficial geology.

Lake Simcoe, the main aquatic feature within the study area, is located in the Severn River watershed and is part of the Trent-Severn waterway. According to the Draft Project Plan produced by WSP (2020), Lake Simcoe provides fish habitat for a range of coldwater, coolwater and warmwater fish species. Lake Simcoe occupies approximately 20 percent of the Lake Simcoe watershed and has 722 km^2 of fish habitat. Lake Simcoe is approximately 30 km long, 25 km wide, with an average depth of 15m, a maximum depth of 41 m and a water volume of 11.6 km^2. Water levels and flows are managed by Parks Canada, an agency of Environment Canada.

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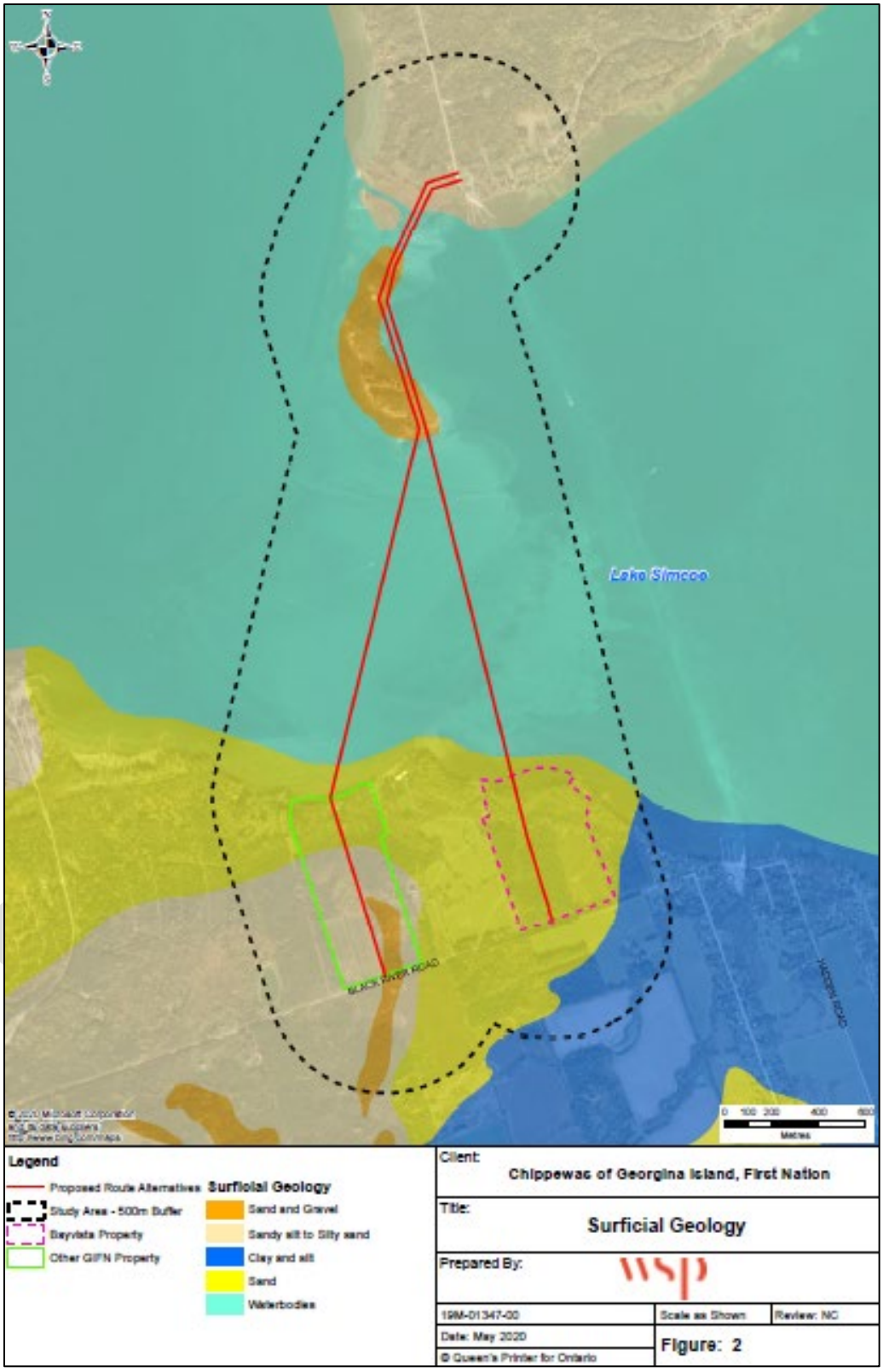

Figure 6: Study Area Surficial Geology

Due to its large size, Lake Simcoe reacts relatively slowly to climatic conditions and stop-log changes. In the southwestern corner of Georgina Island between the tip of the island and Doyle Beach, a major shoal formation extends over a significant part of this area, in places extending above the surface as the Sand Islands. Nearer to the mainland, depths are also very shallow, in the order of 0.6 m extending to the area adjacent to Sibbald Point Provincial Park. An area with a deeper channel exists in the central area between the Sand Island shoals and the mainland, and is thought to have depths of about 1.8 m. According to bathymetric data, the depths within a 20 m span of the existing ferry crossing route is in the order of 1.5 m.

Background information obtained for the Draft Project Plan produced by WSP (2020) indicates a total of 58 species have been documented in the Lake Simcoe watershed. Coldwater species (e.g., Lake Trout, Lake Whitefish, Lake Herring and Rainbow Smelt) are frequently caught north of the Georgina Island and are not typically found along the southern shoreline. A warm water to cool water fishery generally exists north of mainland shoreline between Duclos Point, south-west to Sibbald Point and south of Georgina Island. Also, the south shoreline of Georgina Island is known to contain Muskellunge spawning and nursery habitat as well as Northern Pike spawning habitat (Anishinabek/Ontario Fisheries Resource Centre 2009). The study area also includes three warmwater tributaries of Lake Simcoe on the mainland, and one tributary on the island.

The fish population with the lake has shifted from coldwater species like lake trout, whitefish and herring to species preferring warmer water such as perch, bass and sunfish. These changes relate in part to changes in nutrient cycling and in dissolved oxygen concentrations, siltation over spawning sites, shifts in available food items and the invasion of non-native species. A review of the NHIC database for the study area did not reveal any fish species listed as endangered, threatened or vulnerable.

No aquatic Species at Risk (SAR) have been identified through a review of the NHIC database, DFO SAR Mapping (2020) and other SAR screenings. This will be confirmed with DFO during future study phases.

Through a background review for the Draft Project Plan (2020) conducted by WSP, it was determined that two Avian SAR: Least Bittern [Fed: THR; Prov: THR] and Barn Swallow [Fed: THR; Prov: THR] have been recorded in the study area . Least Bittern (Fed: THR; Prov: THR) may have nested in a marsh (wetland neM6) in the 1980s but habitat conditions may no longer be suitable (Toronto Zoo, 2015). Barn Swallow (Fed: THR; Prov: THR) have been recorded nesting on structures at the ferry dock and foraging over the shoreline and marsh areas at the south end of Georgina Island (E.P.D.I., 2015).

WSPs background review also identified the potential for three additional SAR birds to use the study area as habitat, though some have very low likelihood. This includes Bank Swallow [Fed: THR; Prov: THR], Cerulean Warbler [Fed: END; Prov: THR] and Acadian Flycatcher [Fed: END; Prov: END].

Field surveys have not occurred for migratory birds and would be necessary to determine the presence of presence of avian SAR and other migratory birds.

The *Migratory Birds Convention Act* (MBCA) protects all migratory birds, not just avian SAR and the project has the potential to impact migratory birds, primarily through construction activities. Nesting migratory birds are protected under the MBCA, therefore no work is permitted to proceed that would result in the destruction of active nests (nests with eggs or young), the wounding or killing of birds, of species protected under the MBCA, 1994 and / or Regulations under that Act.

Figure 2 illustrates the known terrestrial and aquatic features within the study area, based on previous work completed by others. For example, wetland community mapping for the Georgina Island Provincially Significant Wetland (PSW) is presented, along with communities that are known to support species at risk (SAR), including Blanding's Turtle, Snapping Turtle, Barn Swallow and Least Bittern (Toronto Zoo, 2015, E.P.D.I, 2015). Known Muskellunge and North Pike Spawning Areas are also mapped according to available background information (Anishinabek / Ontario Fisheries Resource Centre, 2009).

Figure 3 provides an overview of Designated Natural Areas, based on information available in the provincial Land Information Ontario (LIO) database and includes the Georgina Island PSW, Virginia Beach Wetland Complex (non-PSW), Stratum 2 Deer Wintering Area (i.e., Significant Wildlife Habitat [SWH]) and The Sibbald Point Provincial Park.

Georgina Island is approximately 1,291 ha and supports a high diversity of 38 vegetation community types. This includes 25 wetland communities, nine terrestrial communities and four human-influenced communities. Most of the island is covered in broadleaf and mixed swamps with the mixed swamps largely confined to the southeast side of the island. The mixed swamps are dominated by White Birch and White Cedar as well as stands of Eastern Hemlock and Black Ash. In the northwestern portion of the island, there are small mixed swamps of Black Ash and Green Ash and Black Ash, Red Maple, White Cedar and occasionally Balsam Fir as secondary tree species. Scattered among the swamps are small openings supporting cattail marshes and thicket swamps of Red-osier Dogwood, willow species and Speckled Alder.

Additional background information for the study area will be obtained from relevant agencies (e.g., MNDMNRF, MECP, LSRCA) during future study phases, and field surveys will be completed to document existing conditions. The Draft Project Plan produced by WSP (2020), outlines the data gaps and recommended studies to be completed. Those studies will further refine the existing conditions information for the study area and will identify significant and/or sensitive features.

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15. A brief description of the health, social and economic context in the region where the project is located, based on information that is available to the public or derived from any engagement undertaken.

As outlined in the Fixed Link Socio-Economic Study (2019) prepared by CIPS the main population of the reserve resides on the largest Island, Georgina Island. Today, 179 members of 618 band members permanently reside on the island's land mass of approximately 15 km^2 which is 4.5 km long and 3.2 km wide with an area of 1,416 ha./3,499 acres. The First Nation is governed by an elected band council, consisting of one chief and four councillors. There is an administration building, a health centre, a police station, a fire hall and a community centre. As well, the island children attend a two-classroom school until Grade 5, and there is a daycare for infants and toddlers. A church, the community centre and an outdoor rink provide opportunities for the community to gather for various events.

The community buildings and most residential structures are centralized on the eastern and western shores providing their membership with easier access to local services. The First Nation has undeveloped Lake Simcoe shoreline and excellent highway proximity to Highway #12 and Highway #48 leading directly from the Greater Toronto Area to the northern cottage regions. Georgina Island is only accessible by the Aazhaawe Ferry during the spring, summer and autumn months of the year and by scoot or ice road during the winter months. The ferry can carry up to 18 cars and there is comfortable cabin space for 50 walk-on passengers.

As of the 2011 census, the population located within 50 km of the community was in excess of 860,000 people. This is expected to grow to over 1.1 million people. The population located within 100 km of Georgina Island is very substantial and includes the Greater Toronto Area and the entire Golden Horseshoe population. The population within a three-hour drive of the Georgina Island First Nation was over 9.7 million.

Within the primary market, there are 296,778 households and this number increases dramatically to 2,189,671 when nearby populations within a 100 km radius are included. If the market reach is expanded once again, the number of households increases to over 3.5 million. The numbers are expected to grow significantly in future years. The anticipated number of households within 250 km is projected to be over 4.2 million.

The local population surrounding the study area is in excess of 5.4 million (within a 1.5 hour driving radius). The preferred route of the Fixed Link would be located within a 5-minute drive on the mainland to Sibbald Point Provincial Park, one of the most popular parks in Ontario (70,000 people per year). Georgina Island is within the proximity of numerous seasonal activities and prime cottage country, which brings more cottagers and tourists to the area in summer months. Approximately 280 resorts, bed and breakfasts, farming accommodations and campgrounds exist within the immediate area of Georgina Island and the current Aazhaawe Ferry Station on the mainland. Local tourism infrastructure is currently in place to support the demand and is fully operational. Accordingly, a commercial presence with the GIFN community is strong and tourism in the area has favourable conditions for growth.

The Draft Project Plan produced by WSP (2020) finds through recent water supply well records, that the mainland may be partially serviced by groundwater and watermains. The Georgina, Fox and Snake

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Islands Subwatershed Plan (2017) confirms that drinking water within the area is provided through private wells and surface water from Lake Simcoe. A water well survey will need to be completed to confirm the reliance on and details of water wells available in the area. GIFN provides drinking water to approximately 109 households on Georgina Island. This supply has been in place since 1993 and surface water from Lake Simcoe is taken in a location approximately 345 m to the west of the Georgina Island, treated at the Georgina Island Water Treatment Plan.

The average income per household within the local region is significantly higher than the Ontario average. Within Ontario, the average household income is almost $67,000. Within the primary market area, the average family income is just over $77,000. This difference is quite significant when assessing household purchasing power - an examination of the households within 250km also show an income greater than the Ontario average. The difference is less significant, however, and over the next five years is expected remain in line with Ontario averages.

Along with having higher household incomes, a larger portion of households are in the top percentiles for income ranges. Approximately 71% of households within the local market have an income over $60,000 per year and has the lowest percentage of households earning below the poverty line (less than 5%). The more favourable of the statistics is that throughout all households within the more regional markets, the largest earning groups are those that earn over $100,000 and between $60,000 and $80,000 per year.

Owing to high demand in tourist opportunities within the Georgina Island area, overbearing and uncontrolled tourists and overuse of the existing land base are potential risks with expanded tourism potential. As such, overuse of the current ferry system is a threat to local community members relying on service to the mainland. A Fixed Link would alleviate these demand pressures. A controlled and secure bridge would also ensure access to the island and use of the Fixed Link would not be overused, particularly during summer months, which bring considerably more tourists to the area.

Currently, recreational opportunities exist within GIFN on Georgina Island; however, recreational and social activities could have expanded offerings for members on the mainland. Ferry scheduling and inconsistent ferry operations do not provide flexible opportunities for recreation offerings off territories. A Fixed Link would bring more expanded recreational and social activities, however, could also lead to community members experiencing exposure to negative comments or racial stereotyping by participating in mainland base recreation and social improvement programs.

Currently, health care services to GIFN are hindered by inconsistent methods of transport to Georgina Island during winter months and the reliance on one ferry operating with limited capacities during spring, summer and autumn months. Ambulance service in winter months is currently a challenge as ambulances cannot travel on ice and stretchers cannot fit in scoots. As a result of access difficulties, the overall costs of services from the hourly rates are higher than average and there are greater costs for equipment and maintenance equipment. 24/7 service across all health care offerings is not possible due to complexities of accessing the island and emergency service would have to be delivered via air medical services. With a reliable Fixed Link, visiting doctors can more easily and affordably access Georgina Island to provide members of GIFN with essential health care service.

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PART D – Federal, Provincial, Territorial, Indigenous and Municipal Involvement

16. A description of any financial support that federal authorities are, or may be, providing to the project.

The Chippewas of Georgina Island are well positioned to take this project on financially.

The Chippewas of Georgina Island understand the significant costs that will be associated with this project. For community planning purposes, the Chippewas of Georgina Island Chief and Council have separated the project into two separate phases: Planning/Design and Construction.

Project construction is planned to be supported by the Canada Infrastructure Bank (CIB). The community has initiated the processes required to be considered for financial support through an initial meeting, a presentation by the CIB to the First Nation Council. The intent of the CIB investment would be approximately 80% of the required capital supported by the CIB.

The remaining 20% of the project would be funded through a combination of Long-Term Investments, own source revenues and other government equity-based funds. Due to the uncertainty of government programming over the long term, the community is unable to gauge what amounts may be available in the long term. For that reason, the community is operating on the assumption that they will be required to support the full 20% of equity needed and are willing to do so if required.

17. A list of any federal lands that may be used for the purpose of carrying out the project.

Georgina Island No.33, the reserve lands of GIFN, are federal lands as defined in the *Impact Assessment Act*. The Fixed Link will connect the mainland to Georgina Island No.33. Any submerged lands under Lake Simcoe that were once dry lands belonging to Georgina Island No.33, Sand or Gravel Islands before the water levels of Lake Simcoe are also federal lands as defined in the *Impact Assessment Act.* The Fixed Link would also traverse Lake Simcoe, which is listed as navigable waters by Transport Canada.

18. A list of any jurisdictions that have powers, duties or functions in relation to an assessment of the project's environmental effects.

See **Table 1** for a summary of list of agencies that have been consulted with for the Fixed Link Study.

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Table 1: List of Agencies That Have Been Consulted for the Fixed Link Study

Agency	Level	Powers/Duties/Functions
Impact Assessment Agency (IAA)	Federal	IAA's duties include: • Responsible for the administration of the *Impact Assessment Act* (IAA). • Leads and manages the impact assessment process for all federally designated major projects. • Leads Crown engagement and serves as the single point of contact for consultation and engagement with Indigenous peoples during impact assessments for designated projects. • Provides opportunities and funding to support public participation in impact assessments. • Works to ensure that mitigation measures are applied and are working as intended. • Promotes uniformity and coordination of impact assessment practices across Canada through research, guidance and ongoing discussion with stakeholders and partners.
Fisheries and Oceans Canada (DFO)	Federal	DFO's duties and responsibilities include: • Responsible for administration of *Fisheries Act*. • Ensuring that Canada's oceans and other aquatic ecosystems are protected from negative impacts. • Ensuring commercial vessels and recreational boaters can safely navigate DFO waters. • Being there to save lives and protect existing environments when emergencies arise.
Environment and Climate Change Canada (ECCC)	Federal	The powers, duties and functions of ECCC extend to matters such as: • Responsible for administration of the *Species At Risk Act* (SARA). • The preservation and enhancement of the quality of the natural environment, including water, air and soil quality, and the coordination of the relevant policies and programs of the Government of Canada renewable resources, including migratory birds and other non-domestic flora and fauna.

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Agency	Level	Powers/Duties/Functions
		• The enforcement of rules and regulations.

Transport Canada (TC)	Federal	• TC is responsible for developing and overseeing the Government of Canada's transportation policies and programs so Canadians can have access to a transportation system.
		• TC is responsible for the administration of the Navigable Waters Act, the Canadian Transportation Act, and the Bridges Act.
		• TC works towards the following objectives:
		  ○ Proposing and updating policies, laws and regulations;
		  ○ Conducting inspections, enforcement activities and surveillance of the transportation industry's equipment, operations and facilities; and
		  ○ Providing funding to organizations for projects that strengthen the transportation network, including safety improvement projects, technological innovations and green transportation initiatives.

Indigenous Services Canada (ISC)	Federal	• ISC in cooperation with Crown-Indigenous Relations and Northern Affairs Canada is responsible for the administration of Indian Act.
		• ISC works with First Nations, Inuit and Métis to:
		  ○ Improve access to high-quality services;
		  ○ Improve well-being in Indigenous communities across Canada; and
		  ○ Support Indigenous peoples in assuming control of the delivery of services at the pace and in the process they choose.

Ministry of Environment, Conservation and Parks (MECP)	Provincial	MECP's duties include the following: • Administering the *Environmental Assessment Act*. • Protect Ontario's air, land, water, species at risk and their habitats • Tackle climate change • Manage the province's parks and conservation reserves • Maintain strong environmental protections while creating jobs • Enforce compliance with environmental laws • Work with partner ministries, other governments, Indigenous partners and organizations, industry, stakeholders and the public • Monitor and report to track environmental progress

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Agency	Level	Powers/Duties/Functions
Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF)	Provincial	MNDMNRF functions include: • Administration of the *Fish and Wildlife Conservation Act* and the *Invasive Species Act.* • Protect people, property and communities from forest fires, floods and droughts. • Develop and apply geographic information to help manage the province's natural resources.
Lake Simcoe Region Conservation Authority (LSRCA)	Provincial	LSRCA's mission is to work with the community to protect and restore the Lake Simcoe watershed by leading research, policy and action. The LSRCA is responsible for: • The waters, wildlife, and plants within the Lake Simcoe watershed, and has expanded and upgraded its reach and conservation areas several times in the past, gradually assuming control of the Lake Simcoe Watershed in neighbouring regions, such as York RM, Durham RM, Simcoe County, and the City of Kawartha Lakes.
Regional Municipality of York	Municipal	The Regional Municipality of York governs the following in nine municipalities, including: Aurora, East Gwillimbury, Georgina, King, Markham, Newmarket, Richmond Hill, Vaughan, Whitchurch-Stouffville: • Public transit • Water • Emergency medical services • Policing
Town of Georgina	Municipal	The Town of Georgina is structured into several departments, including: • Mayor & Council. • Chief Administrative Officer (Communications). • Deputy Chief Administrative Officer (Office of the Clerk, Municipal Law Enforcement). • Development Services - (Building, Planning, Economic Development & Tourism, Development Engineering). • Operations & Infrastructure (Operations - Roads / Water / Wastewater, Parks, Capital Projects).

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Federal Engagement

Neegan Burnside was retained by GIFN to complete a Preliminary Evaluation of Engineering and Environmental Alternatives (2008) including a summary of federal consultation. It should be noted that consultation and studies completed in 2008 would have been in the context of a much older federal *Impact Assessment Act (*IAA*)* that has changed significantly, as well as specific pieces of federal legislation that have also changed. Environment and Climate Change Canada (ECCC), Department of Fisheries and Oceans (DFO) and Transport Canada (TC) – Marine/Ontario Region, Canadian Coast Guard Central & Arctic Region HQ were sent baseline information.

ECCC does not expect to have any obligations under the *Impact Assessment Act (*IAA*)*. ECCC provided recommendations with respect to surface water quality, wildlife and wildlife habitat and air quality issues. ECCC requested to be kept informed about the project.

DFO requested to be informed about the project and expressed interest in participating in applicable project meetings. DFO requested receipt of additional information pertaining to the type of crossing structure before providing additional comments. DFO suggested engagement with the Lake Simcoe Region Conservation Authority (LSRCA) and Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) will hold fisheries data within the study area.

TC – Marine provided *Canadian Navigable Waters Act* guidelines. TC – Ontario Region, Canadian Coast Guard Central & Arctic Region HQ confirmed that TC is responsible for the administration of the *Canadian Navigable Waters Act*. TC noted that if any relevant projects elements or activities cross or affect a potentially navigable waterway, TC will be responsible for preparing and submitting an application.

Indigenous Services Canada (ISC) currently provides funding for the community's transportation system including the Aazhaawe Ferry, the Ari boats and the ice road currently operating between mainland and Georgina Island. There have been little communications with ISC at this time while the community educates itself on the entirety of the Project. GIFN will begin scheduling formal meetings with ISC in Fall of 2021 to initiate formal discussions pertaining to the desired alterations to the transportations system to and from the Island.

The Impact Assessment Agency of Canada (IAAC) has been consulted in 2020 and 2021 to discuss the processes and requirements for Designated Projects. In January 2021, preliminary consultation with the IAAC and a preliminary initial draft project description is being circulated to identify gaps and establish early consultation with interested parties and agencies.

The Initial Project Description and consultation/Indigenous engagement requirements. Consultation with the IAAC is ongoing and will be updated upon submission of the Final Initial Project Description which is proposed in March 2021.

The Canada Infrastructure Bank has been engaged throughout 2021 to initiate federal financial support for the Project.

Provincial Engagement

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Neegan Burnside was retained by GIFN to complete a Preliminary Evaluation of Engineering and Environmental Alternatives (2008) including a summary of provincial consultation. A request for baseline information was sent to the Ministry of Environment, Conservation and Parks (MECP), Central Region Office and York – Durham District Office as well as the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF), Aurora District Office on November 20, 2006. Correspondence with the above agencies indicated that a pre-feasibility study was underway, and once finalized, a formal consultation process would take place.

Following this work, GIFN maintained this information but did not formally pursue the Project due toa number of community-based factors (human and financial resources) led to a delay in formal pursuit of the Fixed Link at that time.

The Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) provided wetland and greenbelt mapping to Neegan Burnside in 2008 and stated that the project may trigger reviews and/or approval requirements pursuant to provincial legislation such as the *Public Lands Act*, *Environmental Assessment Act* and the *Planning Act*. MNDMNRF indicated interest in participating in the project. No response has been received from the MECP – Central Region Office, while MECP – York – Durham District Office has requested a copy of future correspondence.

Additional consultation with MECP is required since initial contact in 2006. The GIFN has initiated outreach to the MECP in January 2021 to identify Individual or Class Environmental Assessment requirements and associated input that will be included in the final "Initial Project Description."

Municipal Engagement

Neegan Burnside was retained by GIFN to complete a Preliminary Evaluation of Engineering and Environmental Alternatives (2008) including a summary of municipal consultation. A request for baseline information was sent to York Region and the Town of Georgina on November 20, 2006. York Region referenced maps 2-4 of the Official Plan and stated that potential 'landing locations' are located within the Rural Policy Area and listed under the Shoreline Area Policy/Greenbelt Plan. The Town of Georgina confirmed participation in the project and noted that planning land uses be considered. The Town of Georgina expressed concern for impacts on municipal roads and requested that a traffic study be provided based on the ultimate use of the Island to enable the Town to determine the impact on roads. The Town of Georgina noted concerns for increases in traffic volume, ultimately creating a need for road improvements in the surrounding area as well as potential pressure to locate ancillary or other types of uses on the mainland.

PART E – Potential Effects of the Project

19. A list of any changes that, as a result of the carrying out of the project, may be caused to the following components of the environment that are within the legislative authority of Parliament:

See **Table 2** for a list of potential effects and associated mitigation measures as a result of carrying out the Fixed Link project.

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Table 2: List of Established and Effective Mitigation Measures

Potential Environmental Effect	Mitigation Measure
Fish, Aquatic Species and Aquatic Habitat, as defined in subsection 2(1) of the *Fisheries Act*	
• Loss of fish habitat due to infilling	• Minimize impacts through ongoing collaboration between fisheries ecologists and the design team to ensure aquatic habitat considerations are incorporated into the design. • Consult with regulatory agencies for permitting requirements (e.g. complete a Request for Review [RfR] for submission to DFO) when designs have progressed to a sufficient level of detail. • Complete a Fisheries Act Authorization (FAA) application and determine appropriate mitigation and compensation / Off-setting Plan through that process with DFO.
• Effects to fish movement as a result of construction and permanent foundations/piers	• Mitigation measures to be determined through permitting processes at future study phases.
• Effects of shading from the bridge	• Mitigation measures to be determined through permitting processes at future study phases.
• Effects of deck drainage	• Mitigation measures to be determined through permitting processes at future study phases.
• Effects from potential run-off/soil erosion	• Develop comprehensive erosion and sediment control plan and maintain measures throughout construction. • Additional mitigation measures to be determined through permitting processes at future study phases.
• Snow removal	• Store plowed snow off the proposed bridge/causeway away from coastal areas to avoid erosion
• Application of road salt	• Incorporate an appropriate stormwater management design to capture and treat run-off. • Additional mitigation measures to be determined through permitting processes at future study phases.
• Spills as a result of earthworks/in-water works	• Vehicle refueling stations will be located in a centralized location and away from any sensitive receptors. • Employ a spills management plan during construction.

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Potential Environmental Effect	Mitigation Measure
	• Additional mitigation measures to be determined through permitting processes at future study phases.
• Fuel spills as a result of motor vehicle traffic over Lake Simcoe	• Incorporate an appropriate stormwater management design to capture and treat run-off.
• Potential impacts to waterflow, lake currents and fish movement resulting from the causeway infilling • Potential changes to aquatic and riparian habitats from in-water machinery works.	• Mitigation measures to be determined through permitting processes at future study phases.
• Construction of bridge foundations/piers/temporary cofferdams	• Mitigation anticipated to include but not be limited to the following measures: ○ Conduct in-water work during appropriate timing windows. ○ Use isolation methods (e.g., coffer dams) for the in-water work. ○ Additional mitigation / compensation measures to be determined through permitting processes at future study phases.
• Dewatering from inside temporary cofferdams where required	• Conduct fish rescue operations to remove fish from construction zones prior to temporary dewatering of isolated areas.
• Use of barges to transfer materials and equipment for foundation/pier construction	• Mitigation measures to be determined through permitting processes at future study phases.
• Changes in shoreline habitat	• Minimize vegetation removal to the extent feasible. • Any vegetation removed to facilitate construction will be replaced with a mix of appropriate native vegetation. • Additional mitigation / compensation measures to be determined through permitting processes at future study phases.
• Various	• Utilize an Environmental Inspector during construction to ensure that all protection measures are in place, maintained and repaired, and that remedial measures are implemented, where warranted.
Aquatic and Avian SAR, as defined in subsection 2(1) of the *Species at Risk Act*	
• No aquatic SAR (i.e., fish and mussels) have been identified in the study area through the background review process therefore no impacts are anticipated.	• Additional consultation with DFO, MECP and LSRCA will occur during future study phases to confirm no aquatic SAR impacts.

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Potential Environmental Effect	Mitigation Measure
• Impacts to Least Bittern habitat may occur as a result of the project.	• Additional consultation with MECP and ECCC will occur during future study phases to confirm habitat presence, quantify potential impacts and develop mitigation / compensation / overall benefit measures through the permitting process (if applicable).
• Impacts to Barn Swallow habitat may occur as a result of the project	• Additional consultation with MECP and ECCC will occur during future study phases to confirm habitat presence, quantify potential impacts (if any) and develop mitigation measures. Consultation will also determine the permitting or registration process, if required.
• Impact to additional avian SAR may occur as a result of the project. Additional field studies and agency consultation will be required to determine presence / absence and potential for impacts.	• Mitigation measures to be determined through permitting processes at future study phases. • Detailed ecological investigations in consultation with the Lake Simcoe Region Conservation Authority will be required to be completed to confirm the ecological buffers to be implemented for construction of the Fixed Link.
Migratory Birds, as defined in subsection 2(1) of the *Migratory Birds Convention Act, 1994*	
• Direct impacts to nesting migratory birds during construction (e.g., during vegetation clearing, grubbing, grading, etc.)	• Minimize vegetation removal to only that which is required for construction. • Use timing windows to minimize potential for impacts. Specifically, no vegetation clearing, grubbing or other construction activities which may be disruptive to migratory birds to occur during the regional nesting period for the study area (i.e., April 1 through August 31). • Ensure all construction workers are trained in advance of starting work on the potential for encountering wildlife while undertaking their activities and the appropriate response if this occurs (e.g. contact the Environmental Inspector). • Utilize an Environmental Inspector during construction to ensure that all protection measures are in place, maintained and repaired, and that remedial measures are implemented, where warranted.
• Loss of habitat for migratory birds	• Consider restoration planting / compensation in consultation with relevant agencies and the Community.
• Damage to habitat for migratory birds, specifically resulting from the introduction of invasive plant species that can be introduced during construction (e.g. Phragmites)	• Utilize the Clean Equipment Protocol during construction to minimize potential for introduction of invasive species.

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Potential Environmental Effect	Mitigation Measure
• Risk of increased vehicle collisions	• Bridge design to consider and integrate design features that deter birds from the structure.
• Potential for new nesting habitat near/under the bridge	• Creation of new nesting habitat for species such as Barn Swallow could be viewed as a benefit. However, this can create potential issues for bridge maintenance work. • Mitigation measures, if required, to be determined during future study phases.
• Soil and groundwater contamination	• Incorporate an appropriate stormwater management design to capture and treat run-off. • Vehicle refueling stations will be located in a centralized location and away from any sensitive receptors. • Employ a spills management plan during construction. • Develop comprehensive erosion and sediment control plan and maintain measures throughout construction.
• Spills as a result of earthworks	• Employ a spills management plan during construction. • Develop comprehensive erosion and sediment control plan and maintain measures throughout construction. • Exposed surfaces and stockpiles to be stabilized and seeded with temporary seed mix.
Vegetation, Wildlife and Wildlife Habitat	
• Direct loss of terrestrial and wetland vegetation on Georgina Island and the mainland for construction of bridge approaches.	• Complete additional vegetation community assessment and botanical inventories to document rare or sensitive communities or species during future study phases. • Minimize impacts to significant or sensitive communities through ongoing collaboration between ecologists and the design team to ensure ecological considerations are incorporated into the design. • Minimize vegetation removal to only that which is required for construction. • Consider salvage and relocation of any significant species that could not be avoided. • Determine if restoration or compensation measures are required through consultation with regulatory agencies during future study phases.

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Potential Environmental Effect	Mitigation Measure
• Direct Loss of wetland and aquatic vegetation communities for the construction of the causeway	• Complete additional vegetation community assessment and botanical inventories to document rare or sensitive communities or species during future study phases. • Minimize impacts to significant or sensitive communities through ongoing collaboration between ecologists and the design team to ensure ecological considerations are incorporated into the design. • Minimize vegetation removal to only that which is required for construction. • Consider salvage and relocation of any significant species that could not be avoided. • Determine if restoration or compensation measures are required through consultation with regulatory agencies during future study phases.
• Indirect impacts to vegetation communities resulting from the introduction of invasive plant species that can be introduced during construction (e.g. Phragmites)	• Utilize the Clean Equipment Protocol during construction to minimize potential for introduction of invasive species.
• Damage to vegetation beyond the working area	• Install tree protection fencing and ESC measures and maintain throughout construction.
• Soil and groundwater contamination	• Incorporate an appropriate stormwater management design to capture and treat run-off. • Vehicle refueling stations will be located in a centralized location and away from any sensitive receptors. • Employ a spills management plan during construction. • Develop comprehensive erosion and sediment control plan and maintain measures throughout construction.
• Spills as a result of earthworks	• Employ a spills management plan during construction. • Develop comprehensive erosion and sediment control plan and maintain measures throughout construction. • Exposed surfaces and stockpiles to be stabilized and seeded with temporary seed mix.
• Various	• Utilize an Environmental Inspector during construction to ensure that all protection measures are in place, maintained and repaired, and that remedial measures are implemented, where warranted.
Dust and Other Contaminants	

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Potential Environmental Effect	Mitigation Measure

• Dust pollution as a result of construction activities/Fixed Link operation	• Prior to construction, develop a Best Management Practices Plan for Dust including the following mitigation measures:
	  ○ Identification of the sources of fugitive dust emissions;
	  ○ Review the composition and size range of the fugitive dust;
	  ○ Description how fugitive dust will be controlled from each identified source;
	  ○ Schedule by which the plan will be implemented;
	  ○ Description of how the plan will be implemented, including training of facility personnel;
	  ○ Description of inspection and maintenance procedures; and
	  ○ Description of methods of monitoring and recordkeeping to verify compliance with the plan.
	• If mobile equipment is required, obtain an Environmental Compliance Approval from the Ministry of Environment, Conservation and Parks (MECP).
	• As part of the design, assess if noise controls will be required on the Fixed Link (e.g. noise barrier).
	• Regular bridge maintenance to limit dust.

Erosion and Sediment Control	
• Construction activities including excavations can disturb existing conditions, expose soil and lead to potential for runoff	• A geotechnical assessment is required aspects such as stability and settlement of embankments.
• Erosion as a result of tree clearing/grubbing and the relocation of utility poles	• A geotechnical assessment must determine the most suitable foundation methods, slope angles of embankments and any potential ground improvement requirements.
• Snow removal	• Store plowed snow off the proposed bridge/causeway away from coastal areas to avoid erosion.
• Application of road salt	• Incorporate an appropriate stormwater management design to capture and treat run-off. • Additional mitigation measures to be determined through permitting processes at future study phases.
Spills/Runoff	

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Potential Environmental Effect	Mitigation Measure
• Construction machinery and equipment used both in water and on land could cause accidental spills as a result of leakage or contacting fluid-containing components	• De-icing materials are recommended to be used on the top of the surface of the bridge/causeways to reduce the potential of deterioration due to the application of road salt.
• Maintenance and salt use resulting in runoff into Lake Simcoe	• Stainless steel reinforcing steel should be used according to MTO directions/guidelines to reduce future maintenance of the structure. • Maintenance will depend on construction material, coating, etc.
• Fuel spills as a result of increased traffic on the proposed causeway/bridge	• Ice breakers will also be constructed to avoid additional forces on the piers.
Air/Noise Emissions	
• Air emissions as a result of earthworks/construction machinery	• Existing air quality assessments are required to assess potential mitigation requirements as part of the project impacts.
• Paving activities will result in increased local emissions and a short-term impact on air quality	• Document the existing air quality using publicly available data from nearby air quality monitoring stations as part of the Environment Assessment. • Avoid summer months when sensitive receptors in the area may have open windows, thus reducing the likelihood of receiving air and noise complaints. • Select road surfacing material to minimize GHG emissions • Limit the length of construction time on site, and the quantity of materials brought to the project site; this will minimize the potential dust emissions and noise emissions from the paving activities. • Ensure the Construction Contractor is operating in accordance with a fugitive dust Best Management Practice Plan (BMPP): more specifically is using regular watering on short-term material piles, avoiding paving activities during high wind periods, performing street sweeping/roadway clean up in areas adjacent to the construction site, etc. • Notes: ○ Mobile construction equipment to be used on site for paving (e.g. mobile asphalt or cement operations) must be operated in accordance with a mobile Air and Noise Environmental Compliance Approval (ECA). ○ Other construction activities must comply with NPC-115, MECP noise guidelines for construction equipment.

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Potential Environmental Effect	Mitigation Measure
• Use of barges to transport material in-water and construction foundations and piers in-water	• Reduce materials being handled (per hour and per day); minimize the number of trips made optimizing construction schedule. • Minimize the barge trip distance.
• Dewatering activities from inside temporary cofferdams	• Limit the number of pieces of mobile equipment operating at any time.
• Clearing of trees/relocating of utility poles	• Limit the number of pieces of mobile equipment operating at any time.

• Excavated soil on mainland/Georgina Island	• Avoid excavating during high wind events.
	• Apply regular watering during excavation/material piles.
	• Move material off-site to avoid long term storage piles, minimize pile heights.
	• Notes:
	  ○ Excavate soils in accordance with a fugitive dust Best Management Practice Plan (BMPP) to limit air emission impact off site. Those mitigation options listed above would be included in the BMPP.
	  ○ Excavation construction activities must comply with NPC-115, MECP noise guidelines for construction equipment.

• Increased GHG emissions to the air as a result of more vehicles using the proposed alternative (reduced emissions to the water as a result of no ferry service)	• Document the existing noise levels as part of the Environment Assessment.
Soils and Groundwater Contamination	
• The management, movement and placement of soils and the off-site disposal and management of excess groundwater during construction will be required for construction activities • Soil and groundwater contamination issues may be present within the study area and could be disturbed during pre-construction planning activities. • Impacted soil and/or groundwater are likely to be encountered during dewatering and excavation phases of the ESM Project • Two sources of potential contamination were identified by WSP from a high-level study at the Marina and Business Centre and the buildings/storage yard at the	• WSP's high-level study recommends the completion of further investigations including Phase One and Two Environmental Site Assessments to confirm the presence or absence of soil and groundwater contamination within the technically preferred route. • If contamination is identified during Environmental Site Assessments, appropriate mitigation would be required to include environmental clean-up/remediation of the contaminants. • Ensure product for removal of graffiti/murals/vandalism is controlled and does not percolate into the ground/Lake Simcoe.

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Potential Environmental Effect	Mitigation Measure
ferry docks (potential contaminating activities include fuel spills and leaks from fuel storage tanks and fuel dispensing equipment, and vehicle/equipment and waste materials storage) • WSP's high-level study has identified the possible presence of inactive small landfills containing waste materials and groundwater leachate • WSP's high-level study has identified the potential for PCBs, heavy metals, petroleum hydrocarbons, volatile organic compounds, polycyclic aromatic compounds electrical conductivity and sodium adsorption ratio (road salt contamination) • Potential for graffiti/murals/vandalism once the proposed bridge/causeway is complete	
Impacts to Areas of Natural and Scientific Interest	
• No impacts are anticipated to Areas of Natural and Scientific Interest	• The preferred route will avoid construction activities from occurring within the limits of Sibbald Point Provincial Park.
Traffic	
• Additional local traffic and detoured traffic during construction could impact the operations of nearby roadways and intersection • Pedestrians may try to walk improperly • ATVs and snowmobile use • Fishing from the bridge	• Ensure proper signage directs different users (vehicles, ATVs, snowmobiles, pedestrians, etc.). • Increased traffic on local roads may require road improvements from the highway along Black River Road for safety and security. • Options, road widening, speed limit control, traffic flow control (spread out approach direction in and out for various vehicles, types, weight, frequency to avoid bottle necks), education, information, complaint phone line, suggestion box are all to be considered in a Transportation Impact Study. • A Transportation Impact Study is required to identify the impacts and potential improvements such as left-turn lanes, right-turn lanes, signalization, (if warranted) and recommend the lane configurations. Key intersections will include the Fixed Link at Black River Road, Hadden Road at Highway 48 on the mainland side and the intersection of Chief Joseph Snake Road and Bear Road on the island side.

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Potential Environmental Effect	Mitigation Measure
	• The following additional detailed requirements for the Transportation Impact Study are necessary: ○ Study area limits; ○ Horizon years for analysis; ○ Peak periods for analysis; ○ Method for predicting traffic volumes; ○ Method for establishing background traffic volumes; ○ Software program for intersection capacity analysis; ○ Automatic traffic record (ATR) data for Black River Road; and ○ Peak period (7-9am and 4-6pm) turning movement counts at the intersection of Hadden Road at Highway 48 and Chief Joseph Snake Road at Bear Road.

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20. A list of any changes to the environment that, as a result of the carrying out of the project, may occur on federal lands, in a province other than the province in which the project is proposed to be carried out or outside Canada.

The project is only located in Ontario. Therefore, no changes to the environment in another province are anticipated.

21. With respect to the Indigenous peoples of Canada, a brief description of the impact — that, as a result of the carrying out of the project, may occur in Canada and result from any change to the environment — on physical and cultural heritage, the current use of lands and resources for traditional purposes and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, based on information that is available to the public or derived from any engagement undertaken with Indigenous peoples of Canada.

Although the Fixed Link project is considered to provide overwhelmingly positive benefits to Indigenous communities and populations, the traditional and historical community identity of being an Island Nation protected by Lake Simcoe will be compromised. The notion that GIFN is a community that is isolated from the non-Indigenous world, protected by the waters of Lake Simcoe, is one that will be forever altered. In community engagement activities, the First Nation community expressed considerable fear of outsiders, drugs, crime and unwanted non-community members. This fear extended to a desired mitigation of a 'gated' or 'toll' on the Fixed Link to maintain some level of control of access to Georgina Island is maintained.

Similarly, the potential environmental effects from the Fixed Link may result in additional, unwanted invasive species having easier access to Georgina Island. The loss of the Aazhaawe Ferry which operated as an access bottleneck may allow invasive species to more freely reach the island. Although works and studies have clearly indicated the community is currently battling many invasive species, adding to the total number, type and diversity of invasive species on the small land base of Georgina Island is of significant concern to existing resources. These concerns will be addressed through environment-based studies where mitigation measures will also be addressed.

The final impact that will continue throughout this project is an ongoing community-based fear of accident and irreparable harm to Lake Simcoe. The potential of significant harm to the water and ecosystems throughout project construction as well as operations will result in a community that is burdened with a protectionist mentality. This potential negative impact will result in detailed community member oversight and investigations. The community is in the process of developing Environmental Principles, derived from the traditional teaching of the Seven Grandfathers. This process is intended to provide a 'good' path and intention consistent with Indigenous beliefs. This mitigation measure is intended to offset community fears and to provide context for community members to express concerns throughout the process.

Aside from the fear of harm to Lake Simcoe, it is believed by GIFN that this project will have few additional impacts to the physical, spiritual and natural heritage sites of the community. These significant sites are located at safe distances with ample buffer from the proposed Fixed Link location.

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22. A brief description of any change that, as a result of the carrying out of the project, may occur in Canada to the health, social or economic conditions of Indigenous peoples of Canada, based on information that is available to the public or derived from any engagement undertaken with Indigenous peoples of Canada.

The Fixed Link Socio-Economic Study (2019) prepared by CIPS finds that the Fixed Link will have a net positive impact on the community as a result of economic, community well being, educational, social and human health improvements. A boost to the local economy of GIFN and the surrounding area is expected through the creation of direct and indirect jobs during construction and as a result of increased access to the community by the Fixed Link. Furthermore, access to commercial markets becomes simple via a trustworthy transportation route is the key reason for the positive feelings towards the fixed link and the economy. Overall, GIFN views the benefits outlined in **Table 3** as benefits to physical and cultural heritage and the current use of lands and resources for traditional purposes.

Table 3: List of Project Benefits to Indigenous Peoples of Canada

Type of Benefit	Project Benefit
Economic	• More employment opportunities between Georgina Island and the mainland; • Direct and indirect employment opportunities for construction; • Airboat Rescue Agreements possible with Town and surrounding areas; • Partnerships with small business between Band and others; • Opportunities for Band Members to start or expand small businesses; • More access to markets in the GTA; and • The overall size of Georgina Island's economy is expected to grow.
Community Well-Being	• Members wanting to move home will be more likely to return; • Opportunity for a more qualified work force in the lands department, instead of sourcing outside consultation, which may attract local service providers; • Improved housing opportunities; • Better access to experts and services needed at market rates without have to pay the 'Island premium;
Educational	• A managed entry point allowing for better security and scrutiny of visitors resulting in a safe school and student environment; • Students are able to stay at home throughout the whole school year without billeting during freeze up and thaw season; • Students will be able to travel by bus to school rather than bus/scoot/bus in the winter months or bus by ferry during warmer months which reduces travel time to and from school offering more free time for extra-curricular offerings; • Increased opportunities for youth employment; • There will be the opportunity to attract and hire qualified teachers at a lesser cost than those having to cross on ferry boat; and • Parents residing off territory will be able to send kids to Community School to retain their "island identity' and teachings.
Social	• Lower costs for food and other everyday necessities as travel time and ferry costs are eliminated;

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	• Reduction in the hauling of groceries, goods and gas during scoot season; • More opportunity for physical activities/extra curricular activities; • Increased social activities planned and reductions in absence and cancellations due to transportation issues; • Social plans will not have to be cancelled as a result of ferry schedule and weather-related changes: • Gatherings can be held on Georgina Island without mainland attendees having to stay the night; • Increase in recreation opportunities as the current ferry schedule may not fit recreation offerings off territories; and • Greater ability to fit employment opportunities to any schedule, not just the ferry schedule.
Human Health	• Quicker, more reliable and safer ambulance services especially in winter months; • Ambulance service in winter months as currently ambulances cannot travel on ice and stretcher cannot fit in scoot; • More services offered in the community from health professionals; • A reduction in overall costs of services from the hourly rates being charged now; • No missed health-care appointments as a result of poor access to the mainland; • Better food security and access to nutritious foods; • Less physical and mental stress for everyday living such as going out to get groceries or running other household errands; • Members would be able to stay at home and get medical care and long-term care access 24/7; and • Current Georgina Island emergency responders could have new agreements put in place where services are contracted out to Township/Region for Airboat Rescue, Fire and other EMS Supports; • 24/7 services across all services resulting in a more safe, secure community; and • A decrease in homeowner insurance with the perceived increase access to services.

Additional investigations will be required to confirm any potential impact to physical and cultural heritage features of GIFN and Williams Treaties First Nations. GIFN acknowledges that this project will have an overall net gain in social and economic conditions for the community and will conduct investigations against their own traditional land use, knowledge and cultural areas.

23. An estimate of any greenhouse gas emissions associated with the project.

Construction

The Aazhaawe Ferry is the single largest energy user within GIFN. From 2014 to 2017, the Aazhaawe Ferry consumed approximately 244,600 L of diesel annually, accounting for 66% of energy consumption in the Band-owned sector and about 12% of all the energy used within the community as a whole. In addition, the Aazhaawe Ferry is responsible for the production of an estimated 676 tonnes of CO_2eq

annually, which is about 17% of the total GHG emissions produced by GIFN per year. Ensuring that GIFN members have access to the mainland is a critical consideration.

By building a bridge and eliminating the need for the Aazhaawe Ferry, there is a potential for annual GHG production (and energy use) to be reduced. A full analysis has considered the following factors:

- Type of Bridge – GHG emissions are associated with construction projects, including the operation of equipment, material manufacturing and material transportation. There are multiple bridge types available (i.e. causeway, span bridge, etc.) each with a unique GHG emission rate. For the purposes of this analysis, GHG emission rates for the construction of a bridge have been taken to be between 10 and 35 Tonnes of CO_2eq, depending on the structure type.

- Bridge Length – GHG emissions for any infrastructure project will be dependent upon the amount of work required to complete the project. In the case of roads and bridges, this is most easily expressed by the length of the project. There are several proposed routes available for the bridge, the shortest being about 1.4 km and the longest being about 3.1 km.

- Increased Vehicle Traffic – If a bridge were built, it is anticipated that vehicle travel by GIFN residents would increase. The rate of increase is difficult to determine, but for the purposes of this analysis, it is assumed that a range of increases will be between 5% and 50% of current use. Only vehicle traffic from year-round residents has been considered and it has been assumed that there will be no increase in efficiency of vehicles. Impacts due to growth within the residential sector have also been ignored in this analysis.

Due to the many unknowns that exist in relation to construction of the bridge, potential GHG savings under three separate scenarios have been calculated, using the variables shown in **Table 4**, below.

Table 4: Values Used in GHG Savings Estimation for Bridge

Variable	Best-Case	Realistic-Case	Worst-Case
Bridge Length (m)	1,400	2,700	3,100
GHG in Bridge Construction (tonnes CO_2eq/m)	10	15	35
Increase in Traffic (%)	5%	25%	50%

In addition to any assumptions listed above, the calculation also assumes: 1) The typical life of a Ferry is 30 years. The current Ferry will require replacement in 5 years. Replacement of a Ferry results in approximately 1,000 tonnes CO2eq due to manufacturing. 2) Potential increase in the efficiency of any subsequent Ferry's is neglected, as well as any need to increase the size of the Ferry.

As demonstrated in the table above, actual GHG savings achieved over the life of the bridge (estimated to be 100 years) varies greatly depending on the factors listed above. As a best-case scenario, which includes choosing the shortest possible route for the bridge, choosing a low producing GHG emission construction (i.e. a causeway), and if driving does not significantly increase, the construction of a bridge will save about 50,000 tonnes of CO_2eq over its lifetime. Conversely, if the longest route for the bridge is chosen, along with a high producing GHG emission construction, and traffic significantly increases, the bridge would actually "cost" about 100,000 tonnes of CO_2eq over its lifetime. Realistically, the construction of a bridge would likely be close to neutral in relation to GHG emissions over its lifetime, emitting about as much GHG emissions during construction as would be saved due to the elimination of

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the Aazhaawe Ferry. See **Figure 7** for a chart representing potential greenhouse gas emissions as a result of the proposed works.

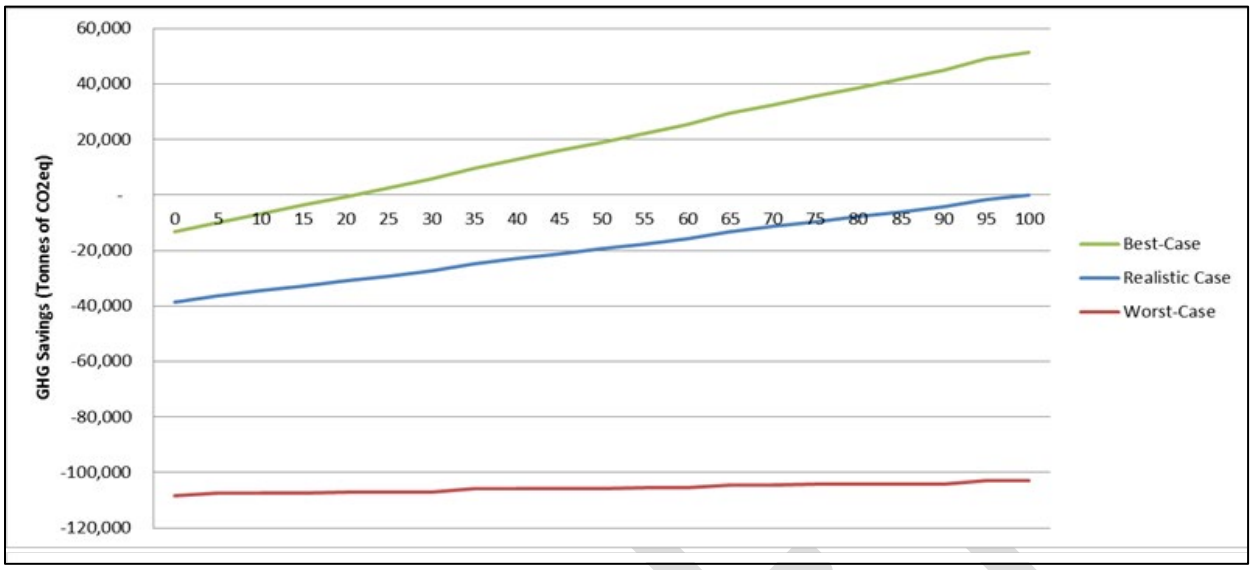

Figure 7: Potential Greenhouse Gas Emissions for a Bridge

Please note that the values presented in the chart above are intended to demonstrate the potential impacts of the bridge design in relation to GHG emissions. That said, there are several considerations that should be made during the planning stages of the bridge in order to increase the potential for a reduction in GHG emissions in comparison to the Aazhaawe Ferry. These considerations include:

- Choosing the shortest route for the bridge;
- Decreasing overall construction time by selecting the shortest length bridge, or employing construction efficiencies to shorten construction timelines;
- Choosing a construction method that limits GHG emission production (although this should be weighed in relation to potential physical impacts to the local environment); and
- Should a bridge be built, actively attempting to reduce GHG emissions associated with residential transportation (encouraging carpooling and increasing personal vehicle efficiency).

Incorporating GHG considerations for the potential bridge should occur on an as-needed basis and will be dependent upon development of the potential bridge.

Operations

The Aazhaawe Ferry can carry 18 cars on the ferry during a trip and 13 ferry trips per day over 365 days during a given year. The Ferry trip schedule is 7am to 7:30pm Monday to Friday, and 9am to 7:30pm on Saturdays and Sundays; i.e. 140 days a year there are 11 trips instead of 13. The primary vehicle types of the proposed bridge/causeway are assumed to account for approximately 33% for each of cars, sport-utility vehicles (SUV) and trucks. It can also be assumed that 1% of users would be transport trucks delivering goods to and from Georgina Island.

Based on this assessment it is estimated that the Ferry option generates ~676 tonnes of CO_2eq annually.

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For the comparative values assessment for GHG emissions, the average rate of vehicles crossing the bridge in any hour is approximately 75-100 vehicles/hour. This rate of vehicles has further been classified into Cars (making up 33% of traffic), SUVs (making up 33% of traffic), Trucks (making up 33% of traffic), and Transport Trucks (making up 1% of traffic).

The preferred option (bridge causeway 2,700m in length) is anticipated to generate ~576 of CO_2eq annually which would provide a 15% decrease in the GHG emissions generated annually when compared to current operations of the Ferry. The alternative option (bridge causeway 3,100m in length) is anticipated to generate ~661 tonnes of CO_2eq annually. This only provides an annual decrease of 2% GHG emissions compared to the Ferry.

See **Table 5** for a breakdown by alternative of the annual and daily GHG emissions. All vehicle emission data were obtained from a 2021 MOVES traffic model, for the GHG contaminants of concern.

Table 5: GHG Emission Calculations – Comparative Values

Alternative	Greenhouse Gas	CAS #	Annual Emission Rate (kg/yr)	Daily Emission Rate (kg/day)
Ferry	Carbon Dioxide	124-38-9	6.56E+05	1.88E+03
	Methane	74-82-8	6.16E+01	1.77E-01
	Nitrous Oxide	10024-97-2	1.76E+01	5.04E-02
		CO_2E	6.624E+05	-
			662.4	tonnes/year
Ferry Vehicle Activity	Carbon Dioxide	124-38-9	1.42E+04	4.07E+01
	Methane	74-82-8	3.33E-01	9.54E-04
	Nitrous Oxide	10024-97-2	1.06E-01	3.03E-04
		CO_2E	1.426E+04	-
			14.26	tonnes/year
Preferred Option Bridge/Causeway (2,700m)	Carbon Dioxide	124-38-9	5.75E+05	1.58E+03
	Methane	74-82-8	1.52E+01	4.17E-02
	Nitrous Oxide	10024-97-2	2.92E+00	7.99E-03
		CO_2E	5.762E+05	
			576.2	tonnes/year
Alternative Option Bridge/Causeway (3,100m)	Carbon Dioxide	124-38-9	6.60E+05	1.81E+03
	Methane	74-82-8	1.75E+01	4.79E-02
	Nitrous Oxide	10024-97-2	3.35E+00	9.17E-03
		CO_2E	6.615E+05	-
			661.5	tonnes/year

Canada's Climate Action Plan/Strategic Assessment of Climate Change

Under Canada's Climate Action Plan, Canada is committed to achieving net-zero emissions by the year 2050. As such, reductions in GHG emissions overall is required to meet this target. Under the Strategic Assessment of Climate Change (to support the Climate Action Plan) any project undergoing a federal impact assessment will be required to provide an estimate of the project's GHG emissions. The proposed bridge/causeway GHG emissions has been estimated to result in a decrease of 15% and shown

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to be less than the expected GHG emissions from the current Ferry operations; thus, supporting the goals of Canada's Climate Action Plan.

Reducing Transportation Energy

Energy use related to transportation accounts for about 65% of the total energy used within the GIFN community. Although a significant portion of this energy (about 12%) can be attributed to the Aazhaawe Ferry, personal vehicle use in both the year-round residential and seasonal residential sectors make up a significant portion of the remainder.

Identifying ways to reduce energy consumption associated with transportation in the residential sectors should be a priority of the GIFN Community Energy Plan moving forward. Potential initiatives include;

- Encouraging methods of reducing transportation, such as carpooling and cycling;
- Educating the community on the impact of energy use related to transportation;
- Encouraging residents to purchase efficient vehicles, including hybrid and electric models; and
- Developing infrastructure within the community to support the use of electric vehicles, including electric vehicle charging stations.

In addition, efficient vehicles (including hybrid and electric models) should be considered when replacement of administrative vehicles is required (and where hybrid/electric models are suitable). Carpooling is organic to the island and already occurs on a regular basis. Given the controlled traffic and customs of carpooling, any carpooling will not be encouraged to any extent for users of the Fixed Link. A pedestrian walkway will be included as part of the Fixed Link scope and will be wide enough to accommodate both pedestrians and bicycles. As such, cycling will be encouraged.

24. A list of the types of waste and emissions that are likely to be generated — in the air, in or on water and in or on land — during any phase of the project.

Although construction will have many impacts to the environment, it is believed many of the impacts will be mitigated akin to bridge construction projects of a similar scale. Streamlined construction mitigation measures in addition to increased security and safety of the proposed alternative and elimination of environmental disasters as a result of ferry accidents are viewed as net positive impacts on the environment. See **Table 2** for a description of emissions/waste impacts and mitigation including: dust and other contaminants, erosion and sediment control, spills/runoff, air/noise emissions and soils and groundwater contamination. See **Table 5** for an in-depth breakdown of air emissions by alternative.

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PART F – Summary

25. A plain-language summary of the information that is required under items 1 to 24 in English and in French.

The Chippewas of Georgina Island First Nation (GIFN) is proposing a Fixed Link to connect Georgina Island to the mainland. Georgina Island is home to 179 members of 618 band members that permanently reside on the island's land mass of approximately 15 $km^2$with an area of 1,416 ha/3,499 acres. Currently, Georgina Island is accessible solely by the Aazhaawe Ferry during the spring, summer and autumn months of the year and by scoot or ice road during the winter months. The ferry can carry up to 18 cars and there is comfortable cabin space for 50 walk-on passengers.

The Project is designed to solve a bandwidth of issues the GIFN currently face, which include: a dated ferry system nearing the end of its life; lack of transportation options; and health and safety concerns. Current methods to access the Island are not sustainable and have and will continue to cause threats to Island dwellers. The proposed Project includes a bridge and causeway link on the shoreline between a location near the Study route and Lee Farm Lane on the mainline side connected to the island via the Sand Islands with a connection to Chief Joseph Snake Road – possibly at the existing intersection of Chief Joseph Snake Road and Bear Road. The proposed link is approximately 3,100 m in length, originates from the Bay Vista Property and terminates at Georgina Island.

GIFN is committed to meaningful consultation and engagement with all stakeholders with an interest in the Project, including, but not limited to, indigenous communities, provincial and federal agencies, local municipalities, elected officials, and community organizations. As such, GIFN has begun engagement activities with affected and potentially affected indigenous communities and agencies for the Project. To date, GIFN has consulted with the Canadian Infrastructure Bank (CIB), Impact Assessment Agency of Canada (IAAC), non-for-profit (NFP) organizations with an interest in protecting Lake Simcoe, Ministry of Environment, Conservation and Parks (MECP), Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNF), Williams Treaty First Nations (WTFN), Lake Simcoe Region Conservation Authority (LSRCA), Métis Nation of Ontario (MNO), Member of Parliament (MP) for York Simcoe, Scot Davidson, Member of Provincial Parliament (MPP) for Yok-Simcoe, Caroline Mulroney. Overall, the Project has been well received by the stakeholders and support for the project was expressed across the board. Most stakeholders expressed a desire to have the protection of Lake Simcoe as the main goal and inquired about potential impacts to the Lake.

The GIFN Chief and Council recognize that additional consultation with Indigenous leaders, agencies and landowners will be required for many portions of the Fixed Link Project that are not solely located on reserve lands. As a result, the community has a draft Community Engagement Plan to be finalized by GIFN leadership following the meeting with the MPP's office and a 'community at large' session planned for October 5, 2021. Following these meetings, the engagement plan will be finalized and approved by Council and distributed to all stakeholders to inform them of the process to engage with the community moving forward.

GIFN land ownership includes Georgina Island (1,295 ha), Snake Island (133 ha), Fox Island (19 ha), Sand Island (4 ha) and Gravel Island (0.4 ha). The First Nation residents reside on Georgina Island, while Snake, Fox and Sand Islands are "surrendered lands" and are currently leased to cottagers. Seasonal

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residences are leased to members of the public under agreement with GIFN on all islands. Georgina Island is entirely considered as reserve lands under the Williams Treaty (1923). Therefore, the majority of the Project is located on land subject to First Nations' Land Management Act.

Various background studies were completed to date to provide the GIFN with an understanding of the physical and biological environment of the Project's location. These studies include: Preliminary Evaluation of Engineering and Environmental Alternatives that was completed in 2008, and Draft Project Plan that was completed in 2020. Those studies will further refine the existing conditions information for the study area and will identify significant and/or sensitive features. In addition, a Fixed Link Socio-Economic Study was completed in 2019, which described the health, social and economic context in the region where the project is located, based on information that is available to the public or derived from any engagement undertaken.

The GIFN also put together a preliminary list of potential effects and associated mitigation measures as a result of carrying out the Fixed Link Project. This list assessed anticipated impacts related to: traffic; Areas of Natural and Scientific Interest; soil and groundwater contamination; air/noise emissions; spills/run-off; erosion and sediment control; dust and other contaminants; vegetation, wildlife and wildlife habitat; migratory birds; aquatic and avian SAR; and fish, aquatic species and aquatic habitat. Environmental specialty studies will be conducted to address any potential impacts and/or concerns as well as propose mitigation measures to minimize potential impacts.

The final impact that will continue throughout this Project is an ongoing community-based fear of accident and irreparable harm to Lake Simcoe. The community is in the process of developing Environmental Principles, derived from the traditional teaching of the Seven Grandfathers. This mitigation measure is intended to offset community fears and to provide context for community members to express concerns throughout the process.

The Fixed Link Socio-Economic Study (2019) prepared by CIPS finds that the Fixed Link Project will have a net positive impact on the community as a result of economic, community well being, educational, social and human health improvements. A boost to the local economy of GIFN and the surrounding area is expected through the creation of direct and indirect jobs during construction and because of increased access to the community by the Fixed Link. Furthermore, access to commercial markets becomes simple via a trustworthy transportation route is the key reason for the positive feelings towards the fixed link and the economy.

The Chippewas of Georgina Island understand the significant costs that will be associated with this project. For community planning purposes, the Chippewas of Georgina Island Chief and Council have separated the project into two separate phases: Planning/Design and Construction with project construction planned to be supported by the Canada Infrastructure Bank (CIB) and the remaining 20% of the project to be funded through a combination of Long-Term Investments, own source revenues, and other government equity-based funds.

Through this IPD, GIFN is providing an early design-stage overview of the Project, with the intention that this document will form the basis for discussions, which will help to shape the final design of the Project. Once the IPD and Engagement Plan are accepted, the environmental assessment process formally starts. During this phase, environmental studies will be conducted to provide a detailed analysis of potential

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impacts; and affected stakeholders will have an opportunity to provide feedback on decisions that have been made about the Project.

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La première nation des Chippewas de l'île Georgina (PNIG) propose un Lien Fixe pour lier l'île Georgina au continent. 179 de 618 membres de bande sont résidents permanents de l'île de 15 km^2 qui a une superficie de 1 416 ha/3 499 acres. Actuellement, l'île Georgina est seulement accessible par le traversier Aazhaawe pendant le printemps, l'été, et l'automne, et par route de glace pendant l'hiver. Le traversier a une capacité de 18 voitures et une cabine qui tient confortablement 50 passagers.

Le projet est conçu pour résoudre une variété de problèmes que la PNIG rencontre, y compris : un système de traversier âgé qui approche sa fin de vie; un manque d'options de transports; et des problèmes liés à la santé et la sécurité. Les méthodes d'accès à l'île présents ne sont pas durables et continuent à poser un risque aux habitants de l'île. Le projet proposé comprend un lien par pont et chaussée sur le rivage entre la route d'étude et Lee Farm Lane du coté continental, relié à l'île via les îles Sand avec une connexion à Chief Joseph Snake Road - possiblement à l'intersection existante de la rue Chef Joseph Snake et la rue Bear. Le lien proposé mesure environ 3 100 m de long, à partir de la propriété Bay Vista jusqu'à l'île Georgina.

La PNIG s'engage à consulter avec toutes les parties prenantes intéressées par le projet, y compris, mais sans s'y limiter, les communautés autochtones, les agences provinciales et fédérales, les municipalités locales, les représentants élus et les organisations communautaires. En conséquent, la PNIG a commencé des activités d'engagement avec les agences et les communautés autochtones touchés et potentiellement touchés par le projet. Jusqu'à présent, la PNIG a consulté la banque de l'infrastructure du Canada (BIC), l'agence d'évaluation d'impact du Canada (AEIC), des organisations à but non lucratif intéressées par la protection du lac Simcoe, le Ministère de l'Environnement, de la Protection de la nature et des Parcs (MEPP), le ministère du Développement du Nord, des Mines, des Richesses naturelles et des Forêts (DNMRNF), les Premières Nations du traité Williams (PNTW), l'office de protection de la nature de la région du lac Simcoe (LSRCA), la nation métisse de l'Ontario (NMO), Scot Davidson, le député fédéral de York-Simcoe, et Caroline Mulroney, la député provinciale de York-Simcoe. Dans l'ensemble, le projet a été bien accueilli par les parties prenantes et le soutien au projet a été exprimé à tous les niveaux. La majorité des parties prenantes ont exprimé le désir d'avoir la protection du lac Simcoe comme objectif principal et se sont renseignés sur les impacts potentiels sur le lac.

Le chef et le conseil de la PNIG reconnaissent qu'une consultation supplémentaire avec les chefs autochtones, les agences, et les propriétaires sera nécessaire pour de nombreuses sections du projet de liaison fixe qui ne sont pas uniquement situées sur des terres de réserve. En conséquence, la communauté a préparé une ébauche d'un plan d'engagement avec la communauté qui sera finalisé par la direction de la PNIG suivant la réunion avec le bureau du député provincial et d'une session « communauté en général » prévue pour le 5 octobre 2021. À la suite de ces réunions, le plan d'engagement sera finalisé et approuvé par le conseil et distribué à toutes les parties prenantes pour les informer du processus d'engagement avec la communauté.

La propriété de la PNIG comprend l'île Georgina (1 295 ha), l'île Snake (133 ha), l'île Fox (19 ha), l'île Sand (4 ha) et l'île Gravel (0,4 ha). Les résidents de la première nation habitent sur l'île Georgina, alors que les îles Snake, Fox et Sand sont des « terres cédées » et sont actuellement louées à des propriétaires de chalets. Les résidences saisonnières sont louées au public sous accord avec la PNIG sur toutes les îles. L'île Georgina est entièrement considérée comme des terres de réserve en vertu du traité Williams

(1923). Par conséquent, la majorité du projet est situé sur des terres assujetties à la Loi sur la gestion des terres des premières nations.

Plusieurs études de fond ont été réalisées jusqu'à présent pour fournir à la PNIG une compréhension de l'environnement physique et biologique au site du projet. Ces études comprennent : l'évaluation préliminaire de l'ingénierie et des alternatives environnementales qui a été complétée en 2008, et l'ébauche du plan de projet qui a été complété en 2020. Ces études affineront davantage les informations sur les conditions existantes pour la zone d'étude et identifieront les caractéristiques importantes et/ou sensibles. De plus, une étude socio-économique sur la liaison fixe a été réalisée en 2019, qui décrivait le contexte sanitaire, social et économique de la région où se situe le projet, dérivée d'informations disponibles au public ou dérivée des engagements entrepris.

La PNIG a également dressé une liste préliminaire des effets potentiels et des mesures d'atténuation associées à la réalisation du projet de liaison fixe. Cette liste évaluait les impacts prévus liés à : la circulation ; les zones d'intérêt naturel et scientifique ; la contamination des sols et des eaux souterraines; les émissions atmosphériques/bruit; les déversements/ruissellements ; le contrôle de l'érosion et des sédiments; la poussière et autres contaminants; la végétation, la faune et l'habitat faunique; les oiseaux migrateurs; les espèces en péril aquatiques et aviaires; et les poissons, les espèces aquatiques et l'habitat aquatique. Des études environnementales spécialisées seront menées pour traiter tout impact potentiel et/ou préoccupation ainsi que pour proposer des mesures d'atténuation afin de minimiser les impacts potentiels.

L'impact final qui continuera tout au long de ce projet est une inquiétude de la part de la communauté d'accidents et de dommages irréparables au lac Simcoe. La communauté est en train de développer des principes environnementaux, dérivés de l'enseignement traditionnel des Sept Grands-Pères. Cette mesure d'atténuation vise à atténuer les inquiétudes de la communauté et à fournir un contexte aux membres de la communauté pour exprimer leurs inquiétudes tout au long du processus.

L'étude socio-économique de la liaison fixe (2019) préparée par le Services autochtones professionnels Cambium (CIPS) constate que le projet de liaison fixe aura un impact positif net sur la communauté provenant des améliorations sociaux, économiques, du bien-être communautaire, de l'éducation, et de la santé humaine. Une impulsion à l'économie locale de la PNIG et de ses environs est prévue grâce à la création d'emplois directs et indirects pendant la construction et grâce à un meilleur accès à la communauté par la liaison fixe. De plus, l'accès plus simple aux marchés commerciaux via une route de transport fiable est la principale raison des sentiments positifs envers le lien fixe et l'économie.

Les Chippewas de l'île Georgina comprennent que les coûts associés à ce projet sont importants. À la fin de la planification communautaire, le chef et le conseil des Chippewas de l'île Georgina ont séparé le projet en deux phases distinctes : planification/conception et construction, avec le financement pour la construction étant prévu d'être fourni par la Banque de l'infrastructure du Canada (BIC) et les autres 20 % du projet étant financés par une combinaison d'investissements à long terme, de revenus propres et d'autres fonds publics basés sur des actions.

Grâce à cet Description initiale du projet (DIP), la PNIG fournit un aperçu de la phase initiale de conception du projet, avec l'intention que ce document constitue la base des discussions, ce qui aidera à façonner la conception finale du projet. Une fois l'DIP et le plan d'engagement sont acceptés, le processus d'évaluation environnementale commence officiellement. Au cours de cette phase, des

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études environnementales seront menées pour fournir une analyse détaillée des impacts potentiels ; et les parties prenantes touchées auront la possibilité de faire part de leurs commentaires sur les décisions qui ont été prises sur le projet.

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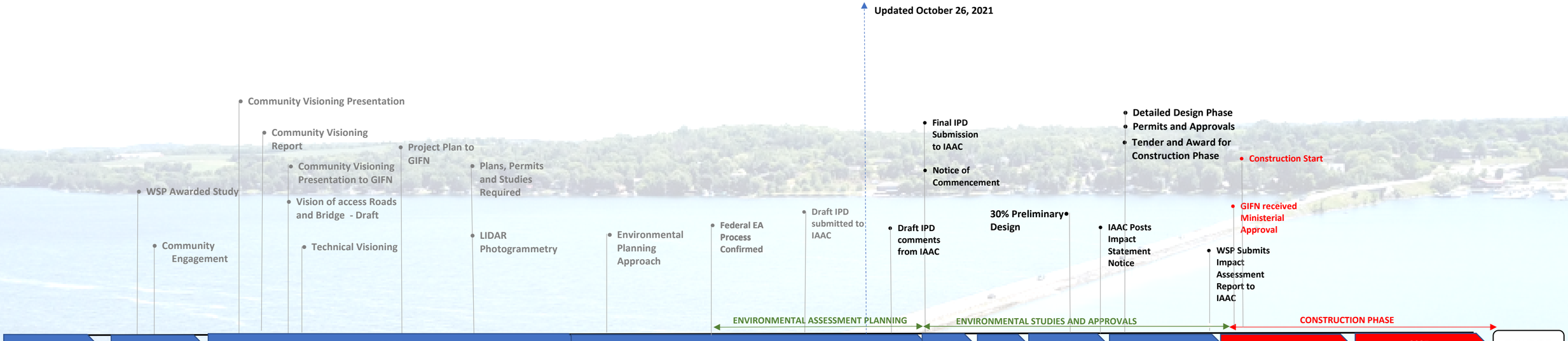
Appendix D
Project Schedule

GEORGINA ISLAND FIXED LINK STUDY

TIMELINE



Historical Review:
2008–Neegan Burnside Study
-Community Survey
-Off Reserve Questionnaire
-Options (Alternatives) Review
Result: Bridge and or Causeway

October:
WSP Awarded Study

December:
Community Engagement

Community Visioning Report – confirm and expand on reasoning and requirements for a Fixed Link

Assessment of Technical Requirements (Studies, Permits, Approvals) in Engineering, Environmental, Water, Transportation - Municipal, Federal and various authorities.

Review of the Environmental Assessment processes and requirements to determine right path forward for GIFN and the project.

Specification documents are a comprehensive description of all the objectives for a project and contains all goals, functionalities and details required for a contractor to fulfill the of the Design details for the GIFL project.

Environmental Approval requires multiple levels of coordination, reporting and approvals.

Permits and approvals (non-EA) are assessed, prepared and submitted for approval.

Some design, plans and specifications may be addressed in parallel to the EA Process. This is dependent on the status of the process.
Consultations/ Engagements with Community, special interest groups and authorities having jurisdiction.

Note: Background image is James A Gifford Causeway - not the GIFL design..
Dates are approximate and will be updated as the project progresses.

Appendix E
Fixed Link Engagement Plan



CHIPPEWAS OF

GEORGINA ISLAND FIRST NATION

Fixed Link Engagement Plan

February 24, 2022

Georgina Island First Nation approach to fulsome engagement for the Fixed Link Project

GIFL

A Project For Seven Generations

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Introduction

The Chippewas of Georgina Island First Nation is located both on and off the south shore of Lake Simcoe and is approximately 100 km north of the Greater Toronto Area (GTA). The First Nation is governed by an elected band council, consisting of one Chief and four Councillors.

Georgina Island First Nation Reserve No.33 consists of four separate land masses. There are three separate islands (Georgina Island, Snake Island, and Fox Island) which lie approximately 3 km off the southern shore of Lake Simcoe, and a small acreage located at Island Grove on the mainland. The largest nearby centre of population is the village of Sutton, which is located 6.5 km to the southwest of the First Nation.

The majority of the population of the First Nation resides on the largest Island, Georgina Island. Georgina Island is only accessible by the Aazhaawe Ferry during the spring, summer and autumn months of the year and by airboat or ice road during the winter months.

GIFN is proposing to build the Georgina Island Fixed Link (Fixed Link), a combination of bridge and causeway, that will connect the First Nation's reserve on Georgina Island to its lands on the mainland. The Aazhaawe Ferry's operational life cycle is coming to an end and the reliance on ferry service has caused significant health and safety issues for the GIFN community.

This project will eliminate the need for risky crossings for community members and provide safe, reliable Island accessibility across all seasons and all-weather conditions. This legacy project will position the community to protect the environmental, cultural, social and economic future of the community for the next Seven Generations. The Georgina Island Fixed Link presents an opportunity for investment in a safer, more dependable and cost-effective transportation alternative to allow continuous access for both pedestrians and vehicles to cross Lake Simcoe from Georgina Island to the mainland.

The Project has been a desire of the community for many years. The community has identified enhancement of community health and safety, increased access to health services, employment and educational opportunities and reduced climate change impacts as some of the direct primary community benefits of the Georgina Island Fixed Link.

The Chippewas of Georgina Island First Nation (GIFN) have developed the GIFL Secretariat to support the administrative and technical elements of the Fixed Link Project. The Secretariat will conduct project engagements on behalf of the Chippewas of Georgina Island First Nation Chief and Council. This document will detail the engagement plan to be followed by the Secretariat.

The Fixed Link Engagement Plan

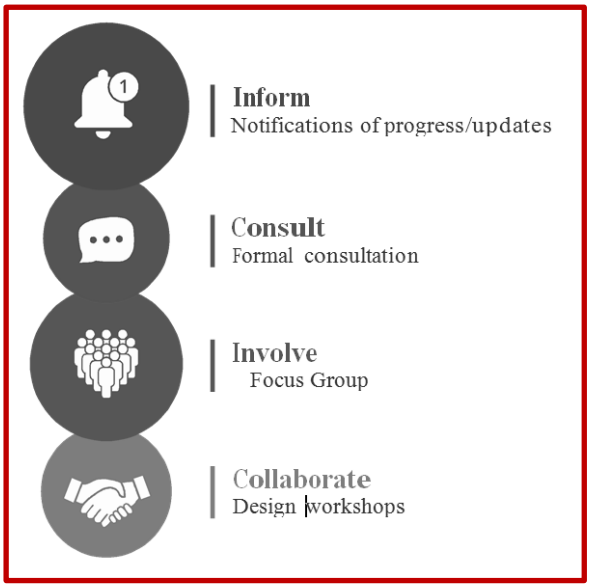
The Fixed Link Engagement Plan (FLEP) is an initial guide to engagement used to inform on-going stakeholder engagement through the various stages of Project development, construction, and operation. The FLEP is considered a working document that will evolve over all stages of the Fixed Link project. The FLEP seeks to define a technically and culturally appropriate approach to engagements.

The FLEP is a useful tool for managing communications between GIFN and their stakeholders. The key objectives of the FLEP can be summarized as follows:

- To differentiate between project specific engagement activities and the Crown's Duty to Consult and Accommodate.
- To differentiate between internal and external engagement requirements
- Guide GIFN to build mutually respectful, beneficial and lasting relationships with project stakeholders their departments and their assigns.
- Identify the most effective methods and structures through which to disseminate project information, and to ensure regular, accessible, transparent and appropriate project communication and interaction.
- Develop an engagement process that provides stakeholders with an opportunity to influence project planning and design.
- Define roles and responsibilities for the implementation of the FLEP.

Engagement Spectrum

Throughout this project, stakeholders will have opportunities to influence decisions in different ways. Sometimes regulatory or other requirements means there is less scope for influence. In other cases, GIFN will be able to collaborate with stakeholders to come up with solutions together. The engagement spectrum is a tool commonly used to categorize the different approaches to take.



The engagement spectrum is presented simply as Inform, Consult, Involve and Collaborate. This is the process of how stakeholders will be engaged throughout the project process. There will be varying depths of engagement depending on the audience or purpose. For instance, design elements of the Fixed Link would involve workshops to get the most appealing end product. The results of environmental studies and reports may simply require information disseminated to stakeholders. If the community is working through formal federal, provincial or

internal permitting processes, the depth of information from this same study would be much deeper than the presentation of data to the community members. For that reason, GIFN, as an Indigenous community in Canada must be particular about the purpose and audience of engagement activities. GIFN must be aware of and manage engagements based on this spectrum.

It will be extremely important for the GIFN leadership to be clear with stakeholders about the level of engagement, consultation and influence that is possible on any particular portion of this project. GIFN will be the project proponent and as such must manage various objectives, audiences and formal requirements. To serve that need, initial clarity on terminology is provided through the remainder of this section.

Engagement vs. Consultation

For the purposes of the FLEP, a clear, distinct difference between the terms engagement and consultation must be made. This plan is specific to project engagements while formal consultation plans will be developed as required. The definitions to be used are below:

CONSULTATIONS

In the Haida and Taku River decisions in 2004, and the Mikisew Cree decision in 2005, the Supreme Court of Canada held that the Crown has a duty to consult and, where appropriate, accommodate when the Crown contemplates conduct that might adversely impact potential or established Aboriginal or Treaty rights. The Court explained that the duty stems from the Honour of the Crown and the Crown's unique relationship with Aboriginal peoples. In more recent decisions, the Court further explained that: the duty to consult is a constitutional duty; applies in the context of modern treaties; officials must look at treaty provisions first; and where treaty consultation provisions do not apply to a proposed activity, a "parallel" duty to consult exists. The Court has also clarified, that depending on their mandate, entities such as boards and tribunals may also play a role in fulfilling the duty to consult; that high level strategic decisions may now trigger the duty to consult; and that the duty applies to current and future activities and not historical infringements.

The Chippewas of Georgina Island First Nation are signatories of the Williams Treaties and recognized Indigenous people of Canada. As such, the First Nation will respect the Nation to Nation relationship with the federal government of Canada and will demand the same in return. For the purposes of this document, the term Consultation refers to the formal requirements set out or triggered through the formal Duty to Consult and Accommodate requirements of the federal government of Canada. For the most part, Consultation is not the theme of this document and formal Duty to Consult and Accommodate Consultations will be guided by separate processes determined by the Nations consulted.

STAKEHOLDER ENGAGEMENT

Engagement is the systematic identification, analysis, planning and implementation of actions designed to educate, inform and influence stakeholders. For the purposes of this document, engagement is much less formal than consultation activities, more often voluntary and is intended to ensure the internal and external stakeholders are aware of, and able to provide input to, the ongoing development of the Fixed Link Project over time.

Engagement Principles

Stakeholder Engagement involves interactions between identified groups of people and provides stakeholders with an opportunity to raise their concerns and opinions (e.g., by way of meetings, surveys, interviews, focus groups, etc.) and ensures that this information is taken into consideration when making project decisions. GIFN will ensure that engagement will be free of manipulation, interference, coercion, and intimidation, and conducted on the basis of timely, relevant, understandable and accessible information, in a culturally appropriate format. GIFN will maintain a set of principles defining core values underpinning interactions with stakeholders.

These principles are as follows:

- GIFN is **Committed** to understanding, engaging and identifying stakeholders early in the project development process;
- GIFN will engage with **Integrity** by completing engagements in a manner that fosters mutual respect and trust;
- GIFN will engage with **Respect** ensuring the rights, cultural beliefs, values and interests of stakeholders are recognized.
- GIFN will remain **Transparent** throughout engagements by ensuring concerns are responded to in a timely, open and effective manner;
- GIFN will encourage **Inclusiveness** by encouraging and supporting broad participation by appropriate stakeholders; and

The end result of the application the engagement principles is to foster **Trust** through open and meaningful dialogue that respects and upholds the core beliefs, values and opinions of the Chippewas of Georgina Island First Nation and their Membership.

In order to build trust, engagements will be managed in a consistent, uniform manner to establish a ‘brand of information dissemination and stakeholder interaction’ that the community can predict, understand and rely upon.

Defining Engagement Stakeholders

The IFC's Handbook on Stakeholder Engagement (2007) defines stakeholders as "persons or groups who are directly or indirectly affected by a project, as well as those who may have interests in a project and/or the ability to influence its outcome, either positively or negatively."

The following Engagement Stakeholders have been identified:

The Chippewas of Georgina Island First Nation Members

The GIFN Member residents of the Island will be key stakeholders in this project and will be engaged with throughout the project. This engagement stakeholder group has a deeper, more personal interest in the project than other stakeholder groups and is comprised of both on and off-reserve members.

Williams Treaties Allies

The Chippewas of Georgina Island First Nation will engage with our Williams Treaties allies. These indigenous communities include:

- Chippewas of Beausoleil First Nation
- Chippewas of Rama First Nation
- Curve Lake First Nation
- Alderville First Nation,
- Hiawatha First Nation
- Mississaugas of Scugog Island First Nation.

As noted above, these engagements would be outside of the legislated Indigenous consultation requirements that would include additional formal engagement with the Metis Nation and the Huron Wendat peoples.

Governments and Leadership

GIFN will engage with the respected leaders of the following governments:

- Metis Nation of Ontario
- Huron Wendat Confederacy
- Federal government of Canada
- Provincial Government of Ontario
- Regional Municipality of York
- Town of Georgina

Public and Community Groups

The Chippewas of Georgina Island have determined the key criteria for inclusion as a stakeholder to be:

- whether the group is located near the project area or the potential effects of the Project;
- whether the group uses or has interest(s) in Lake Simcoe;
- whether the group has direct and/or local interest(s) in the Project (e.g. living in or owning property near the Project);
- whether the group has previously expressed interest in the Project; and,
- whether the group has expert knowledge related to the anticipated effects of the Project (e.g. expertise in environmental, legal, social, or health conditions).

Through an evaluation and with support of the Impact Assessment Agency of Canada, GIFN has identified the following non-Indigenous stakeholder groups that will be engaged throughout this process:

- Georgina Island Cottagers Association
- Georgina Trail Riders Snowmobile Club
- Rescue Lake Simcoe Coalition
- Friends of Strawberry Island
- Carden Field Naturalists
- Snake Island Cottagers Association
- South Lake Simcoe Naturalists
- Ontario Water Centre
- Innisfil District Association
- Simcoe County Greenbelt Coalition
- North Gwillimbury Forest Alliance
- AWARE Simcoe
- Bayshore Village Association
- Barilla Park Residents Association
- Concerned Citizens of Ramara
- Innisfree Ltd. DeGrassi Point
- Lake Simcoe Association
- Lake Simcoe Region Conservation Authority (LSRCA)
- Nature Barrie
- North Mara Beach Residents Association
- Orillia Naturalists Club
- Save Our Simcoe (SOS): Beaverton
- The Ontario Headwaters Institute
- Windfall Ecology Centre
- York Simcoe Nature Club
- Lake Simcoe Watch
- Save the Maskinonge
- High Park Nature
- Ontario Rivers Alliance
- Nature League of Collingwood
- Ecojustice
- Georgina Chamber of Commerce and Tourism Information Center
- Ontario Federation of Anglers and Hunters
- Ontario Streams
- Sail Georgina

Engagement Management

Formal vs. Informal Engagements

All engagements pertaining to the Fixed Link will be considered official engagements, meaning they will be documented and archived in an Official Engagement Register. This does not necessarily mean that all engagements must also be considered formal events.

There are many examples of community engagement that are informal in nature that would also be considered an official engagement. A community information booth at the annual GIFN Christmas Bazaar was used to engage the community during the Fixed Link Project Plan Development phase. This engagement was very informal, fun and loosely documented. It was considered an official engagement that provided great value for community leadership.

For the purposes of the FLEP, engagements are defined as follows:

Formal Engagements: Stakeholders are engaged in a prescribed, programmed manner generally with a direct intention. For example, a scheduled community meeting, leadership meeting, stakeholder survey would all be considered formal engagements.

Informal Engagements: Stakeholders are engaged in a flexible and sometimes ad-hoc manner with generally with less formal agenda or reporting requirements. For example, a community pop-up event, a storytelling exercise or social media poll may all be considered informal engagements. Informal engagements are very valuable and although agendas and elaborate set-ups may not be required, they will be used as a tool to support engagement with stakeholders.

Regardless of the classification, formal or informal, all of the information gathered will be completed with the engagement principles in mind. The information exchange that takes place should be valued, documented and interpreted to ensure the best possible outcomes for the Fixed Link Project.

Stakeholder Engagement Considerations

GIFN will be pay particular attention to the following considerations when planning for stakeholder engagement:

Stakeholder Engagement Takes Time and Resources

GIFN will be sure to secure and commit the required time, human and financial resources required to effectively undertake this engagement plan. This commitment extends to:

- Ensuring no willing stakeholder should be excluded from the process of engagement.
- Engagement may require an education process about the concept of engagement itself.
- These commitments may require additional budget and time to complete to their fullest.

ENGAGEMENT RAISES EXPECTATIONS

Stakeholders can have unrealistically high expectations of benefits that may accrue to them from a project. As such GIFN, from the outset, must be clear on what they can and cannot do, establishing a clear understanding of their roles and responsibilities.

ENGAGEMENT SHOULD BE REPRESENTATIVE

Cultural norms and values can prevent stakeholders from freely participating in meetings and engagement activities. Often there are conflicting demands within a community, and it can be challenging for a project to identify stakeholders who are representative of common interests. GIFN will endeavour to accommodate internal stakeholders' participation in engagement activities. GIFN will commit to ensuring engagement opportunities for external stakeholders are completed using the principles defined in the section above.

CONSULTATION FATIGUE

GIFN and their community members are well aware and often suffer from 'Consultation Fatigue'. First Nation members have a history of engagement processes where promises are unfulfilled, and their opinions and concerns are not taken into consideration. GIFN will ensure that engagement activities are understood, reported on and are held at times relevant to the projects benchmarks.

Official Engagement Register

The Chippewas of Georgina Island First Nation will maintain, throughout the duration of the Fixed Link Project, an Official Engagement Register. This register will provide a digital record of all engagements related to the Fixed Link Project. Whether an engagement is formal or informal, the Georgina Island First Nation will require engagement activities to be documented in the Official Engagement Register. This Register will, at a minimum, document the date, time, purpose, audience and outcomes of the engagement activity. The Official Engagement Register will also highlight any items that may require further action by the community resulting from engagement activities.

The Official Engagement Register will be maintained by Fixed Link Project Manager for Chief and Council.

Commmunity Engagement Authorities

The Chippewas of Georgina Island First Nation will manage engagement with the following personnel and roles:

Chief and Council

- Approval of engagements and consultations schedules, content audience and agendas
- Attendance by one member of chief and council or representative at any official engagement
- Delegate action items resulting from engagements as required
- Will develop and manage a Fixed Link Project Team to provide advisory support and direction requiring specific areas of expertise.

Fixed Link Project Manager

- The human resource in charge of managing the Georgina Island Fixed Link Secretariat
- A key element of the Secretariat is to manage Fixed Link Engagement and Consultations at the direction of Council
- The Fixed Link Project Manager is accountable for the maintenance of the Official Engagement Register

Georgina Island Fixed Link Secretariat

- The Fixed Link Project Manager will assign approved team resource(s) of the GIFL Secretariat to support the engagement activities defined in the FLEP

Information Quality Control

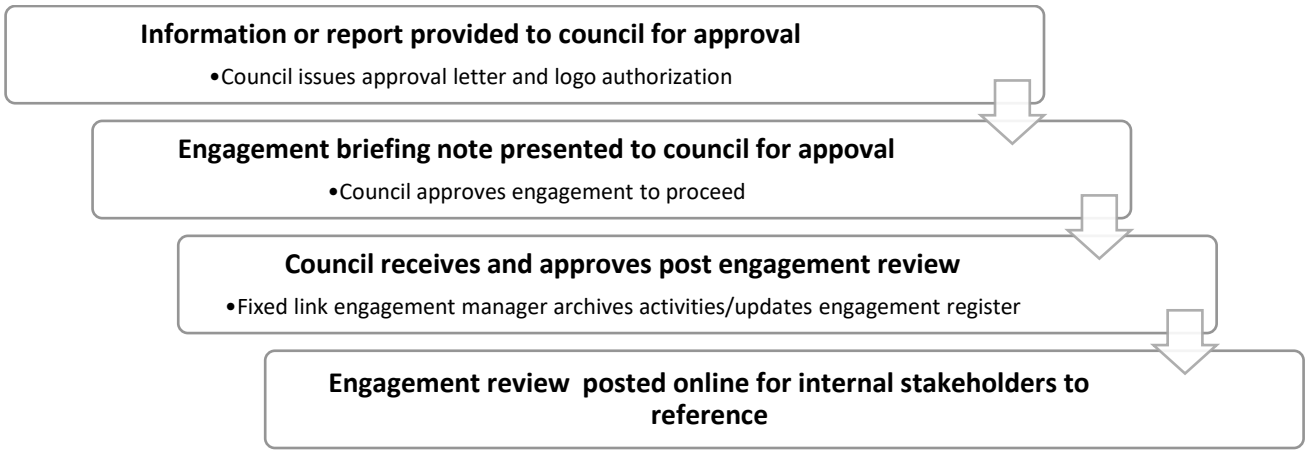
A project of this size, scope and regional visibility will require an information and accuracy quality and control mechanism. It is the responsibility of the Fixed Link Project Manager to manage information approvals and engagement requests.

APPROVED INFORMATION

GIFN Chief and Council will only permit information that has been reviewed and approved to be used in engagement activities. Council will require sufficient time to review information, reports and presentations to be used during engagement activities.

QUALITY CONTROL INTERNAL PROCESS

Fixed Link Engagement internal work flow will be as follows:



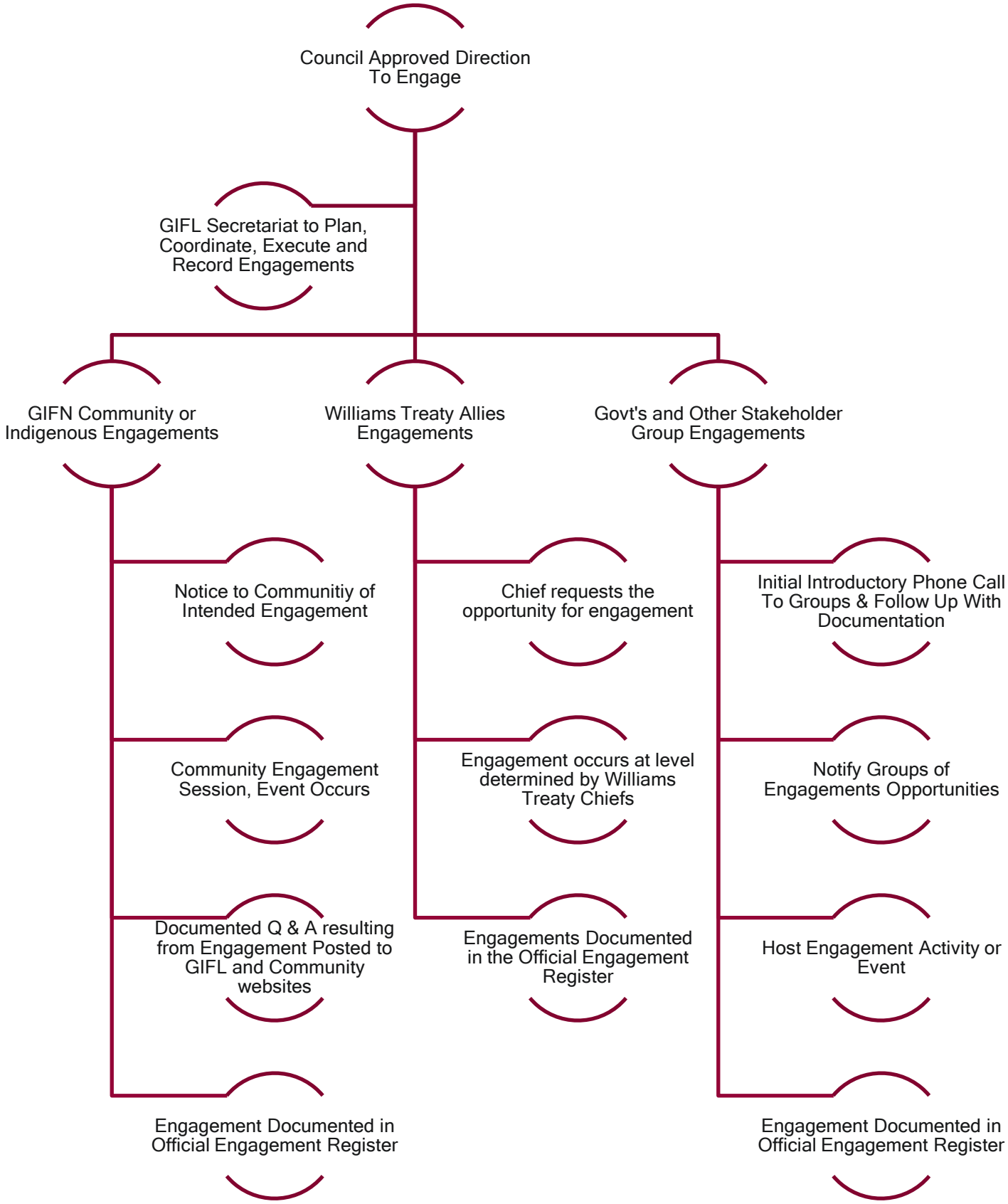
Approved Engagement Process

When deciding the frequency and the appropriate engagement technique used to engage a particular stakeholder group, the Chippewas of Georgina Island will consider three criteria:

1. The extent of impact of the project on the stakeholder group;
2. The extent of influence of the stakeholder group on the project; and
3. The culturally acceptable engagement and information dissemination methods.

In general, engagement is directly proportional to impact and influence. If the project has a big influence on a stakeholder and they have a big influence on the project, engagement (intensity and frequency) with that stakeholder group will increase. There are a variety of engagement techniques used to build relationships with stakeholders, gather information from stakeholders, consult with stakeholders, and disseminate project information to stakeholders.

The Chippewas of Georgina Island First Nation will endeavor to provide consistent forms of engagement throughout the project. As per GIFN engagement principles, the goal of engagement is trust. It has been determined that engagements do not need to be unique, custom or branded to be successful. A simple doctrine of 'engage with purpose' will ensure that stakeholders are only involved in engagement activities that are essential to the project be completed successfully. Optional engagements may be requested by Council to serve a strategic need, however, the FLEP will ensure that community and stakeholders are not overburdened with unnecessary engagements. The following engagement processes will take place:


Council Approved Direction To Engage
GIFL Secretariat to Plan, Coordinate, Execute and Record Engagements
GIFN Community or Indigenous Engagements
Williams Treaty Allies Engagements
Govt's and Other Stakeholder Group Engagements
Notice to Communitiy of Intended Engagement
Community Engagement Session, Event Occurs
Documented Q & A resulting from Engagement Posted to GIFL and Community websites
Engagement Documented in Official Engagement Register
Chief requests the opportunity for engagement
Engagement occurs at level determined by Williams Treaty Chiefs
Engagements Documented in the Official Engagement Register
Initial Introductory Phone Call To Groups & Follow Up With Documentation
Notify Groups of Engagements Opportunities
Host Engagement Activity or Event
Engagement Documented in Official Engagement Register

Approved Engagement Types

The GIFL Secretariat will have a number of approved engagement activities for the project. The following types of engagement are expected:

Engagement Type	Description
Phone Discussions	• The GIFL Secretariat will be able to engage with stakeholders via one on one phone interviews, discussions or group conference calls as desired.
E-Mail	• The GIFL Secretariat will have an engagement specific email address where any enquires may be addressed
Approved Publications and Information Pieces	• The GIFL Secretariat may produce publications and or information pieces as required or deemed necessary.
Small Stakeholder Meetings	• The GIFL Secretariat may host or attend small group stakeholder meetings as required or deemed necessary.
Large Stakeholder Information Sessions	• The GIFL Secretariat may host or attend large stakeholder information sessions as required or deemed necessary.
Press Releases	• From time to time, the GIFL Secretariat may issue press releases pertaining to engagement session dates. • It should be noted that any official press requests pertaining to the Fixed Link project would be directed to Chief and Council, not the GIFL Secretariat.
Social Media	• The GIFL Secretariat will maintain an outgoing information social media presence on Facebook and Instagram. The intent is to inform of engagement opportunities and would not host a discussion forum on the project.
Community Meetings	• The GIFL may host First Nation community meetings as directed by the Chief and Council. These meetings may be located on or off First Nation territory and may be deemed, “Members Only’ or another limiting factor to those that my be allowed to attend.
Other Informal Engagement Opportunities and Speaking Engagements	• From time to time, the GIFL may be presented with an engagement opportunity not on the approved list, such as a speaking engagement or attendance at an event. • All must be approved by Chief and Council prior to accepting invitations of this nature.

Engagement Schedules

Upon submission of the Initial Project Description to the Impact Assessment Agency of Canada, regularly scheduled engagement session will be provided. The frequency of these dates has been determined through initial discussions and presentations by the GIFL Secretariat Team

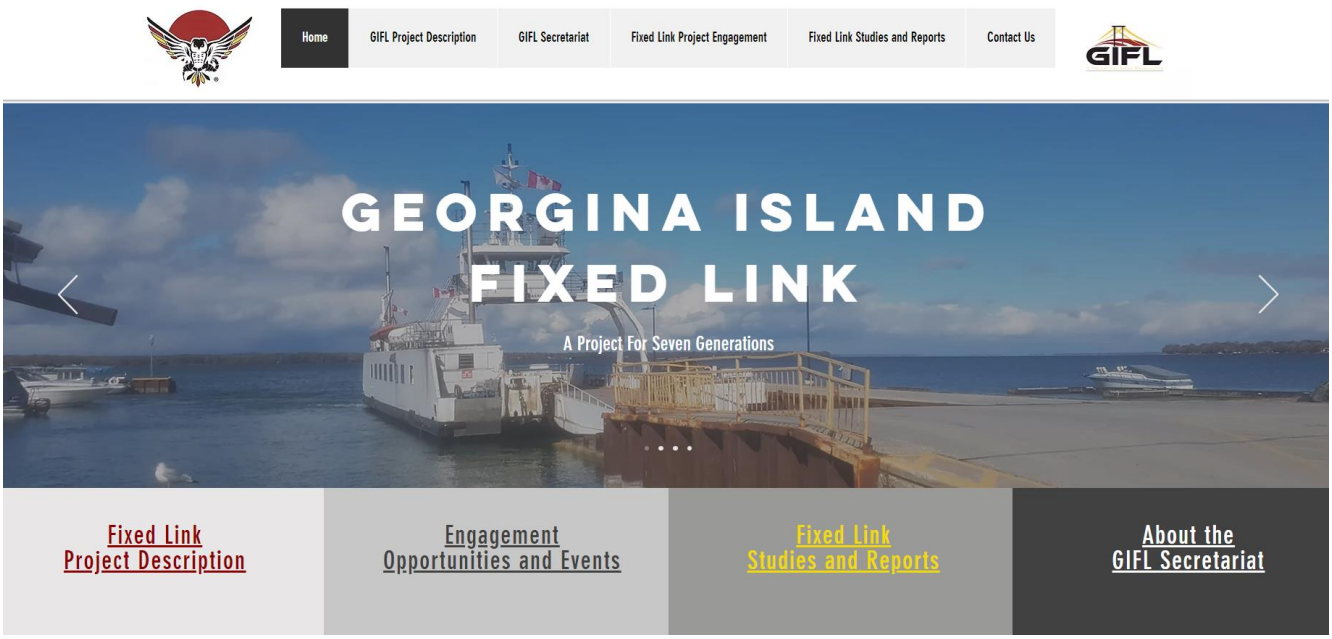
Engagement Stakeholders	Frequency	Notes
GIFN Members	• Community update meetings on a quarterly basis • Specific engagements on sectors, reports, community input will be scheduled as required.	• Community meetings will be held virtually or in person • Community will be given notice of opportunities for project-based inputs as they arise through project development
Williams Treaties Allies	• Updates to Williams Treaties Chiefs will be provided a scheduled meetings of the Williams Treaties Communities • Formal Duty to Consult requirements to be developed on a community-by-community basis	• The Chiefs are in consistent contact on a regular basis and letters of support from the project have been provided. • If required, GIFN will request special or ad hoc meetings with WTFN Chiefs
Governments and Leadership	• Updates are to be offered on a quarterly basis, depending on project progress and need. • Presentations to governments and leadership will be conducted as desired (either when desired or according to a fixed schedule) • Duty to Consult activities will be conducted for the Huron Wendat Confederacy and the Metis Nation.	• GIFL Secretariat has opened a line of communication through the website, email contact and presentations.
Public and Community Groups	• Public presentations will be conducted to determine impacts during the Impact Assessment process as required. • Organizations currently protecting Lake Simcoe may request presentations to their respective groups given the shared interest with the community of Georgina Island • A website has been developed at www.gifixedlink.com to share information, reports and updates on an ongoing, real time basis. ○ General public can subscribe for updates • Facebook pages has been developed to support general public engagement	• GIFL Secretariat has opened a line of communication through the website, email contact and presentations.

Open Communications

The GIFL Secretariat will make every effort to provide open lines of communications. In order to do that, the following measures have been put in place:

gifixedlink.com

The website www.gifixedlink.com has been established to provide real time updates to the public.



The public will be able to subscribe for updates and meeting announcements through the engagement contact management system.

Social Media

The GIFL Secretariat will maintain a primary social media page on Facebook. The link is as follows: https://www.facebook.com/gifixedlink

As updates are made to the websites or engagement opportunities are scheduled, they will be posted to the Facebook page to allow users to join.

e-Mail

The GIFL Secretariat will maintain an email address with a commitment for response within 24 hours. This address will be managed with the intent of inclusion in the formal engagement records.

IAAC Process

The GIFL Secretariat will support engagement and contact efforts undertaken by the Impact Assessment Agency of Canada.

Appendix #1

SAMPLE OFFICIAL ENGAGEMENT REGISTER

Fixed Link Sample
Engagement Register

No.	Date	Stakeholders / Audience	Engagement Spectrum	Approved Info Filed	Engagement Type	Issues and Concerns Raised	First Nation Action Items	Included in Consultation Record
1								
2								
3								
4								
5								
6								
7								
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16								

Appendix F
Record of Consultation

Table of Content

1. Community Engagement **2**
    - Community Holiday Bazaar - December 3 2019
    - Community Visioning Workshop - January 13, 2020
    - Regional Citizens - Open Meeting - October 5, 2021
    - Youth Workshop - November 9, 2021
2. Community Interest Groups **129**
    - Rescue Lake Simcoe Coalition (RLSC)
    - Non-for-profit (NFP) Organizations
3. Regulatory Agencies **133**
    - Ministry of Environment, Conservation and Parks (MECP) - March 9, 2021
    - IAAC & MECP - May 12, 2021
    - Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) - May 26, 2021
    - Lake Simcoe Region Conservation Authority (LSRCA) - August 11, 2021
    - LSRCA - Board of Director's Meeting - September 24, 2021
4. Elected Officials **171**
    - Member of Parliament (MP) for York Simcoe, Scott Davidson – August 31, 2021
    - Town of Georgina Mayor and Council – November 17, 2021
    - Member of Provincial Parliament (MPP) for York-Simcoe – Caroline Mulroney
        - December 3, 2021
5. Indigenous Communities **180**
    - Williams Treaty First Nations (WTFN) – July 17, 2021
    - Métis Nation of Ontario (MNO) – August 12, 2021
    - Huron Wendat First Nation – November 30, 2021
6. Correspondence with IAAC **201**

Community Engagement

Community Holiday Bazaar
December 3, 2019

Georgina Island Fixed Link Study

To identify a solution for a **fixed link** between Georgina Island and the Mainland that provides **safety**, and **positive social and economic benefit** to the community while **minimizing impacts to the community and the environment** for **future generations**.

Possible Opportunities:

- Improve Safety
- Identify more opportunities for the next generation
- Reliable access to mainland services (Medical, Shopping, Construction)
- Greater connectivity between island and mainland communities
- Quality of life and convenience





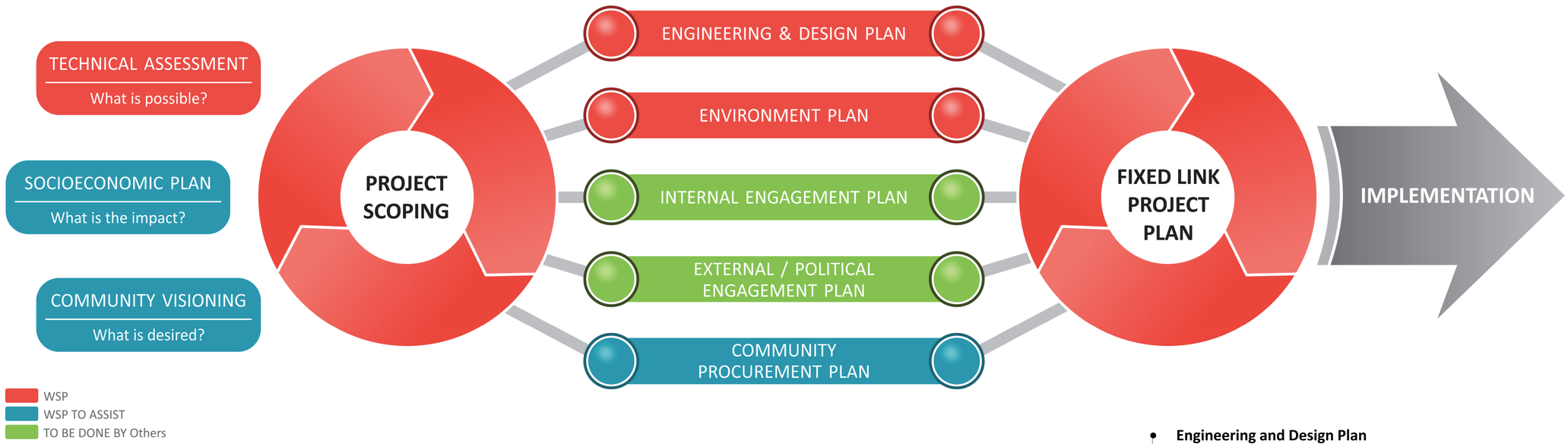
wsp

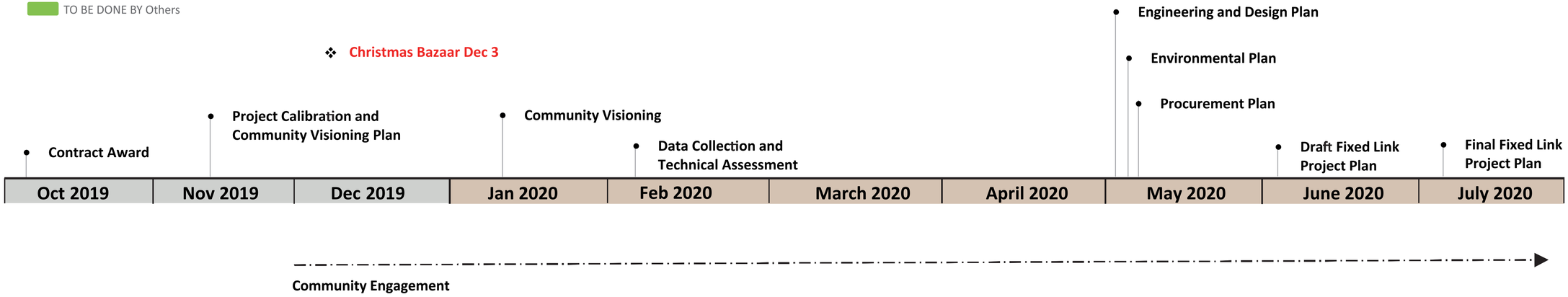
GEORGINA ISLAND

GIFL
A Project For Seven Generations

Georgina Island Fixed Link Study

Schedule





GEORGINA ISLAND

GIFL
A Project For Seven Generations

Community Visioning Workshop
January 13, 2020

GEORGINA ISLAND FIXED LINK PROJECT PLAN

COMMUNITY VISIONING WORKSHOP SUMMARY REPORT



Prepared for Georgina Island First Nation By:

WSP CANADA GROUP LIMITED

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“Remarkably, the people push through these difficult times and remain resilient.”

- The Chippewas of Georgina Island: A People of Stories (John L. Steckley Leah Atkinson, Albert Big Canoe, Andrew Big Canoe, Lauri Hoeg, Susan Hoeg, and Barbara McDonald)

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Section 1:
INTRODUCTION

1.1 What is a Project Vision?

1.2 Project Context

1.3 Community Engagement Objectives

1 INTRODUCTION



A good part of the cultural narrative of the Chippewas of Georgina Island involves stories of the crossing between island and mainland. Here are a few such stories. There are many more. Many are tragic; there have been several deaths due to the lake conditions. A number of people have fallen through the ice or had terrible accidents relating to crossing the lake. We honour and remember... individuals from our community who have passed as a result of the lake conditions...

- John L. Stickley et. al The Chippewas of Georgina Island: A People of Stories:

This report is a summary of community engagement activities and a record of feedback received from the Georgina Island First Nation Leadership, Staff and Community Members related to the future vision of a Fixed Link (a permanent land-based access route from the mainland to the shoreline of Georgina Island). This report also includes written stories (excerpts) from the community. The community engagement activities described in this summary report are a small part of a larger project called, "The Georgina Island Fixed Link Project Plan."

1 INTRODUCTION



1.1 WHAT IS A PROJECT VISION?

In general, a Vision is a specific set of goals for the future and outlines what a community seeks to achieve with respect to a specific objective (e.g. safe transportation and access between Georgina Island and the mainland). A vision statement acts as an anchor for action and is typically short, specific and based on current context and information available. Consideration for what is attainable from a technical, cost and environmental perspective is critical. The Vision for a Fixed Link is in early stages, and will require further understanding of the technical limitations of the project.

1 INTRODUCTION

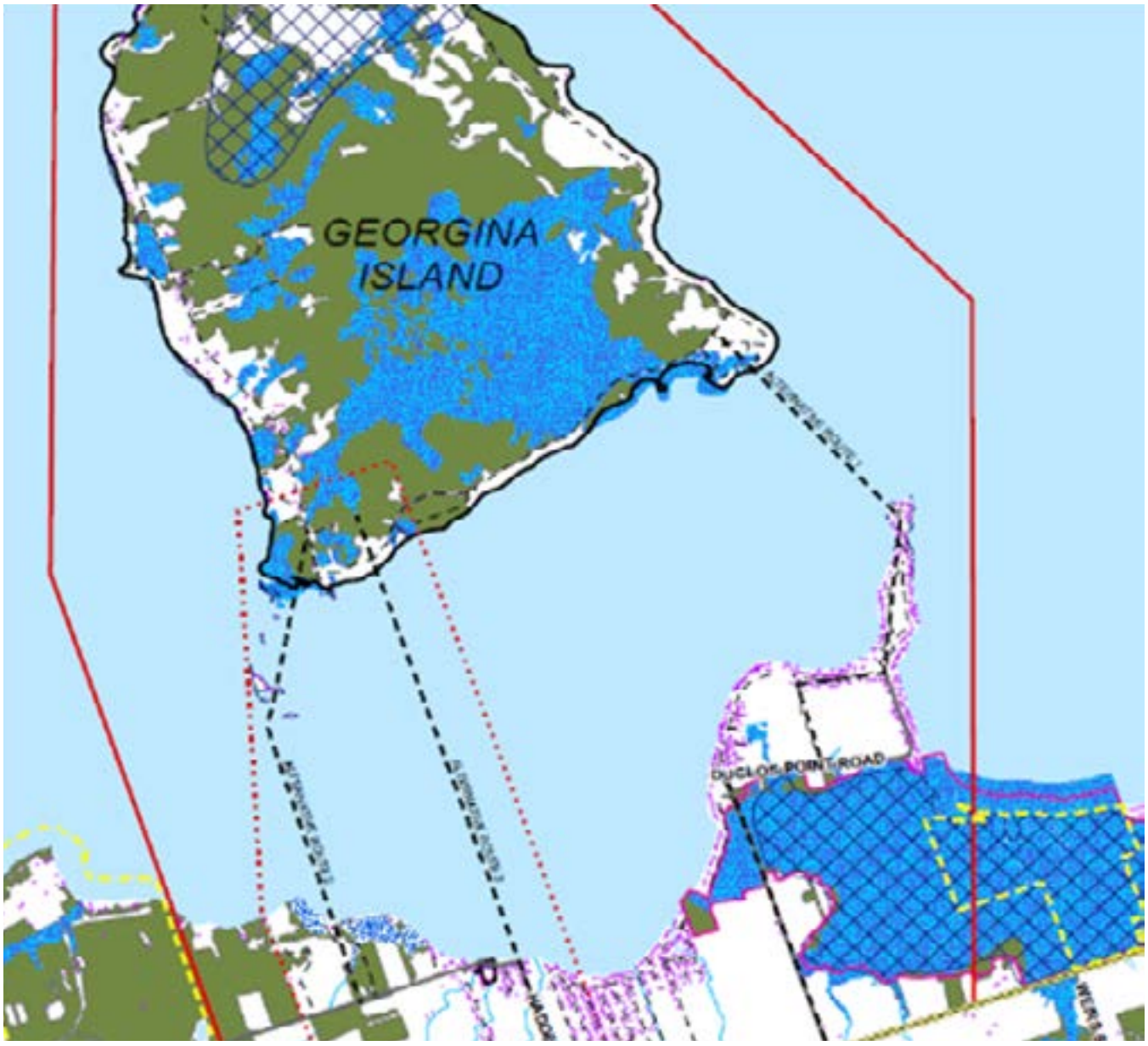


Figure 1. Fixed Link Project Plan Study Area (Source: Neegan Burnside Study)

1.2 PROJECT CONTEXT

Georgina Island First Nation (GIFN) retained Cambium Aboriginal to facilitate in the procurement of services to prepare a **Fixed Link Project Plan** and Community Visioning. WSP and Cambium Aboriginal (the Project Team) were informed that the need for a Fixed Link has existed for generations and that a Fixed Link is directly tied to the ongoing Health and Safety of community members.

1 INTRODUCTION



Following a three (3) part evaluation process, WSP Canada was retained to support the Nation and its members with documenting the necessary steps needed to scope a Fixed Link Project. A Fixed Link is defined as the construction of a permanent land-based access route from the mainland to the shoreline of Georgina Island.

Before a Fixed Link can be constructed, several detailed studies, meetings and analysis are required to ensure that environmental, cost, constructability, legal and social impacts are considered. These details are documented through a planning process the Nation has called a **Fixed Link Project Plan**.

The purpose of the **Fixed Link Project Plan** is to identify and communicate the planning process, including the various technical, social, economic and environmental studies required to analyze and later construct a Fixed Link between Georgina Island and the mainland, while minimizing impacts to the community and the environment for future generations.

Engaging members of the community every step of the way is significant to the development of a Fixed Link Project Plan. For this reason, engagement activities were completed as a first step with the goal of drafting a Community Vision Statement for a Fixed Link.

1 INTRODUCTION



1.3 COMMUNITY ENGAGEMENT OBJECTIVIES

The purpose of engaging members of GIFN is to ensure that leadership, staff and the community have a strong understanding of the scale, scope, budget and timelines that are involved in a Fixed Link Project Plan, while obtaining community opinion towards a project plan and future detailed design and construction of the Fixed Link.

On **November 4, 2019** the Project Team met with GIFN Chief and Council and Staff Members on the Engagement Team to confirm the direction and to set a path for undertaking a Community Visioning exercise with members of the Georgina Island First Nation.

1 INTRODUCTION



"Why we should build a bridge because it is better to go to stuff like hockey or to the store or a friends house."

"No need for an ice road or scoot and nobody will go in the ice."

- Elementary Writing Contest Entry

Therefore, the objectives for undertaking community engagement Visioning Workshop are:



To listen and document feedback from the community on the ideas, opportunities and constraints associated with a Fixed Link;



To understand what matters most to the community's future (safety, access, health, etc.);



To draft a "Vision Statement" for the Community;



To share knowledge about a Fixed Link and the next steps in building a fixed link; and,



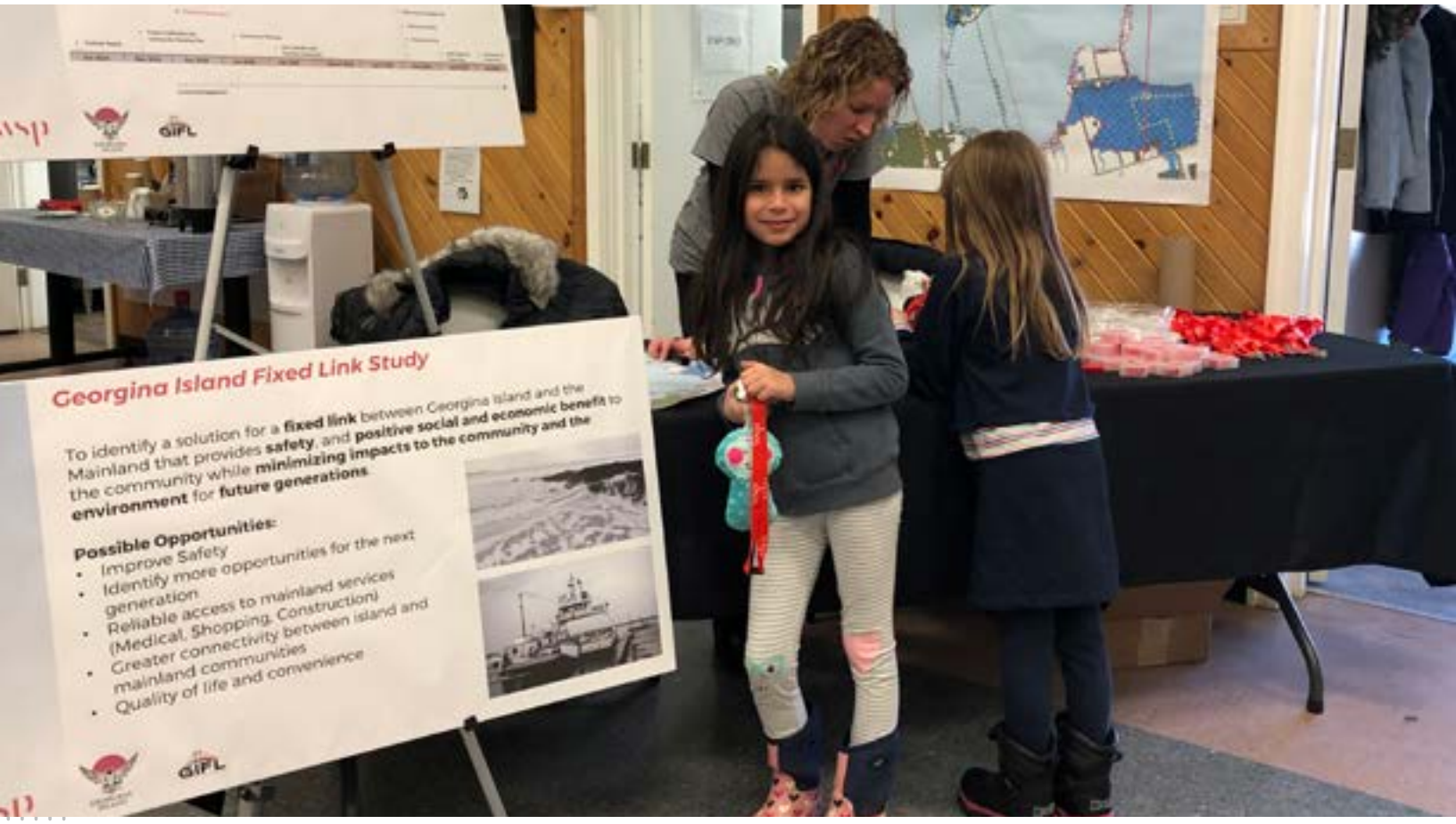
To report back on what we've heard and find opportunities to improve the way we engage the community as the project moves forward.

The summary and analysis provided in this report seeks to meet these objectives.



Section 2:
DETAILS

2 DETAILS



The Project Team facilitated three (3) meetings in total with Georgina Island First Nation (GIFN) Staff, Leadership and Community members. In addition to the three (3) meetings, a pop-up community booth with project information was presented to GIFN community members during a regularly scheduled Community Holiday Bazaar. The Community also held a writing contest with the theme "Why our First Nation Should or Should Not Have a Bridge" between March 9, 2020 and April 3, 2020. The contest received eleven (11) entries across elementary, intermediate and high school age categories. Selections from the writing contest are captured in this report.

On **November 4, 2019** the Project Team held two (2) meetings, one (1) with the GIFN Engagement Team and a second meeting with Chief Donna Big Canoe, Council and some members of Staff. During this meeting, a variety of methods and tools were presented for undertaking a community visioning workshop. A roundtable discussion was facilitated with Chief and Council on items related to the vision, project and engagement goals and objective, and next steps. These meetings resulted in a re-confirmation of project understanding and identified that Health and Safety is a significant community need associated with the Fixed Link Project Plan.

2 DETAILS



"Having to take the scoot in the wintertime is cold, noisy, and more dangerous than being on a school bus. It would also be easier to spend time with your friends after school and join school activities...because then you wouldn't always have to be thinking about the ferry schedule."

- Intermediate Writing Contest Entry

Chief and Council also communicated that there is continued, grave concern in the Community of more deaths or injuries by using the current system of transportation during freeze up and spring thaw. These meetings also resulted in an agreed upon approach to undertaking a Visioning Workshop with members of the GIFN community to better define additional community needs.

On **January 13, 2020** the Project Team facilitated a Community Visioning Workshop. The workshop was held from 1:00 to 3:00 pm at the Georgina Island Community Center, located on Chief Joseph Snake Road, Georgina, ON L0E 1L0. The workshop involved a formal presentation, open forum question and answer period, an audience live poll (using what is herein referred to as Clicker Technology), and a facilitated circle discussion. Approximately 31 community members (including staff and Council) attended the workshop.



Section 3:

NOTIFICATION

3 NOTIFICATION



On **December 3, 2019** a pop-up engagement booth was set-up during a regularly scheduled Community Holiday Bazaar to enhance outreach with members. The Georgina Island First Nation Economic Development Department, and Project Team (WSP Technical Team and Cambium Aboriginal) were present at the pop-up booth and provided community members with a map of the Fixed Link Project Plan study area. Community members were asked to identify constraints and opportunities of a Fixed Link. Approximately sixty (60) community members participated and provided the Project Team with feedback (see **Section 5** for summary of feedback received).

The Georgina Island First Nation Economic Development Department encouraged attendees to sign up for community information updates related to the Fixed Link Project Plan and other general notifications. Members provided the GIFN Engagement Team with their preferred notification method and contact information. This information is not accessible to the Consultant Team, but is used by the GIFN Staff as a resource for ongoing project communications. Contact information received at the pop-up booth were added to the GIFN internal members contact list.

3 NOTIFICATION



Cambium Aboriginal prepared a Community Engagement poster for circulation on **January 7, 2020**.

Two circulations were completed:

- Cambium circulated the Poster to the members who signed up at the Community Holiday Bazaar.
- GIFN Economic Development circulated by e-mail, or phoned where required, to the active members list.

The Poster was also uploaded to the GIFN Community Website – Members Only (password protected).

Copies of all workshop notification materials are provided in **Appendix A**.



Section 4:

WORKSHOP FORMAT

4 WORKSHOP FORMAT

"A few times we have had major house fires and even bushfires where we needed extra help from the firefighters in Sutton and Keswick but because they had to take the ferry to come over lots of damage had already been done which could have been avoided if we had a bridge."

- HIgh School Writing Contest Entry

The Visioning workshop included presentation boards, a PowerPoint presentation, live audience polling and a facilitated focus group discussion where maps and flip chart paper was provided for collecting feedback. The Project Team presented a set of informational slides during the Community Visioning Workshop in conjunction with posting a series of panels around the room describing the technical aspects of the project plan and schedule.

During the presentation, Clicker Technology was used to ask a series of specific questions about the Fixed Link. Project questions asked are noted below, with the key Clicker Technology polling results. A copy of the presentation, including the fulsome Clicker Technology polling results, can also be found in **Appendix B**.

4 WORKSHOP FORMAT

After the presentation, Workshop participants were organized into **five (5) focus** groups and were asked to discuss the benefits and constraints associated with a Fixed Link in more detail. A facilitator / notetaker was selected for each group to ask prompting questions and record feedback. The following prompting questions were used to organize discussions.

P	O	W	E	R
POSITIVES	**OBJECTIONS**	**WHAT ELSE?**	**ENHANCEMENTS**	**REMEDIATION**
(What do you like about a Fixed Link — what are its strengths, advantages...what's good about it...what could it look like... what makes a lot of sense or resonates most strongly, etc.?);	(What do you dislike about a Fixed Link — what are the weaknesses / disadvantages, things that work less well, things that don't make sense to you or that are potentially problematic, etc.?);	(What, if any, other comments, suggestions, ideas, feedback would you like to share?);	(How can the 'positives' be made even better — how can a fixed link be improved, refined and made better?); and	(How can your concerns or objections be addressed — how can perceived weaknesses / disadvantages or flaws be mitigated, reduced or eliminated?).

The following Project Team members attended the workshop:

- Michael Jacobs – Cambium Aboriginal, Facilitator;
- Sue Olguin – WSP, Project Manager;
- Majed Ibrahim – WSP, Structural Engineering;
- Andrew Roberts – WSP, Environmental Assessment;
- Christine Furtado – WSP, Consultation / Engagement; and
- Catherine Gentile – WSP, Consultation / Engagement.



Section 5:

SUMMARY OF FEEDBACK RECEIVED

5.1 Visioning Workshop Polling Questions

5.2 Focus Group Discussion Feedback

5.3 Creative Writing Contest

5 SUMMARY OF FEEDBACK RECEIVED



The Project Team received a significant amount of feedback from community members. All written and verbal comments were transcribed and analyzed and are offered herein summary. The following sub-sections highlight the feedback collected from community members as a summary of key messages and directions that shape a Vision for a Fixed Link as the Nation moves forward with detailed technical studie

A bridge is going to be helpful because it gives the community members more opportunities, it can be used for emergencies when every second counts, has less harmful impacts on the environment as well as it's a reliable and safe form of transportation all year round."

- High School Writing Contest Entry

5.1 VISIONING WORKSHOP POLLING QUESTIONS

The results of the polling questions completed by community members and staff at the Visioning Workshop are provided in Appendix B. The results indicate that more than half (63%) of the workshop participants received and preferred email notifications from Staff to hear about the meeting. Furthermore, few participants (23%) indicated that they remembered and / or participated in previous studies related to a Fixed Link.

Workshop participants were asked how the Project Team can improve outreach and communication. In response, participants preferred notification by email and used the community website. There is also interest in continuing to hold community meetings and events. Participants were least interested in using social media, text message, and direct mail, with zero participants interested in communications via the radio.

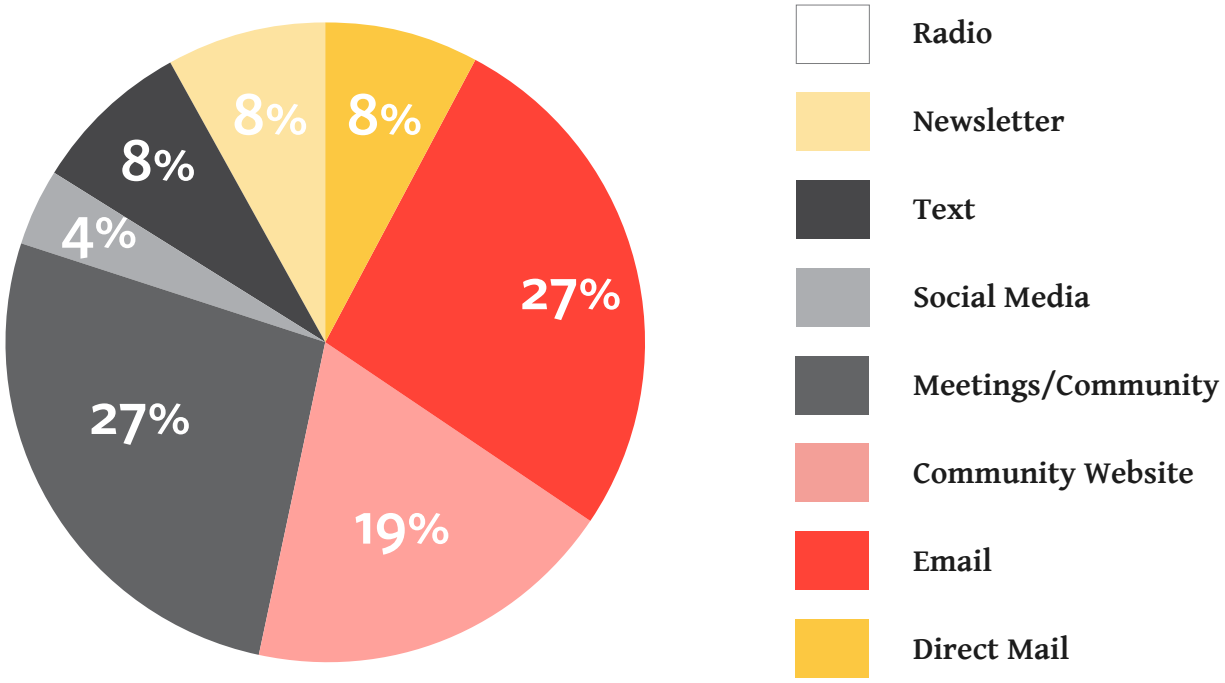


FIGURE 2. EXAMPLE POLLING QUESTION AND RESPONSE RELATED TO ENGAGEMENT

A major deliverable of the Community Visioning Workshop is development of a Vision Statement. The need for a clear vision statement to identify and guide the community to make decisions that are properly aligned with what is hoped to be achieved with the Fixed Link. Three (3) vision statements were presented to workshop participants.

79%
of participants identified with the following Vision Statement:

"Chippewas of Georgina Island First Nation is a responsible and sustainable community that values safety and community health. A Fixed Link will offer the community with safe passage during all seasons while protecting the environmental, cultural, social and economic future of the community."

5.1.1 TECHNICAL POLLING QUESTIONS

Participants of the Visioning Workshop were presented with technical information pertaining to the design of bridges, causeways, environmental considerations and the various alternative routes that have been studied previously for a Fixed Link. Most of the workshop participants (73%) were interested in having a combination of a causeway and bridge when presented with options for a Fixed Link.

When asked about the potential bridge type options and design features, 63% of participants were interested in a Multi-Use Path or some form of pedestrian connection, while 33% were most interested in the architectural features of a Fixed Link (i.e. lighting, decorative plaques). Fixed Link Project Plan graphic was presented, with discussion on the technical requirements and current study timeline. Participants of the Visioning Workshop (63%) have an urgent need for a Fixed Link within the next year. Despite the sense of urgency expressed by community members during the workshop, most participants understood the project schedule to realistically take 5 – 10 years to complete.

A series of environmental features were examined during the workshop and presented to the community. When asked about environmental priorities and impacts from construction, water pollution, fish habitat and wildlife habitat were highest priority.

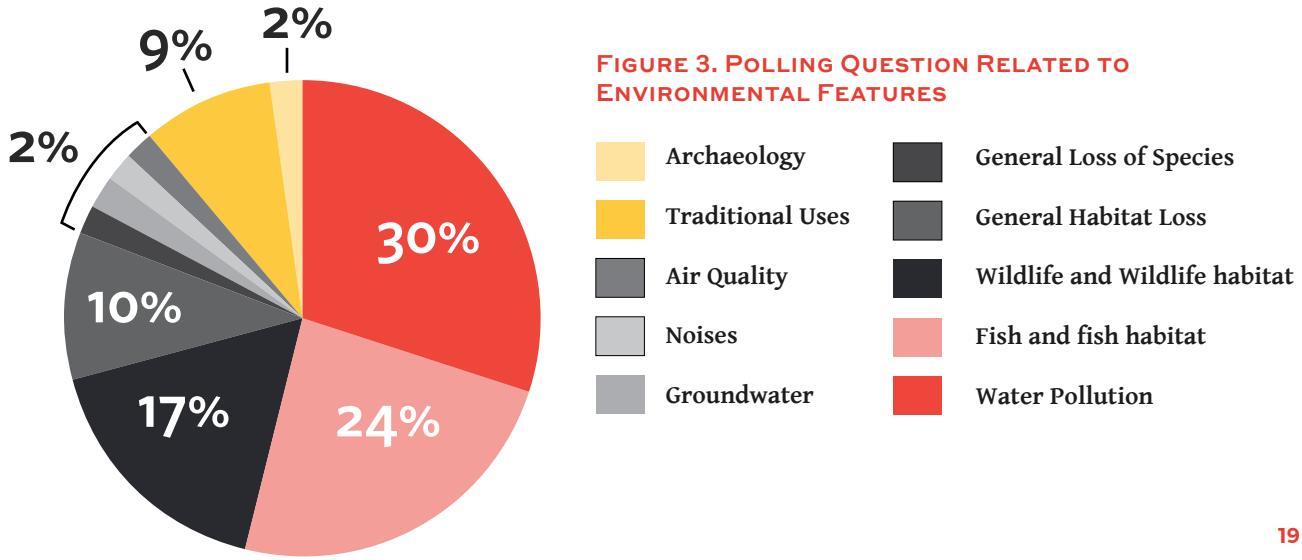


FIGURE 3. POLLING QUESTION RELATED TO ENVIRONMENTAL FEATURES

There is a clear indication that participants of the Visioning Workshop have a strong desire to preserve and protect the natural environment. Discussions included how studies were done, and various options that can be reviewed.

The alternative routes for a Fixed Link previously studied with the community were presented. Polling results indicate that a Fixed Link connection on the south-western shorelines of Georgina Island is preferred. These results are consistent with previous studies.

5.1.2 HEALTH & SAFETY

Over the course of the project, the Project Team received feedback from Chief and Council about the significant health concerns on the Island associated with access to healthcare providers, mobility of elders during all seasons, and the safety risks associated with crossing to the Island by personal vehicle during winter conditions. Therefore, Health and Safety was identified as a key concern before commencing the Visioning Workshop. During the Visioning Workshop, quality of life and healthcare were the top priorities of participants in the community.

Visioning workshop participants were also in favour of some form of access control and had a strong interest in having a guarded access point. Workshop participants were also interested in methods of generating revenue whether through tolls or other technical solutions.

In summary, the top three (3) socio-economic needs of workshop participants associated with a Fixed Link were: Quality of Life (23%) Healthcare (20%) and Job Creation (19%).

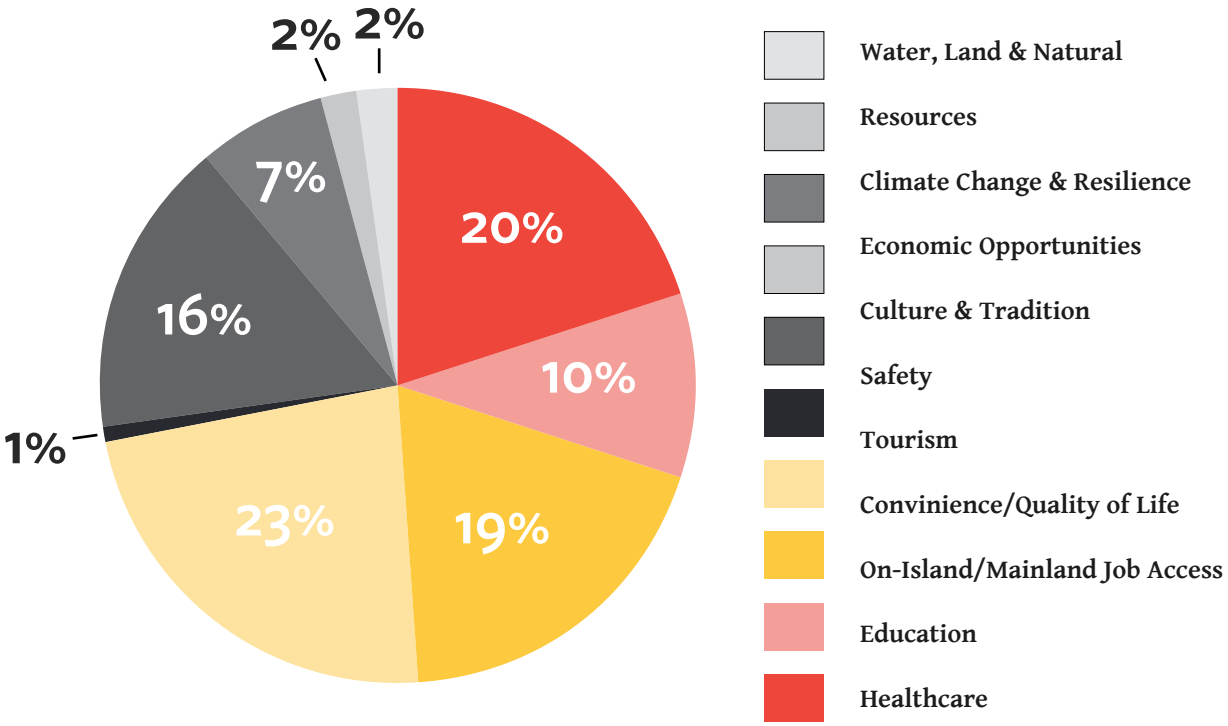


FIGURE 3. POLLING QUESTION RELATED TO SOCIO-ECONOMIC IMPACTS

During the Community Visioning Workshop presentation, community members also raised specific technical questions that the Project Team was able to answer. A summary of the questions asked, and responses is below.

Do outside companies run the Environmental Assessment (EA)?	Proponents like GIFN are responsible for the overall Project decisions. Proponents typically hire consultants to assist them with background studies, technical studies and expertise in navigating the EA process for Projects.
What would the community have to present to the agencies? (e.g. Trent Severn Waterway)	PrAs part of the EA and other potential approvals, agency engagement is required. WSP will identify all agency requirements to ensure the community understands how to proceed. Each agency has a different focus and regulatory function and will require different information. Some examples include: • Parks Canada is the federal agency responsible for the Trent Severn Waterway. Their interests will be how the Project interacts with the operation of the waterway including water levels, and navigability. • Transport Canada is the federal agency responsible for the Navigation Protection Act. Their interests will be to ensure that the fixed link be planned and constructed in accordance with their standards related to vessel navigation. • The Ontario Ministry of Environment, Conservation and Parks administers legislation including the Environmental Assessment Act, Environmental Protection Act, Endangered Species Act, and the Lake Simcoe Protection Act. • The Ontario Ministry of Natural Resources and Forestry lead the management of Ontario's Crown lands (including lake and rive bottoms) and develop and apply geographic information to help manage the province's natural resources.
What traffic would occur on a causeway? Why would two (2) lanes be needed? What is the allowable weight (or structural capacity)?	Typically, 62.5 tonnes per truck is accounted for. WSP also explained that a transportation / traffic study will also be done to assess these technical requirements.
Is illumination required?	Yes, to meet provincial safety standards and requirements and to ensure appropriate lighting for boaters / navigability.

5.2 GROUP DISCUSSION FEEDBACK

The following section summarizes the comments received during the Visioning Workshop focus group discussion. Community members provided written and verbal comments to the project team using maps and note paper. Facilitated discussions in each focus group were recorded on flip chart by a group facilitator and have been analyzed in this section collectively. Copies of all the written comments are available in Appendices C and D. **Comments were organized according to the following themes below, in order of most frequently raised concerns:**

- Land Use;
- Health and Safety;
- Environmental;
- Cultural;
- Transportation;
- Project Schedule;
- Technical;
- Economic;
- Engagement;
- Other.

5.2.1 SUMMARY OF COMMENTS BY THEME

Examples of the type of comments received by theme are summarized below.

Environmental

- Water pollution, fish and fish habitat, and wildlife and wildlife habitat are of principle concern to the community; and
- Look for opportunities to accelerate the Environmental Assessment process, to complete in a timely manner.

Technical

- A combination Bridge / Causeway is most preferred; and
- The design of the Bridge / Causeway should incorporate a multi-use path (for cyclists and pedestrians), possible architectural enhancements, and enhanced utility connections.

Transportation

- For enhanced security and controlled access, the community suggested an attendant positioned at a guard booth or alternative security measures.

Economic

- A revenue generating toll is preferred.
- Consultation and Engagement
- Email, meetings, community events and the community website are the preferred ways to keep community members informed; and
- The community most identified with the following vision statement: “Chippewas of Georgina Island First Nation is a responsible and sustainable community that values safety and community health. A Fixed Link will offer the community with safe passage during all seasons while protecting the environmental, cultural, social and economic future of the community.

The following is a summary of additional core topics that were raised during the facilitated group discussions, organized by each prompting question.

Positives

(What do you like about a Fixed Link — what are its strengths, advantages…what's good about it…what could it look like…what makes a lot of sense or resonates most strongly, etc.?)

- Safety;
- Convenience;
- Access to services;
- Economic benefit to First Nations;
- Emergency Access / Response Time;
- Job opportunities;
  - Off-island and on-island (i.e. greater self-employment opportunities).
- Time / Schedule Management;
- Social life / youth sports;
  - After school activities;
  - Sports / recrecreational access: no longer will have to worry about late night games.
- Keep our children at home during winter months;
- Jobs / education improvement;
  - More teachers; and
  - No boarding.
- Quality of life;
- Access for elders;
- Extra family time;
- Health care providers for all members;
- Fresh food all season;
- Public Transit opportunities (e.g. school bus); and
- Freedom.

Objections

(What do you dislike about a fixed link — what are the weaknesses / disadvantages, things that work less well, things that don't make sense to you or that are potentially problematic, etc.?)

- Land use plan to be ratified;
- Fishing off bridge / causeway;
- Security;
- None, if it is secure and access is managed;
- Noise increase (traffic and more construction trucks); and
- Potential for increased garbage/trash related to people using the link

What Else?

(What, if any, other comments, suggestions, ideas, feedback would you like to share?)

- Hurry up! Need now, get it done;
- Health and access;
- Gateway Park – Business;
- Suspension Bridge / Tourism draw walkway;
- Natural gas supply;
- Partial Tunnel; and
- Love the Elders.

Enhancements

(How can the 'positives' be made even better — how can a Fixed Link be improved, refined and made better?)

- Heated bridge (no plowing required, no de-icing material);
- Storage;
- Security control / safety;
- Railing height;
- Speed control (e.g. speed limit);
- Bike rental;
- Concept of member toll vs non-member for passing into community;
- "Fast Pass" card (e.g. nexus) system for members and island professionals / workers;
- Utilities improvements (Natural gas / internet);
- Adverse weather conditions impacting bridge safety (e.g. snow drift / freezing rain);
- Multi-lane;
  - Moped;
  - Bike;
  - Hike; and
  - Would have health benefits / improvements.
- Camera system for all fixed-link passengers;
- Health access (e.g. save time);
- Elders can stay on the island;
- Have Incoming employment;
- Community can come back and live in community;
- Architectural features; and
- Lights.

Remediation

(How can your concerns or objections be addressed — how can perceived weaknesses / disadvantages or flaws be mitigated, reduced or eliminated?)

- No fishing permitted from the bridge;
- Notice Board (Digital);
- Monitoring (e.g. cameras, security systems);
- Enforcement increase;
- Safety;
- Community meetings;
- Website to provide opinions and thoughts; and
- No charge ($) for members.

5.3 CREATIVE WRITING CONTEST

The following section summarizes the comments expressed in the Creative Writing contest by elementary, intermediate and high school aged Community members. Copies of the writing entries have not been included in this document for privacy reasons.

> **"...We need a bridge. I think we need a bridge for emergency reasons, say someone is about to have a baby you have to wait for a boat but if you have a bridge, you can just go across the bridge."**
>
> • Elementary Writing Contest Entry

All eleven (11) of the contest entries included positive arguments for a fixed link and underlined the concerns of Youth regarding the dangers of winter travel. The contest entries included four (4) consistent themes:

Health & Safety

- By having a fixed link, there would no longer be concerns about people going through the ice for winter travel on the ice road, or on scoots.
- Emergency Services and first responders would be able to access the Island.
- Better access to healthcare services on the mainland without having to worry about missing the ferry and delays.

School

- Better choices for students and parents for schooling. The fixed link would mean that students can reduce their commute time and wait time before school opens significantly.
- Students will longer have to be concerned about weather making them late for school.

Family & Activities

- Better access to friends who live on the mainland.
- Better and more frequent visits with family who live on the mainland.
- Better access to after school activities and sports without having to rush to the ferry.
- Better access to full time jobs and reduced commute times for their parents.

Convinience & Quality of Life

- Access to amenities such as sports, music lessons, restaurants when convenient without worrying about the ferry schedule, or wasting time sitting in line for the ferry.

While overwhelmingly positive there were a few negative concerns associated with a fixed link:

- This may open up our island to strangers and we want to keep our Community safe.
- Unknown factors including the cost the community, and environmental impacts to fish.
- Ferry drivers may lose their jobs.

"No more chances of getting hurt by getting over the ice road or scoot crashing down - you can always still be safe.

I could see my brother... more. He doesn't have to wait an hour to come across on the ferry boat to see us."

- Elementary Writing Contest Entry



Section 6:

CONCLUSIONS

6 CONCLUSIONS



After careful review of all core topics presented by Chief and Council, Staff and Community members, the following conclusions will inform the future community vision of a Fixed Link. The conclusions presented are for community, Chief and Council consideration when finalizing the Fixed Link Project Plan vision and moving forward on developing a technical project plan.

Community Health and Safety Considerations

As expressed during conversations and meetings with Council and the Community, there is true concern regarding the risks associated with travel across the lake particularly during the freeze-up and spring thaw periods. Almost everyone WSP spoke with could relate a story about a friend or a loved one going through the ice, or having difficulty with accessing emergency health care, with tragic results.

6 CONCLUSIONS

It is understood that a Fixed Link will provide safe travel for members and visitors, improve convenient access to fresh food and have a significant benefit to community health by giving educators, school workers and Emergency Services / healthcare providers more reliable access to the island.

Furthermore, the community quality of life may have a positive impact because of improved travel times resulting in members being able to spend more time on social activities and with family and children, with the potential to access a greater diversity of job options.

Safety is a significant area discussed with the community as it relates to access to the Island. The concept of a security gate, camera system, or mainland toll with physical gate tenant was raised as a consideration. Comments received indicate that the Fixed Link Project Plan will require a plan to manage security and access.



Economic Considerations

Access to jobs, diversification of jobs and the ability to explore greater opportunities for self-employment is enhanced with a Fixed Link. Comments received indicate that the Fixed Link itself can support local job growth through the construction process and management of the Fixed Link. An innovative idea included the concept of a gateway park located at the land-based side of the Fixed Link to increase local business opportunities such as food service facilities and other tourism related services. Furthermore, implementation of a fee for service type of Fixed Link in addition to the fees that already exist with Ferry Transportation (i.e. toll bridge or transponder) provides an economic opportunity for the community. It is suggested that additional engagement and communications take place regarding community members fee for use. Based on comments received, it was not clear whether community members should or should not be charged for the use of the Fixed Link.

One (1) group discussed the idea of the potential for members living off the island to return. It is encouraged that members who are currently living outside of the community are engaged in the Fixed Link project plan to better understand this consideration.

6 CONCLUSIONS

Technical and Transportation Considerations

Several technical considerations were raised during the workshop with most in favour of a bridge and causeway combination with a requirement to have multi-modal (pedestrian, cycling and vehicular) all season access to the island. Technical design considerations and architectural features are also significant items raised, including the ability for utility improvements, waste transfer improvements, lighting, bike parking, school bus and even public transit options for the future. The concept of a suspension bridge was raised by one (1) focus group, who suggested this feature may attract tourism.

Snow melt, Ice build-up and additional improvements to the existing docks located at alternatives two (2) and three (3) presented in previous studies were important considerations raised by the community members at the workshop. The topic of speed limits and congestion associated with summer cottage travellers is an important concern for implementing the Fixed Link.

Environmental and Land Use Considerations

It was evident from the polling questions that water quality, wildlife and natural areas are of most significance to participants. The ratification of a land use plan was raised. Concerns related to the perceived additional development pressure that might result from the fixed link, and that the Community would not be prepared, as the Land Use Plan has not been ratified. Other environmental concerns associated with saline freshwater, natural gas supply constraints, where and when to fish.

General Project and Engagement Considerations

In closing, it is evident that there is an urgent need to construct a Fixed Link and that members of the community who participated in the visioning workshop feel that the project could take as long as five (5) to 10 years to be implemented. With respect to engaging the community on the Fixed Link Project Plan, community meetings, emails, a project website and a digital notice board were all encouraged to better engage members who were not able to attend the visioning workshop.



Section 7:

IMPLICATIONS AND NEXT STEPS

7 IMPLICATIONS AND NEXT STEPS



The conclusions from the Community Visioning provide the Project Team with direction on the needs and wants of the Community as summarized in **Section 6**. The next phase of the Project Plan is to complete a Technical Assessment of the Fixed Link based on the following technical considerations.

Following the initial consultation with GIFN, leadership and staff members, WSP's interpretation of the Community's vision for the Fixed Link is:

- A structure that will serve the community by providing a year-round, safe and reliable fixed link between Georgina Island and the mainland;
- A structure that is a combination of a bridge and a causeway;
- A structure that will connect to the island in the south west, with a connection intersection perpendicular to Joseph Snake Road;
- A structure that will connect to the mainland to a location west of the existing ferry terminal to connect to Black River Road;
- A structure with a two-lane cross-section with one lane in each direction;
- A structure that incorporates a multi-use path for cyclists and pedestrians;
- A structure that has enhanced security and controlled access with ideally an attendant positioned at a guard booth;
- A structure that should be planned and constructed in an environmentally responsible manner.
- A structure that can be completed in the shortest amount of time possible.

7 IMPLICATIONS AND NEXT STEPS

WSP will endeavour to develop a plan that will provide the community with the vision they dream of. As with all infrastructure projects there will be limitations to achieving the dream, both technical and budgetary. The next stage our of work will begin to test the assumptions above, against data-based realities. WSP will use the community-based assumptions to guide our technical reviews and as the imagined vision is altered by technical and environmental realities, WSP will provide data-based reasoning for any evolutions that this project may require. Our effort will support the community's educational evolution and overall understanding of the scale, scope and reasoning behind is project and will ensure the Fixed Link Project Plan serves to delivery the maximum 'dream' elements relative to all technical and budgetary considerations.

Based on this, WSP will identify the technical implications and underlying studies that will be required to fulfill the community vision. Stepwise this will consist of:

- Early Development of an overall Table of Contents (ToC) for review and comment by GIFN. The ToC will outline the report, which will be produced in a tabular format that identifies the required technical studies, data needs and other informational inputs required to complete a Technical Assessment for the Project Plan;
- Thorough review and analysis of the existing information available for the study area. Where data is deficient or out of date, this will be flagged, and an action plan developed to address the gap;
- Overview and assessment of the key technical challenges and opportunities, environmental constraints, transportation considerations and other key items deemed important to the decision-making process. This will include answering the question about whether the development of the Project is technically possible, how much it will cost and when it can be completed. This will also include the identification of a comprehensive list of potential permits, licences and approvals for the Project, and the responsible authorities.
- Timeline. Develop and update a timeline for the Fixed Link project to communicate the context and status of the project to the community of Georgina Island. See **Appendix E**.

Appendix A:

NOTIFICATION MATERIAL

Community Meeting January 13th

Sent to **GIFN Engagement Register** on **January 07, 2020 at 10:31 AM**

67	5	0
TOTAL SENT	BOUNCES	COMPLAINTS

31 (50.0%)	**0** (0%)	**$0** (0%)	**0** (0%)	**0** (0%)	
OPENS	CLICKS	SALES	WEB HITS	UNSUBSCRIBES	DOMAINS

Opens over 2 weeks: ● 56 Total Opens ● 30 Unique Opens

14 days after send



Opens

Make segments based on who opened your messages.

Opened | Unopened

31 people opened this message

Create a Segment of these Subscribers

PRIZES TO BE WON!

GIFL

A Project For Seven Generations

FIXED LINK COMMUNITY MEETING

WE NEED YOUR INPUT!

When you close your eyes and picture a fixed link, what do you see?

WSP, the technical team developing the Fixed Link Project Plan, will be conducting a community information session and workshop to help us figure out what type of structure the First Nation members might like to see or may be expecting.

MONDAY JAN 13th

1pm—3pm

Community Centre

Light lunch provided to attendees

Staff are encouraged to attend

GEORGINA ISLAND

WE LOOK FORWARD TO SEEING YOU THERE!

FUN TO BE HAD!

Olguin, Sue

From: Michael Jacobs <M.Jacobs@cambiumaboriginal.com>
Sent: Friday, February 07, 2020 1:49 PM
To: Olguin, Sue
Subject: FW: Broadcast Sent - Your QuickStats Summary

Here is the confirmation email for records of the email sent confirmation.

From: AWeber Communications, Inc. [mailto:help=aweber.com@send.aweber.com] **On Behalf Of** AWeber Communications, Inc.
Sent: January-07-20 11:32 AM
To: Spirit
Subject: Broadcast Sent - Your QuickStats Summary

Keep track of your broadcast's performance with QuickStats

AWeber COMMUNICATIONS

Your message, Community Meeting January 13th, was sent at 10:31AM - January 07, 2020 to the list GIFN Engagement Register.

Total Sent	67

Track opens, clicks, web hits, and sales when your subscribers read your message.

In fact, your message already has:

Opens Log in to view the latest stats	9 (13.4%)

View your QuickStats results



Download our free mobile app.

View your stats anytime on your Android or iOS device.

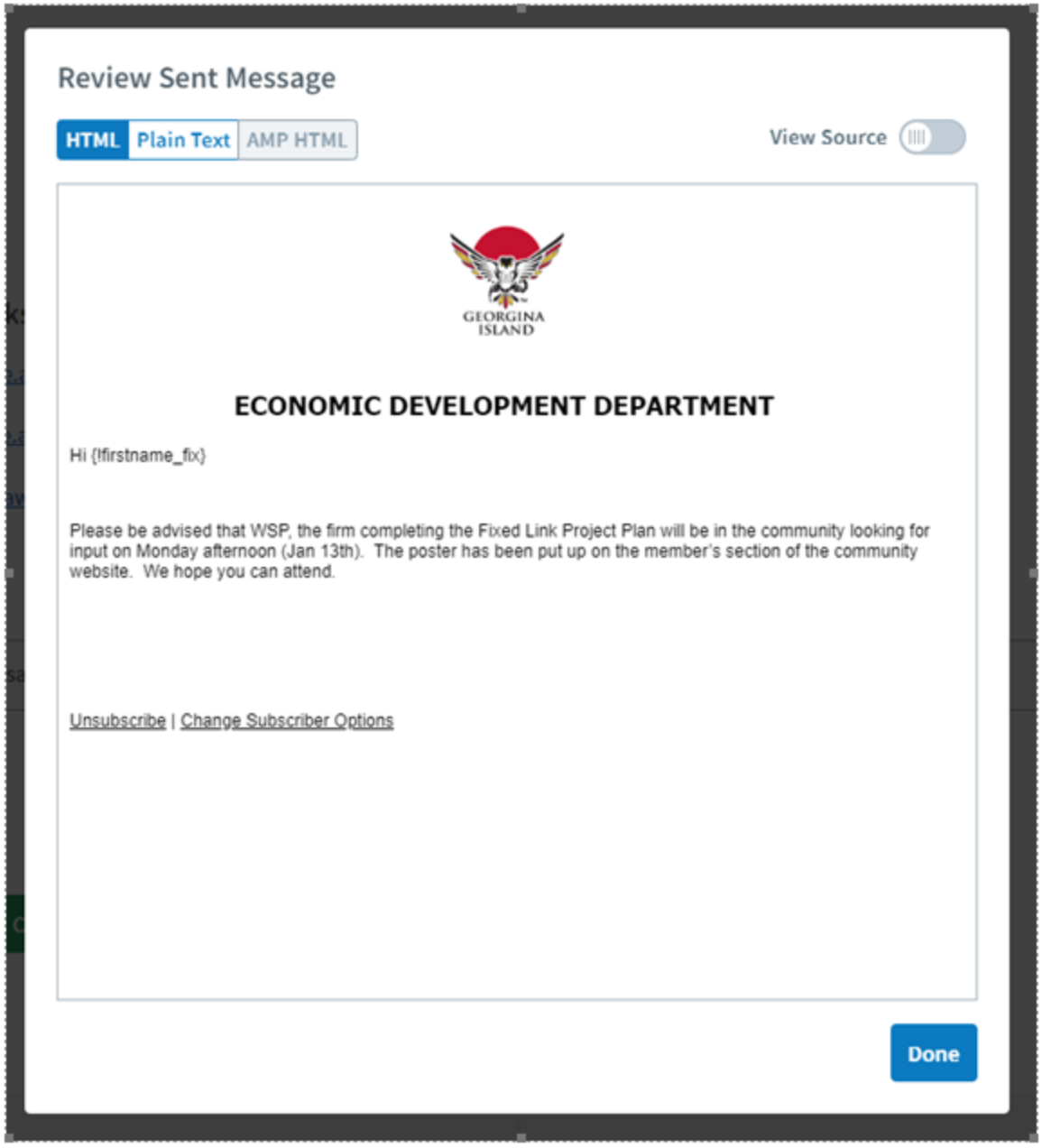
Don't want to get these notifications anymore? Click here to see how.

1100 Manor Drive
Chalfont, PA 18914, USA
1 877-AWeber-1

Connect with us

Live Phone Support
8AM-8PM ET Mon-Fri

Email / Live Chat Support
Available 24/7


Review Sent Message
HTML
Plain Text
AMP HTML
View Source
GEORGINA ISLAND
ECONOMIC DEVELOPMENT DEPARTMENT
Hi {!firstname_fix}
Please be advised that WSP, the firm completing the Fixed Link Project Plan will be in the community looking for input on Monday afternoon (Jan 13th). The poster has been put up on the member's section of the community website. We hope you can attend.
Unsubscribe | Change Subscriber Options
Done

Appendix B:

WORKSHOP PRESENTATION, WITH POLLING RESULTS

Ahneen, Biindigen!
Hello, Welcome

Community Visioning Workshop

Georgina Island Fixed Link Study

January 2020



Welcome!



Chippewas of Georgina Island First Nation

Community Visioning

Thank you for coming!

This is an open forum – please ask questions and get involved!

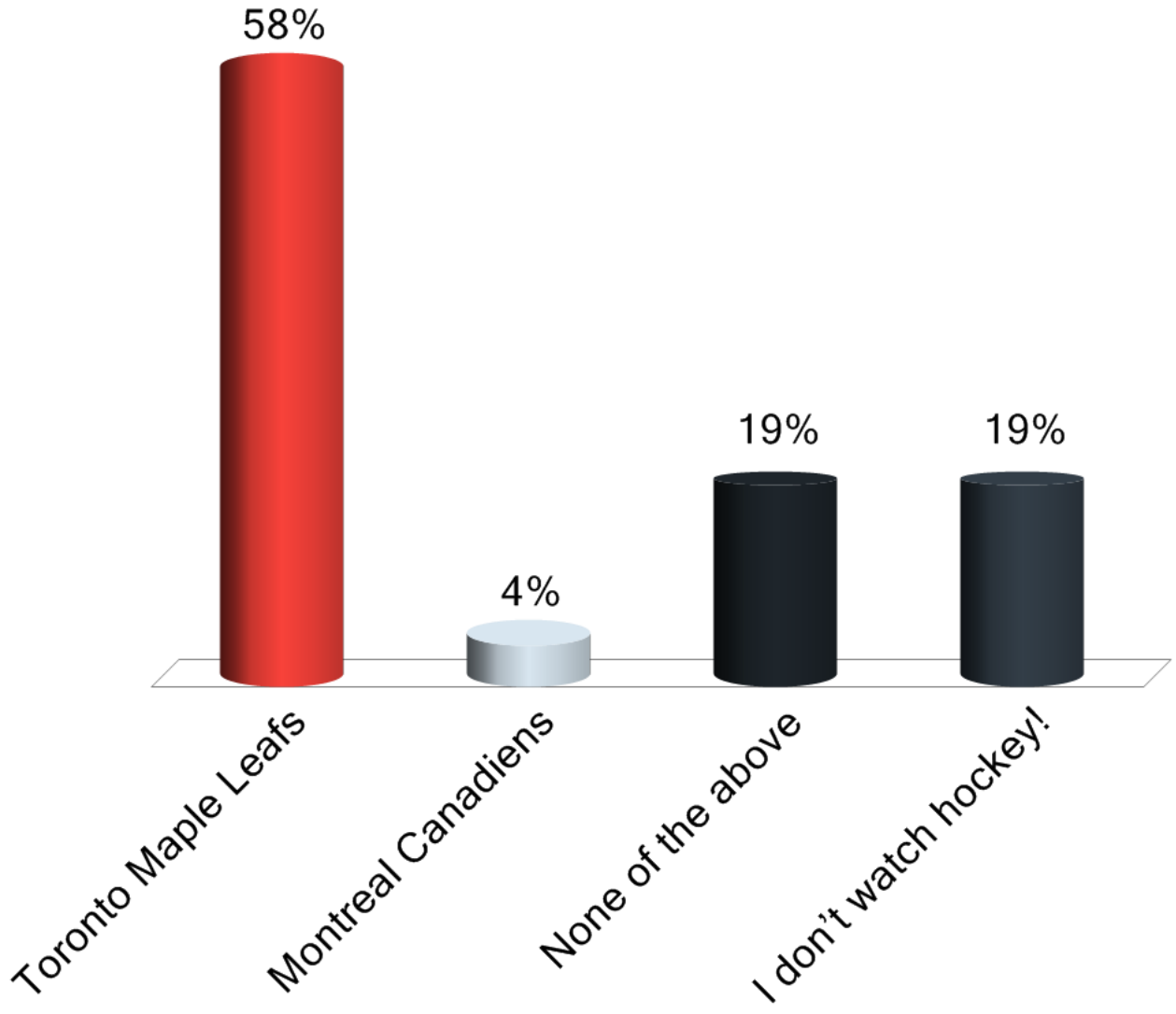
A **questionnaire** is a very convenient way of collecting information from a large number of people within a period of time and ensures accurate data is collected. Within this information session, we will ask questions which can be answered using Clicker Technology.

Before we begin, record you clicker number for easy access and to win a prize!

Let's test it out…

What is your favorite NHL hockey team?

1. Toronto Maple Leafs
2. Montreal Canadiens
3. None of the above
4. I don't watch hockey!



Prize To Lucky 7th Responder!!!

Seconds	Participant	Seconds	Participant
2.495	69EDBF		
2.569	6A7476		
2.807	6A745A		
3.404	6A742B		
3.991	6A7459		
4.041	6A7426		
4.177	69ED79		

VISIONING PROGRAM

- Welcome Panels and Opening Remarks
- Introduce the Project Team
- Visioning Objectives
- What is a Fixed Link?
- Understanding Project History and Project Purpose
- Sharing Knowledge about a Fixed Link
  - Creating a Community Vision Statement
  - Community Objectives for a Fixed Link
  - Community Q&A Using Clicker Technology
- Group Discussion
  - Map Constraints and Opportunities
  - Other Considerations
- Next Steps

Chippewas of Georgina Island First Nation

Community Visioning

WSP Project Team

Who is WSP?

William Sale Partnership (WSP) Canada Group Limited has been providing an array of consulting services to public and private sector clients across Canada since 1959. With over 150 offices and more than 8,000 employees across Canada, WSP has over 48,000 employees worldwide. **The Fixed Link Study team includes members from Thornhill, Oakville and Thunder Bay.**

WSP was engaged in August 2019 by the GIFN council in a two round competition. To date, we have met with Chief and Council and had coordination with Cambium Aboriginal (Michael Jacobs). December 3, 2019 we met members of the community by way of an information table at the Christmas Bazaar.

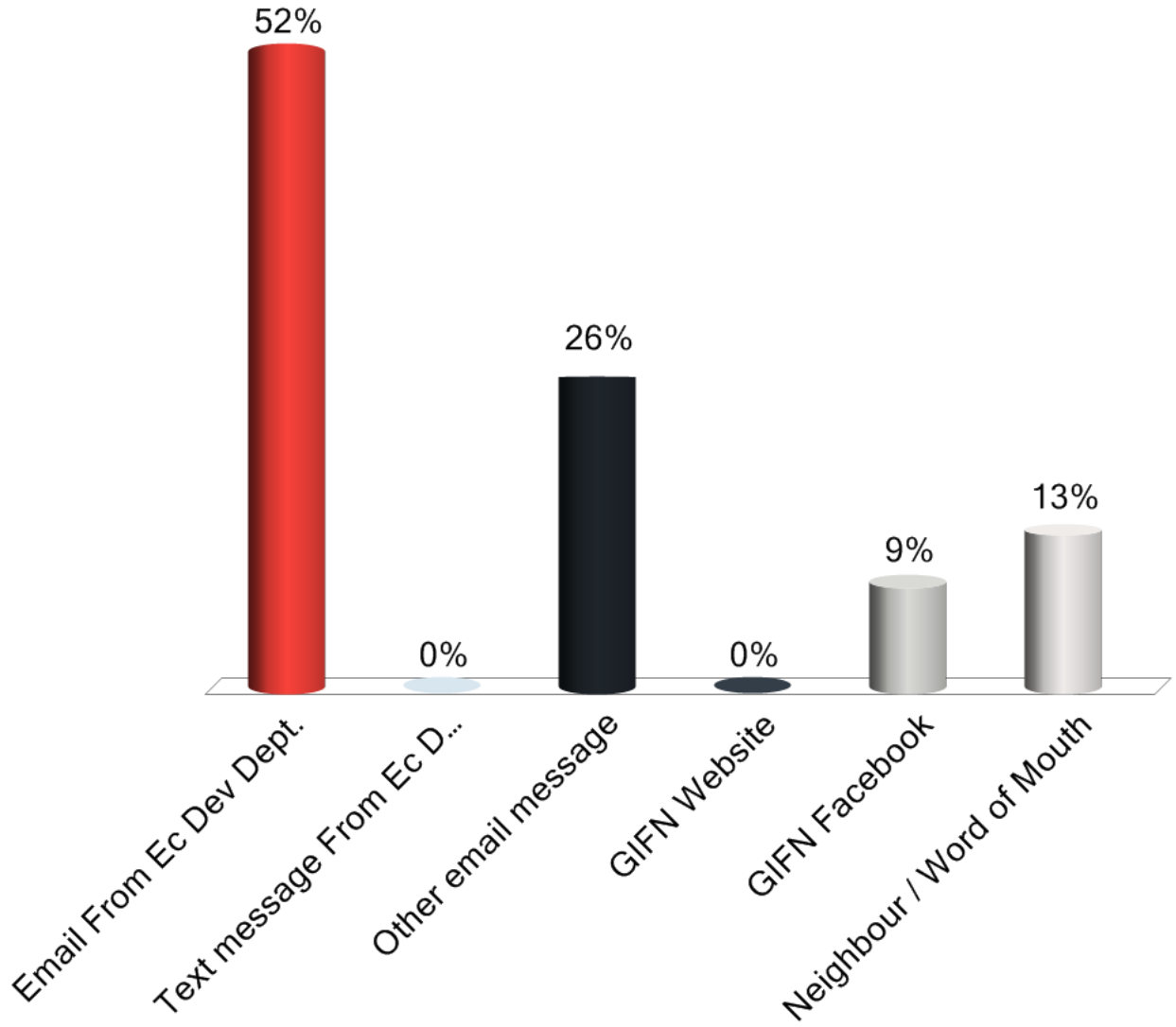
Visioning Objectives

Why are we here?

- To **listen and document feedback** from the community on the ideas, opportunities and constraints associated with a fixed link;
- To **understand what matters most** to the community's future (safety, access, health, etc.);
- To draft a **"Vision Statement"** for the Community;
- To **share knowledge** about a fixed link and the next steps in building a fixed link; and,
- To **report back on what we've heard and find opportunities to improve the way we engage the community** as the project moves forward.

How did you 1st hear about today's meeting?

1. Email From Ec Dev Dept.
2. Text message From Ec Dev
3. Other email message
4. GIFN Website
5. GIFN Facebook
6. Neighbour / Word of Mouth



Project Purpose

To identify a potential solution for a **fixed link** between Georgina Island and the Mainland that provides **safety**, and **positive social and economic benefit** to the community while **minimizing impacts to the community and the environment** for **future generations**.





Chippewas of Georgina Island First Nation

Community Visioning

What is a Fixed Link?

Chippewas of Georgina Island First Nation

Community Visioning

A permanent land-based connection between the mainland and Georgina Island with a life span of 75-100 years.

Examples:

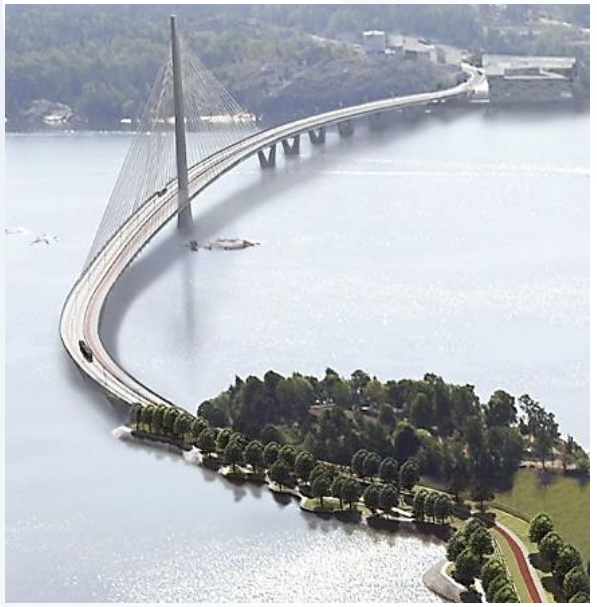
- **A Bridge** (segmental, long-span cable bridge)

OR

- **A Causeway** (rock-filled shallow areas with large boulders, sheet piles with culverts to allow the flow of water)

OR

- **A Combination** of Causeway and Bridge





What is a Fixed Link?

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Community Visioning

Design Considerations

- **Architectural designs and community plaque** (e.g. community logo, archways and various building materials can be selected based on height and span of the bridge)
- **Lighting and Speed**
- **Terrain and Width** - Multi-use path for all season access or a walkway
- **Utilities, Services and Maintenance** bridges transfer water, electricity, cable, data, and other critical services across rivers, lakes, bays, valleys, and highways

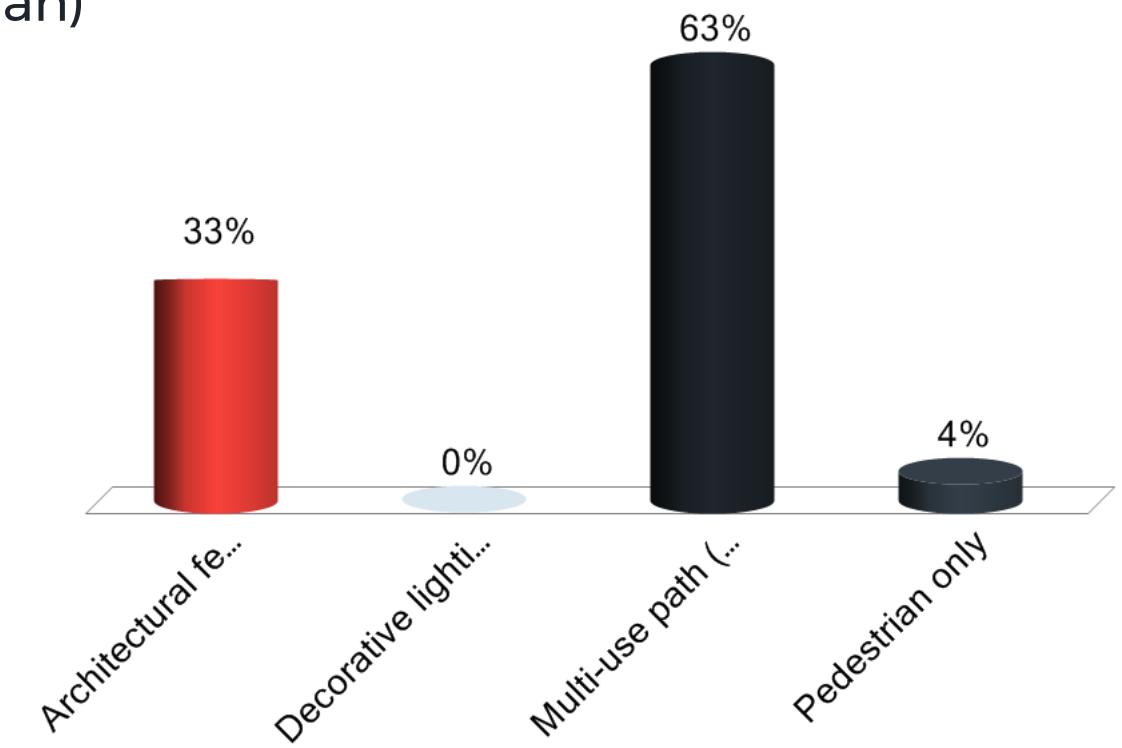


E.g. Bronze art installation on the Keith Bridge in Newmarket by sculptor Carolyn Butts.



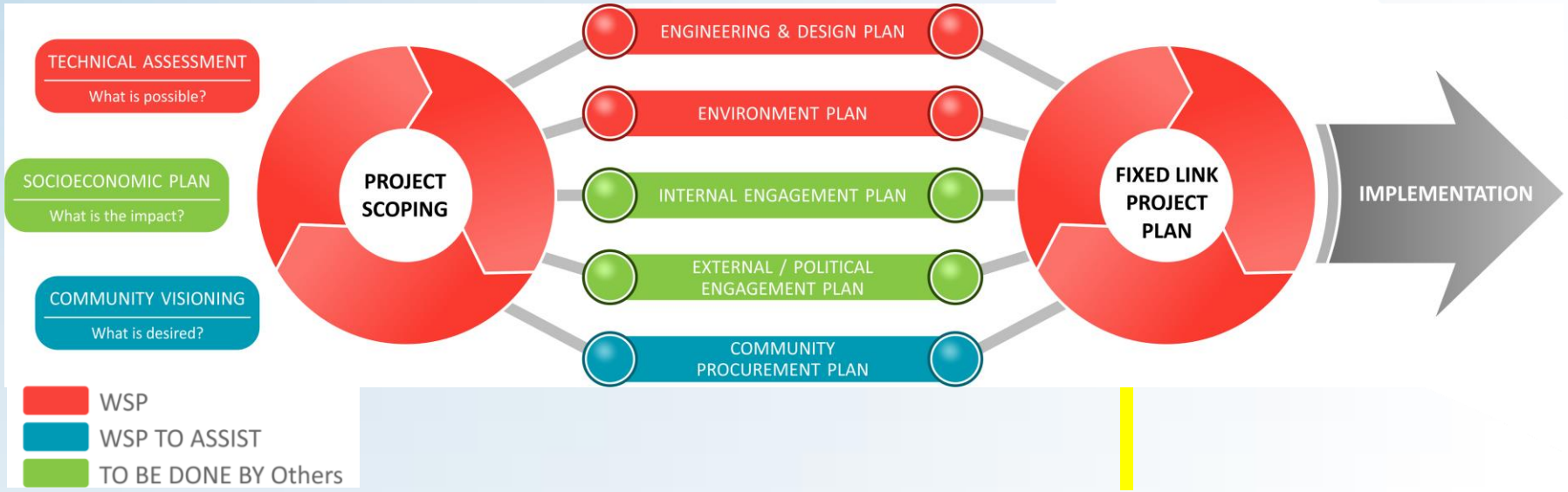
What aesthetic / design enhancement would you most like to see on the Fixed Link?

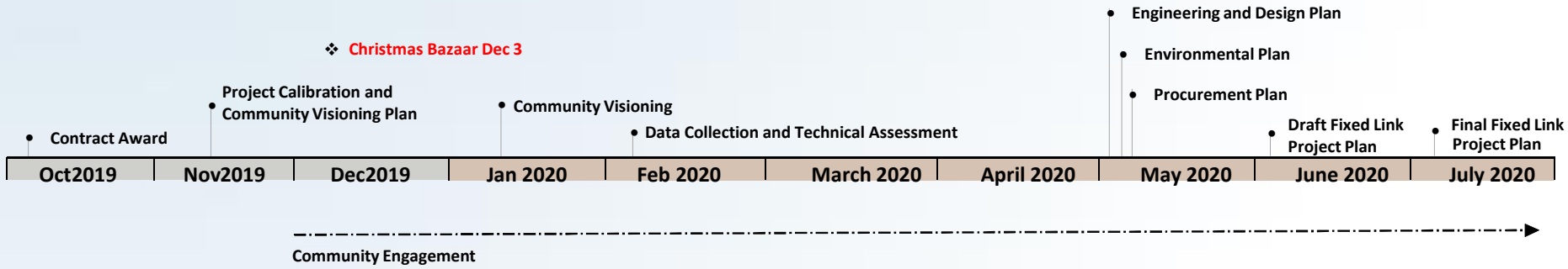
1. Architectural features (such as imprinted community logo)
2. Decorative lighting
3. Multi-use path (bike + pedestrian)
4. Pedestrian only



What is required to Build a Fixed Link?

A Community Vision, a Project Plan or Road Map and a Series of Technical Studies.





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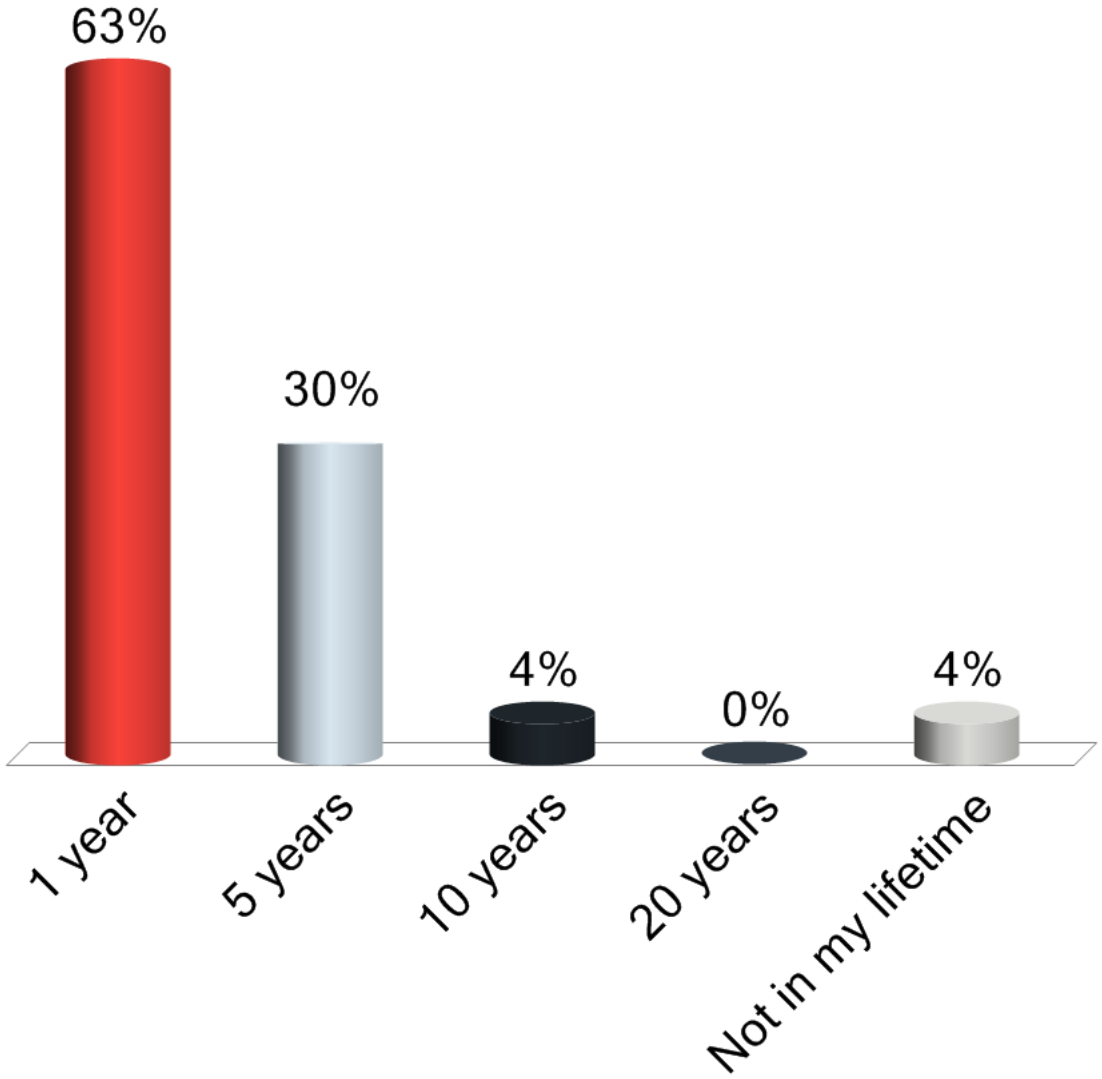
Community Visioning

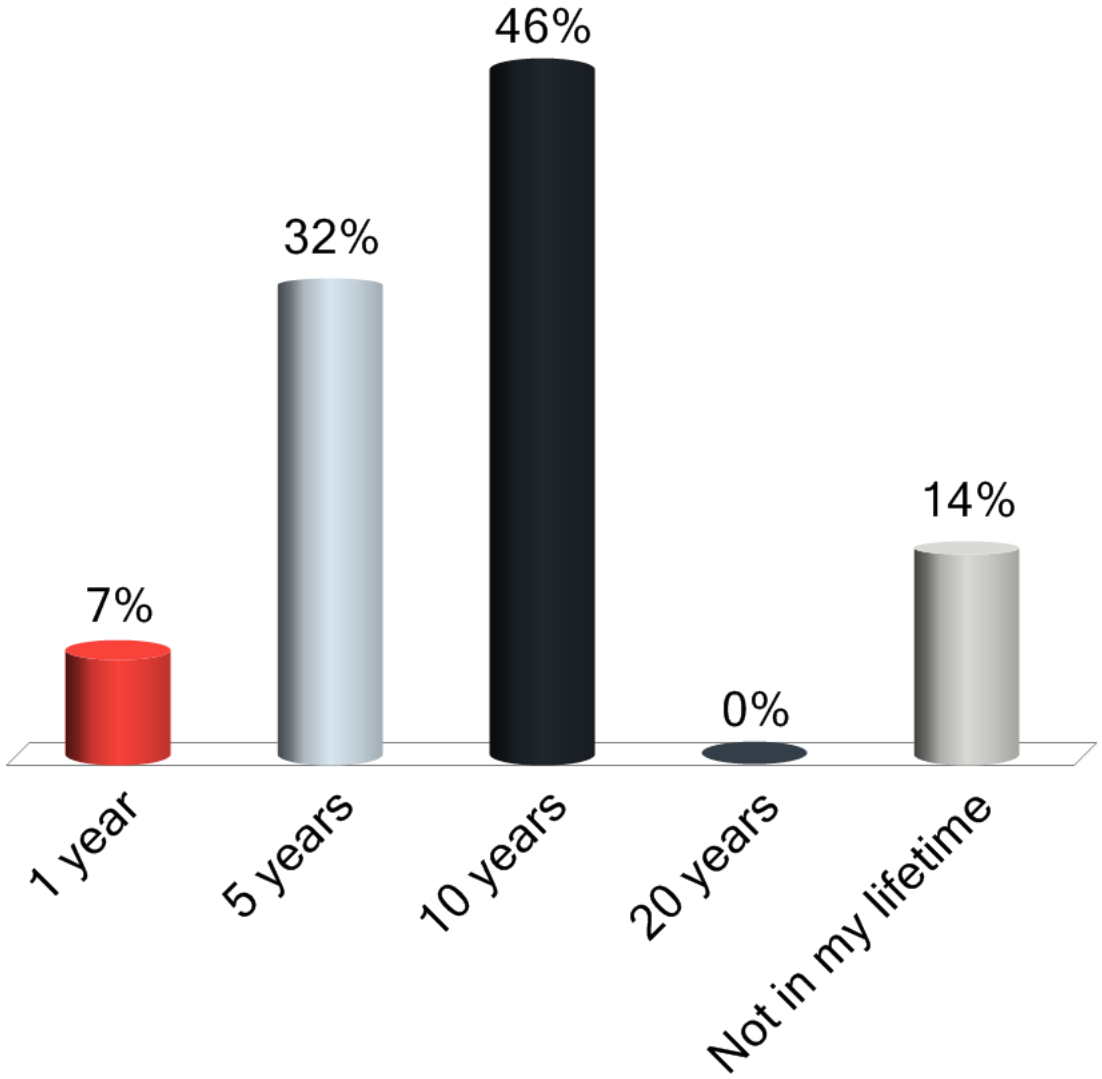
How much time do *wish* it will take to obtain approvals to build a fixed link?

1. 1 year
2. 5 years
3. 10 years
4. 20 years
5. Not in my lifetime



How much time do you *believe* it might take to obtain approvals to build a fixed link?

1. 1 year
2. 5 years
3. 10 years
4. 20 years
5. Not in my lifetime



3rd Most Honest Person Here Is a Winner!!!

Seconds	Participant	Seconds	Participant
9.756	69ED82		
16.391	6A73E2		
19.657	6A748B		

What is required to Build a Fixed Link?

Chippewas of Georgina Island First Nation

Community Visioning

Environmental Assessment

- A study process which assesses the potential environmental effects (positive or negative) of a project;
- Promotes good environmental planning before decisions are made about proceeding with a project;
- Requires a series of technical analysis of options or **alternatives** for building a Fixed Link that meets the communities needs; and,
- Includes many opportunities to engage with the Community and various interested parties who may - or may not - have an impact on the study.

Environmental Assessment



Chippewas of Georgina Island First Nation

Community Visioning

In Ontario, an EA Study is:

- Defined and finds its authority in the *Environmental Assessment Act* (EA Act).
- Includes consultation with government agencies, the public and the community;
- Includes an evaluation of alternatives (different options to solve a problem or opportunity); and,
- Includes a series of studies that are used to better understand and manage the potential environmental effects of a proposal.

"Environment" is defined as: Air, land or water, plant and animal life, including human life, social, economic and any direct and indirect human impacts.

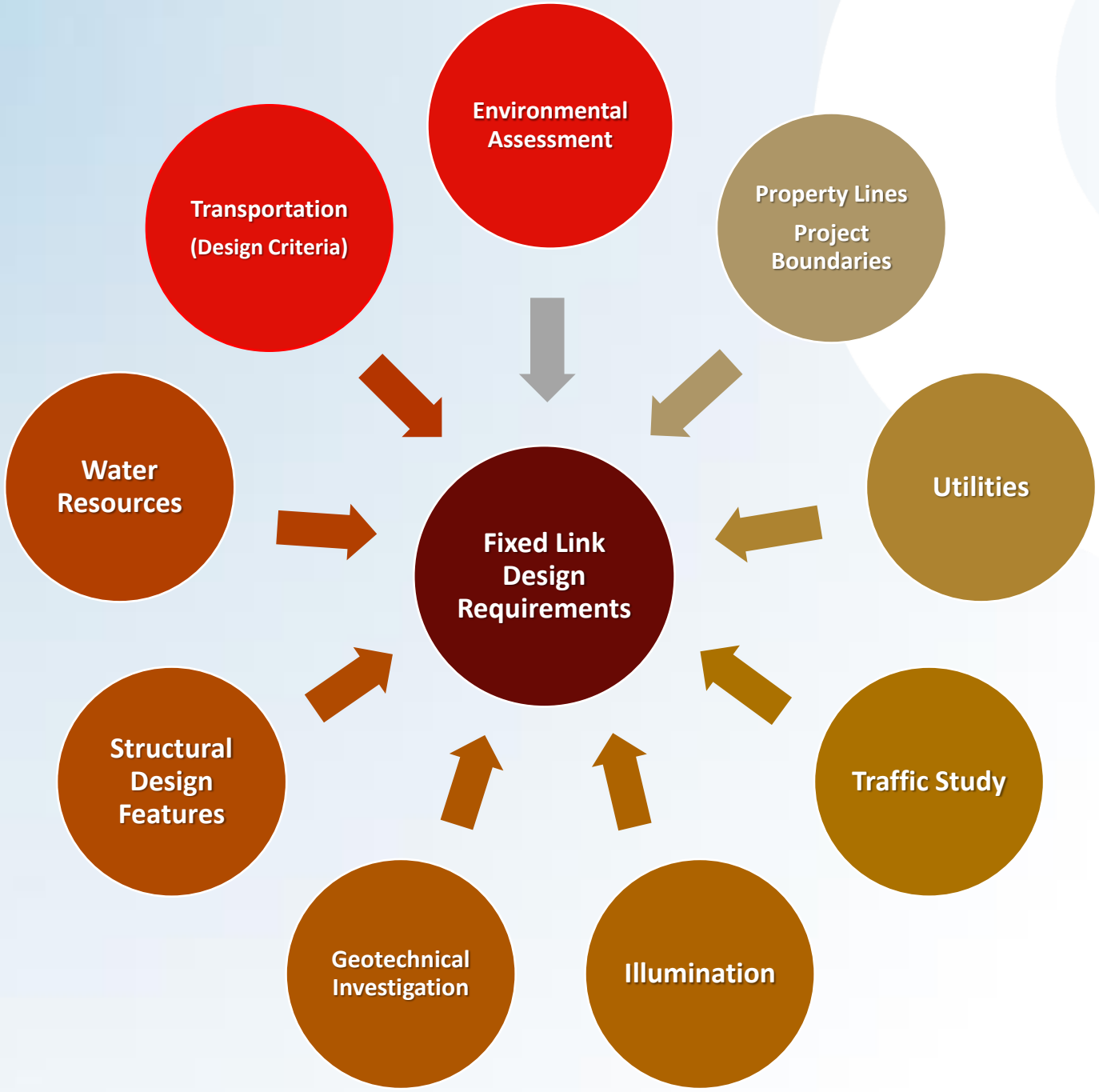
Examples of future studies, which would support an Environmental Assessment:

Bathymetry and Hydrology	Contamination
Ecology	Noise
Terrestrial	Air Quality
Fish and Fish Habitat	Climate Change
Species at Risk Surveys	Archaeology and Heritage
Land Use	Human Health

Environmental Assessment

Technical Studies

Multiple technical studies will be required to confirm a fixed link option.



Chippewas of Georgina Island First Nation

Community Visioning

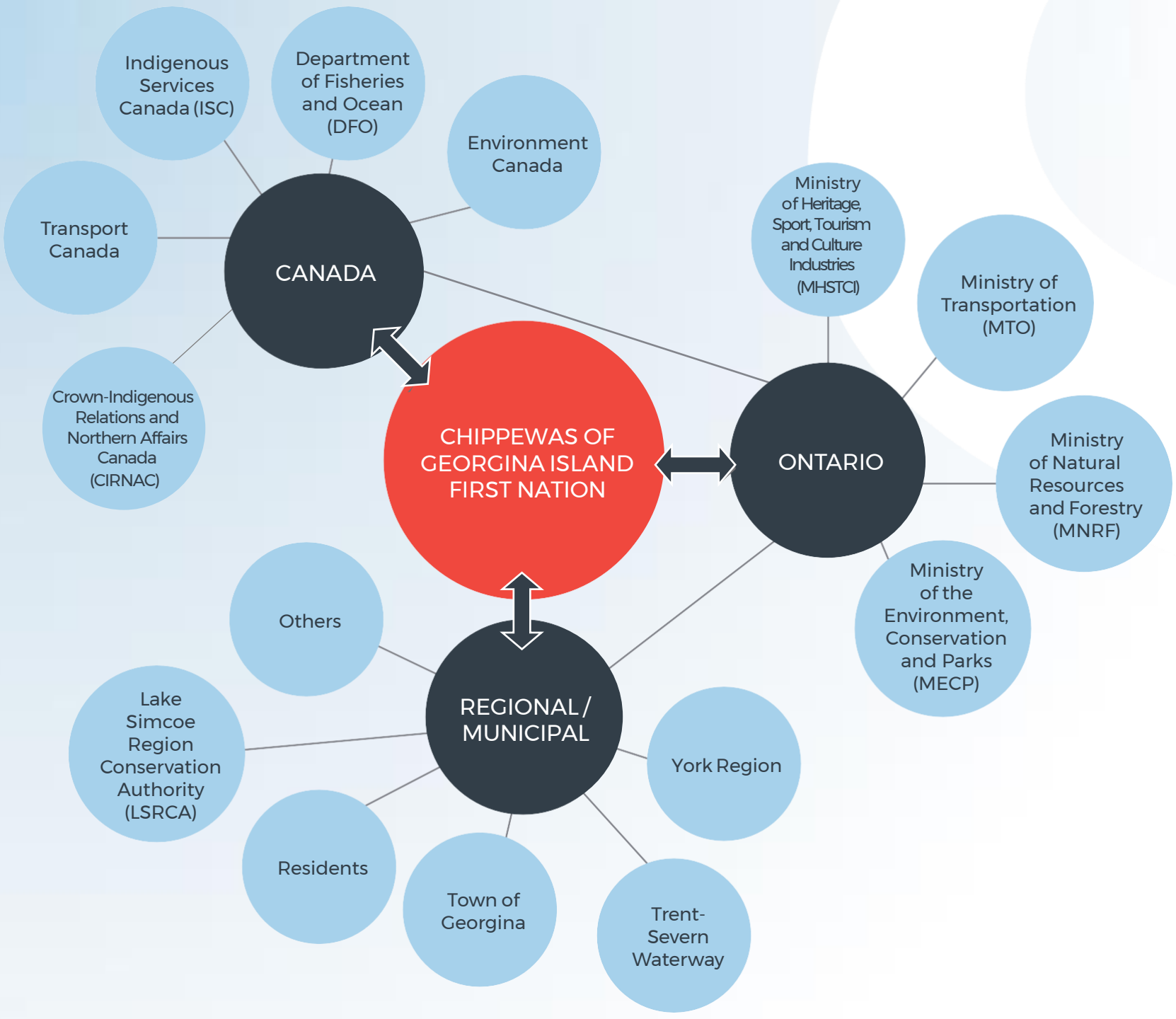
Environmental Assessment

Agency Engagement

Engagement and approvals are required to facilitate selection of a preferred fixed link option.

Chippewas of Georgina Island First Nation

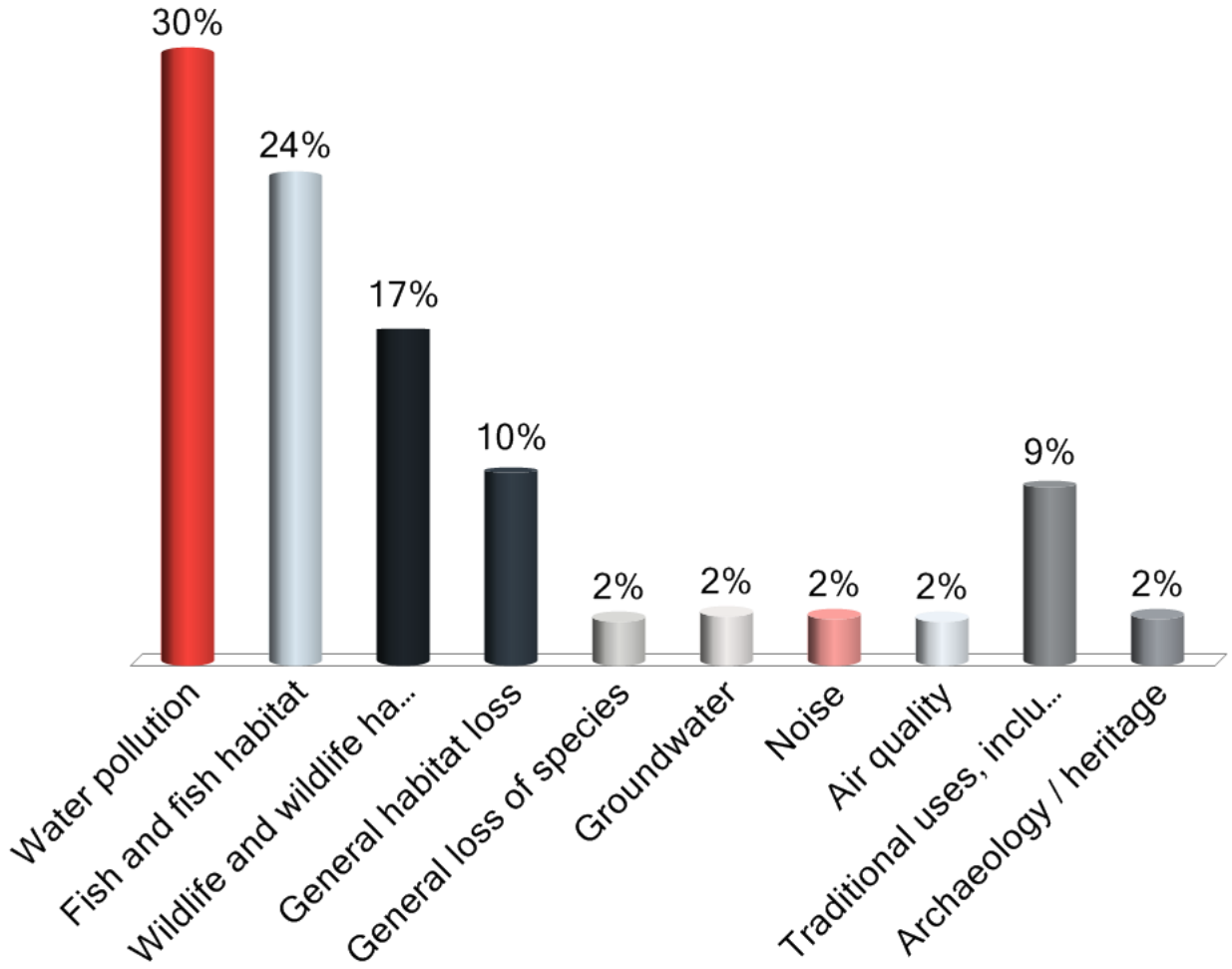
Community Visioning



What is your most important environmental concern relating to a Fixed Link?

From the list below, click which is the 1st, 2nd, and 3rd most important to you?

1. **Water pollution**
2. **Fish and fish habitat**
3. **Wildlife and wildlife habitat**
4. **General habitat loss**
5. **General loss of species**
6. **Groundwater**
7. **Noise**
8. **Air quality**
9. **Traditional uses, including plants / medicines**
10. **Archaeology / heritage**



Fixed Link Project History

2008

- **2008 -** the community retained Neegan Burnside to complete a **Fixed Link Study**.
- A **Community Survey** identified that a fixed link was one of the top priorities.
- An **off-Reserve questionnaire** was completed showing that the majority of respondents would consider returning to the community if a Fixed Link existed.
- **Options ("Alternatives") reviewed**:
  - Improve existing ferry and ice road operations
  - Ferry and/or Hovercraft
  - Ferry and/or Helicopter
  - Ferry and Cable Car
  - Tunnel
  - Bridge and/or Causeway

.....continued

Fixed Link Project History

2008

Chippewas of Georgina Island First Nation

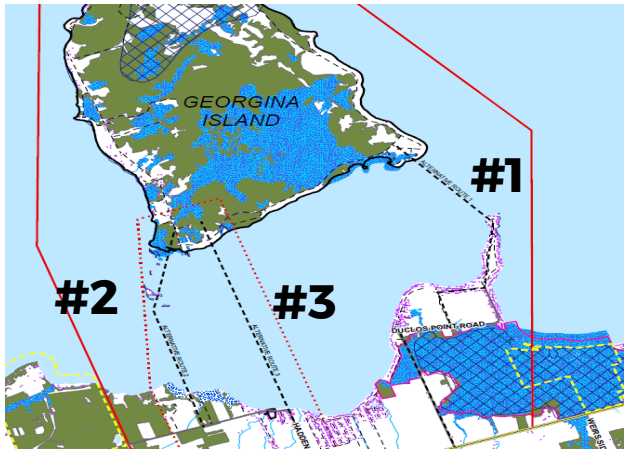
Community Visioning

Alternatives Evaluation:

1. Do nothing
   - Does not address need
2. Improve Ferry & Ice Road Operations
   - Ice Conditions remain a problem
3. Ferry and/or Hovercraft/Helicopter/Cable Car
   - Limited passenger and vehicle capacity
   - Hovercraft not technically or financially feasible
4. Tunnel
   - Not financially feasible
5. Bridge and/or Causeway Combination
   - **Preferred Alternative**
   - Community's preference
   - Addresses all needs of the Community
   - Financially and technically feasible

Fixed Link Project History

2008



Chippewas of Georgina Island First Nation

Community Visioning

Routes reviewed:

1. **South east Georgina Island to Duclos Point**
   Shortest route, develop roads

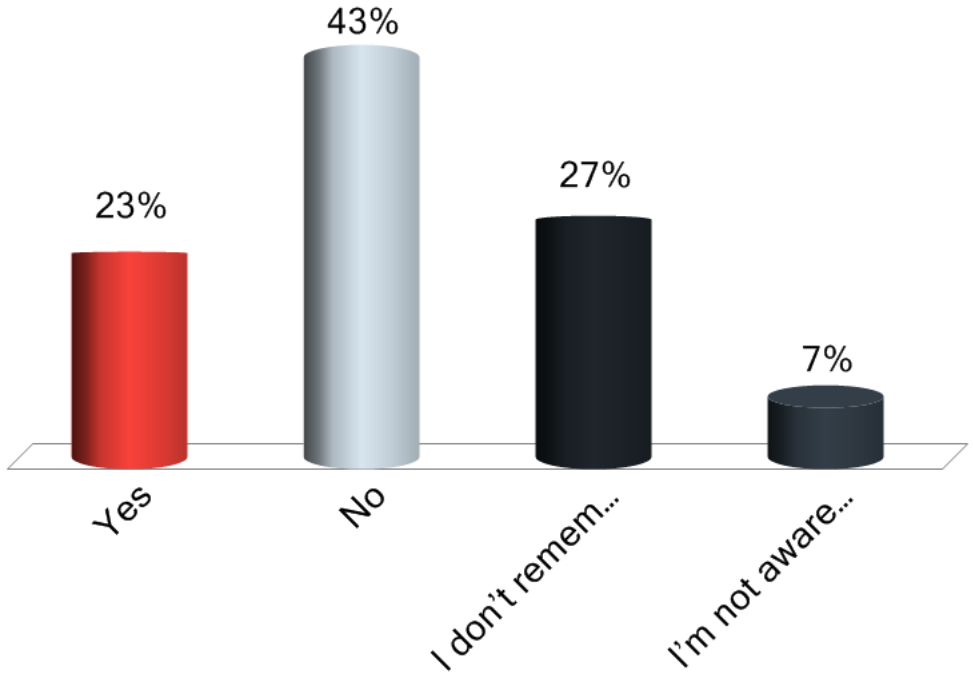
2. **South west Georgina Island to Black River/Virginia**
   Shallow water, mainland connection

3. **South west Georgina Island to Virginia Beach (existing ferry route)**
   Existing GIFN lands, disturbed environment

The 2008 Study Questionnaire to the Community identified a Fixed Link was a top priority and #2 as the preferred route.

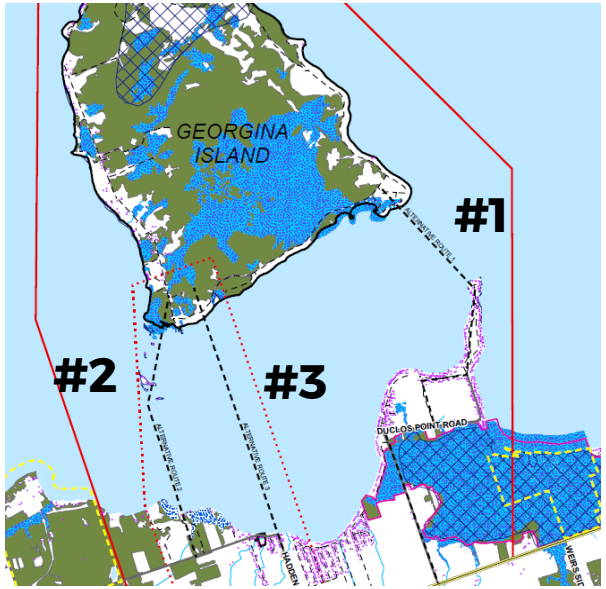
Did you participate in the Neegan Burnside study?

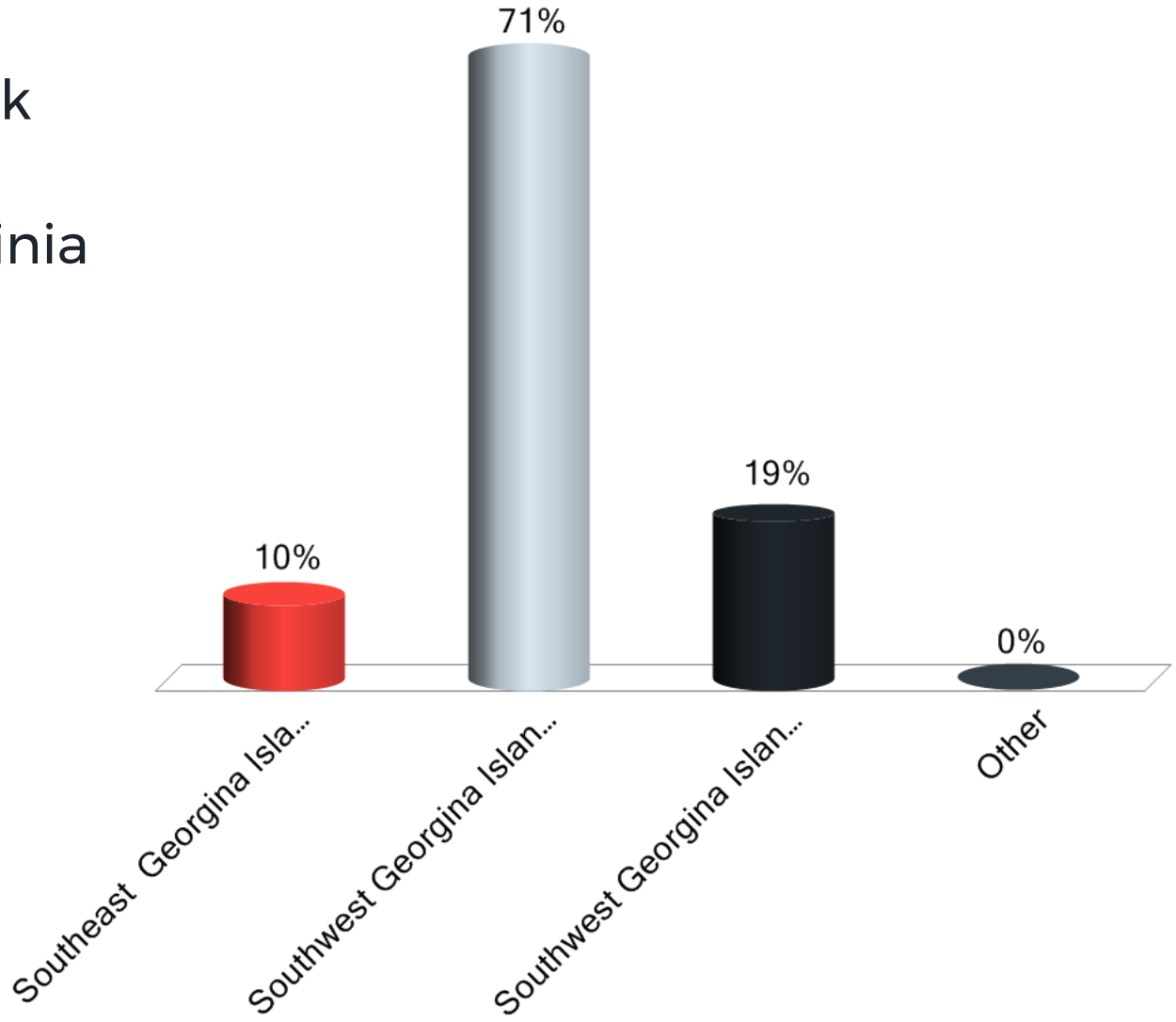
1. Yes
2. No
3. I don't remember doing the survey back then
4. I'm not aware of the this study



Which route/corridor alternative do you prefer?

1. Southeast Georgina Island to Duclos Point
2. Southwest Georgina Island to Black River/Virginia
3. Southwest Georgina Island to Virginia Beach (existing ferry route)
4. Other





Access and Security

Access and Security

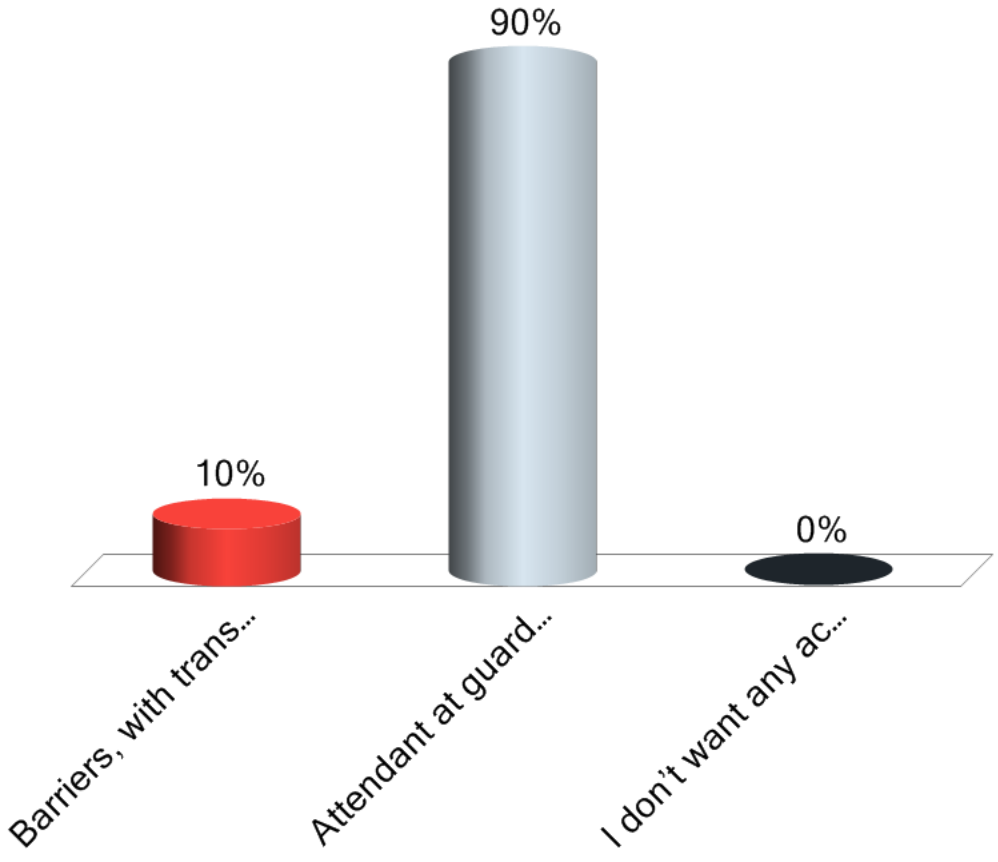
We have listened to the community's concerns regarding open public access to the island.

Community members have suggested a few types of security, limits that may be placed on the mainland such as:

1. Barriers, with transponders (valid cards)
2. Attendant at guard booth to provide access control
3. Tolls

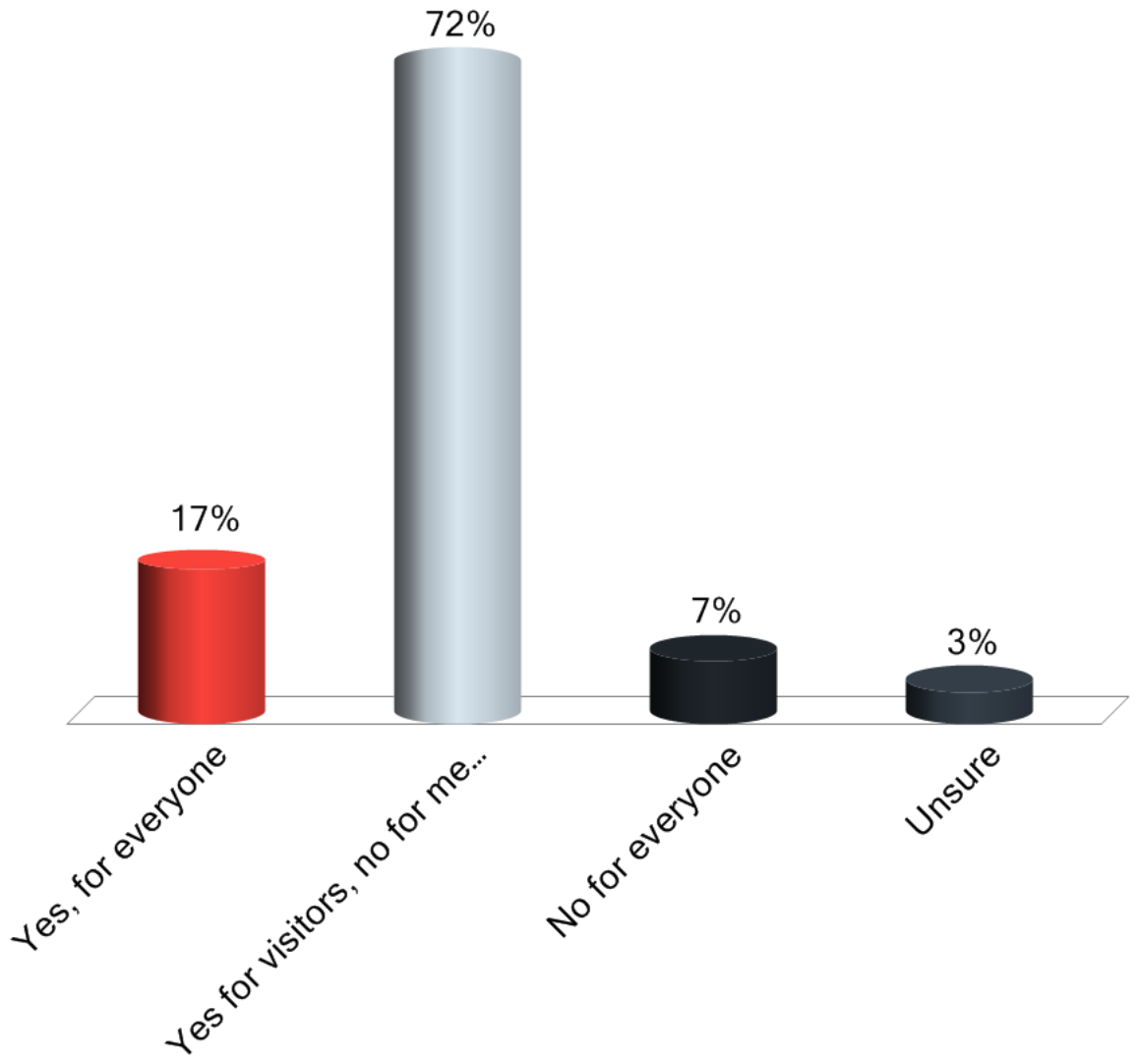
Choose the access option you would most prefer:

1. Barriers, with transponders (valid cards)
2. Attendant at guard booth to provide access control
3. I don’t want any access control



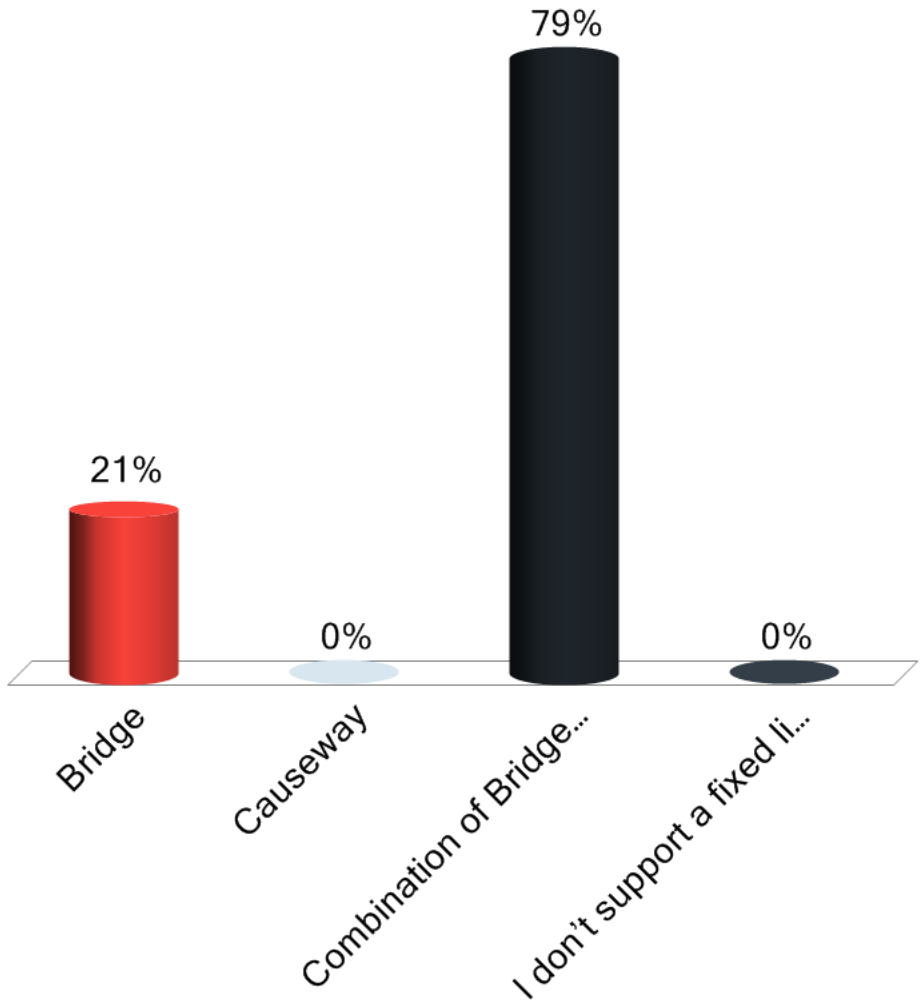
Should this be a revenue generating toll bridge?

1. Yes, for everyone
2. Yes for visitors, no for members
3. No for everyone
4. Unsure



What do you think is the best option for the project:

1. Bridge
2. Causeway
3. Combination of Bridge and Causeway
4. I don’t support a fixed link



Fastest Responder Wanting To Charge Everyone!

Seconds	Participant	Seconds	Participant
3.45	6A745A		

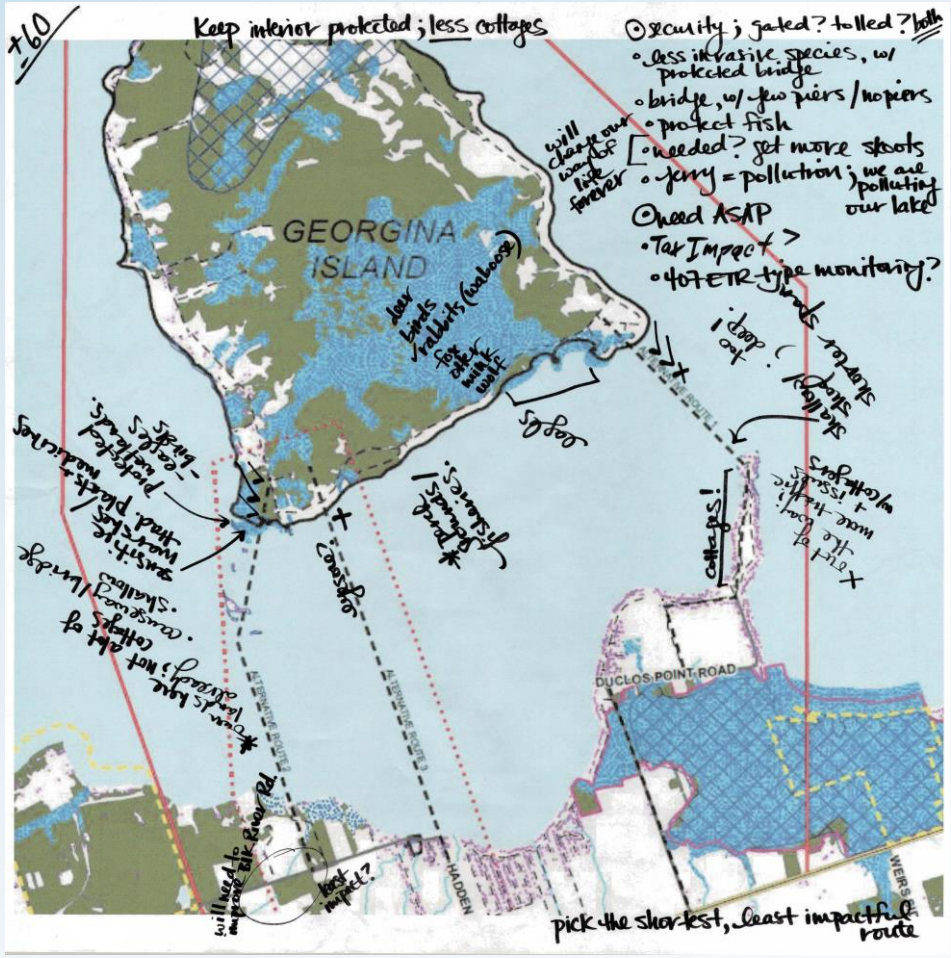
Fixed Link

2019 Study by WSP

Understanding the Community's Vision

On December 3, 2019 WSP and Cambium Aboriginal put up information tables at the Christmas Bazaar.

WSP discussed and reviewed a map of the study area, and the constraints/ opportunities of a fixed link with +/- 60 attendees







Fixed Link

2019 Study by WSP

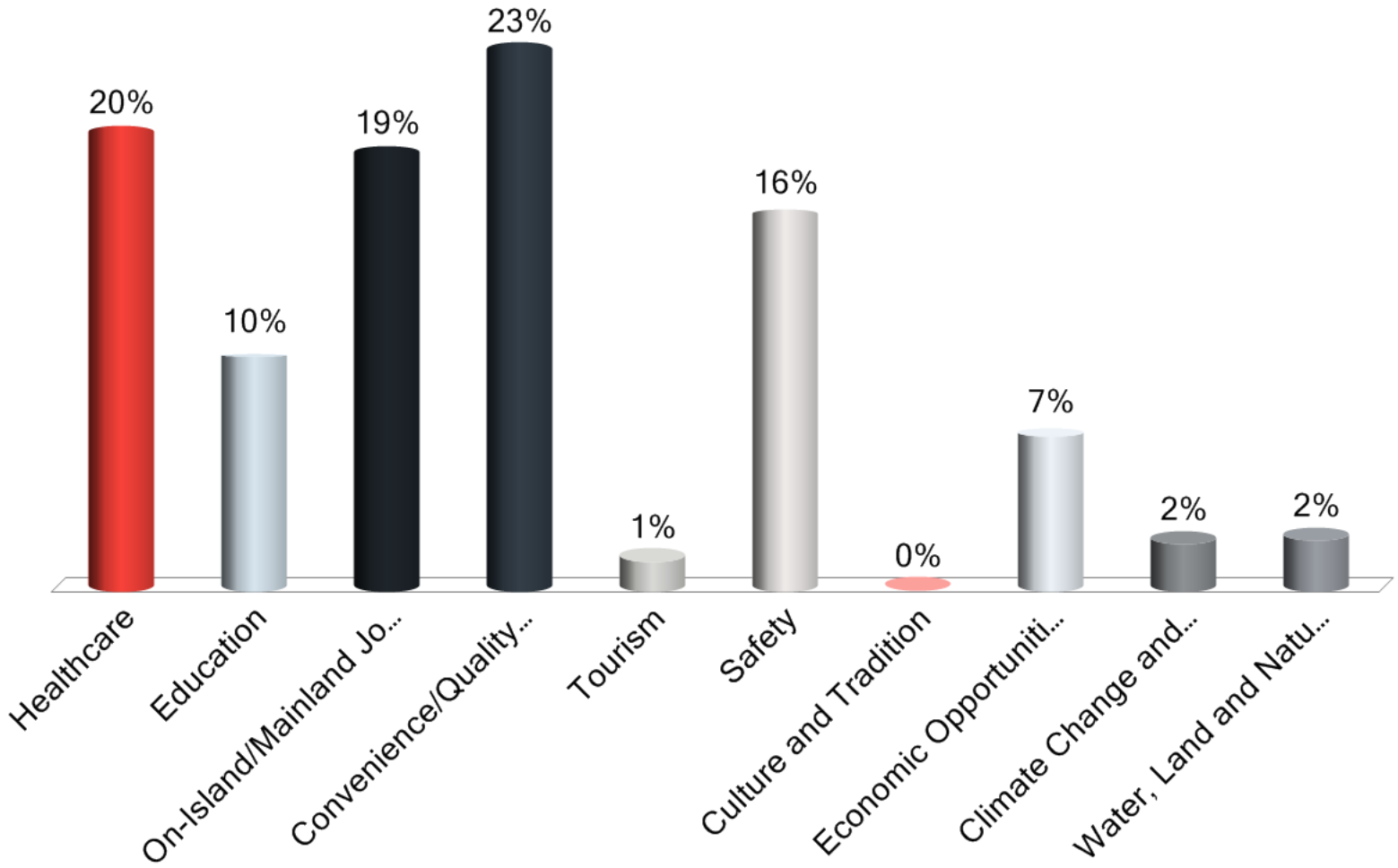
Understanding the Community's Vision

What we heard in December 2019:

- Security is of prime importance.
- Consideration should be given to tolling or gating the fixed link.
- The presence of perch grounds, eagles, deer, rabbit, fox, otter, mink and wolf were noted by many. Concerns for endangered species unique to the island
- Fish habitat, Perch grounds/fisheries, grasslands and protected wetlands were a concern by many.
- A fixed link is needed ASAP
- A fixed link will change our way of life forever
- Is a fixed link needed – buy more airboats?
- The ferry should continue to run on a less regular basis for tourism and as a backup to the bridge.
- Any bridge should have no/limited piers in the water to minimize environmental impacts
- Alternative 1 is out of the way and would result in large property impacts
- Alternative 2 is in a shallow area where there are sensitive wetlands, traditional plants and medicines.
- Alternative 3 would be an eyesore
- The shortest, least impactful route should be chosen

Below is a list of community needs that could improve with a Fixed Link. From the list below, which is the 1st, 2nd, and 3rd most important to you?

1. **Healthcare**
2. **Education**
3. **On-Island/Mainland Job Access**
4. **Convenience/Quality of Life**
5. **Tourism**
6. **Safety**
7. **Culture and Tradition**
8. **Economic Opportunities**
9. **Climate Change and Resilience**
10. **Water, Land and Natural Resources**



Fixed Link

2019 Study by WSP

Understanding the Community's Vision

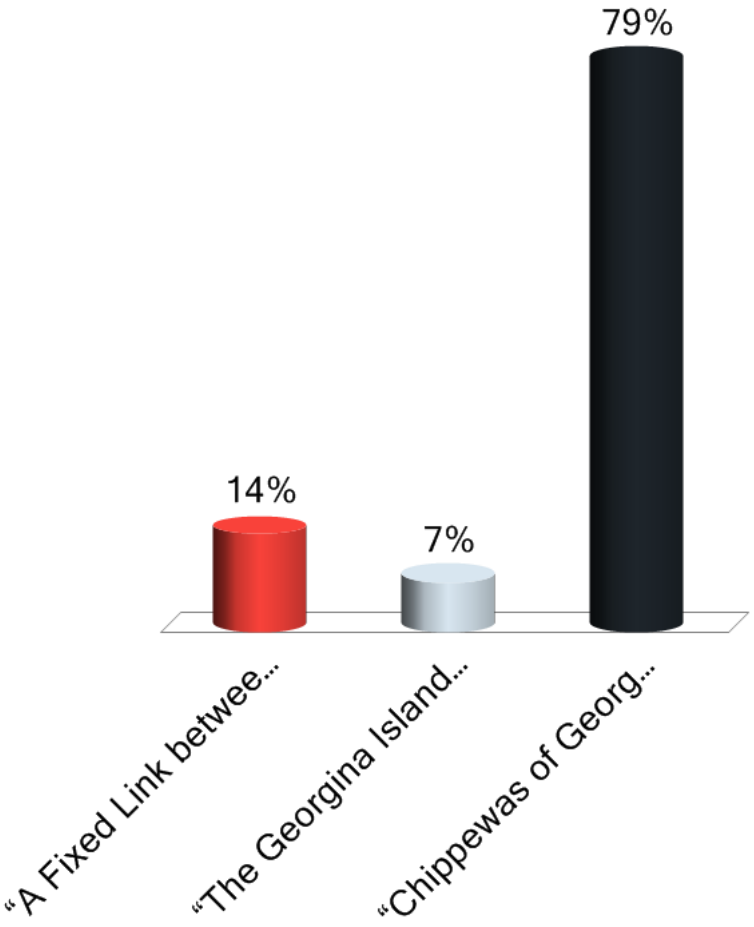
Using community input, the following set of objectives can be used to help build a Vision Statement:

Sample project objectives:

1. To support the **physical and mental health** of our residents
2. To provide **safe passage** of vehicles and pedestrians during all seasons
3. To **reduce travel time** between the mainland and the island
4. To **reduce impacts to the environment**
5. To provide **more opportunities for future generations**

Which vision statement do you identify with the most?

1. “A Fixed Link between Georgina Island and the Mainland will improve safety and result in a positive social and economic benefit to the community, while minimizing impacts to the community and the environment for future generations.”
2. “The Georgina Island of the future will be safe and resilient, by offering a fixed connection to the mainland for future community members. This will ensure a healthy, safe and peaceful way of life.”
3. “Chippewas of Georgina Island First Nation is a responsible and sustainable community that values safety and community health. A fixed link will offer the community with safe passage during all seasons while protecting the environmental, cultural, social and economic future of the community.”



Facilitated Group Discussion

A facilitator is available to guide you through the **POWER exercise** and take notes at your table.

Chippewas of Georgina Island First Nation

Community Visioning

Share your study area knowledge and "test" the Community Vision!



How to share knowledge?

1. Comment on a Post-it note and place your note on the Map
2. Write directly on the Map
3. Provide verbal feedback to your note-taker
4. Hand-in a Comment Card to the Project Team by the end of the meeting

"The Community Vision for a Fixed Link will guide future generations and can have an impact on access, safety, health, environment, economy, land uses. When thinking about the future, what are some:

- **P**ositives
- **E**nhancements
- **O**bjections
- **R**emedies
- **W**hat else?

Group Discussion – Report Back

Report back on what we heard.

"The Community Vision for a Fixed Link will guide future generations and can have an impact on access, safety, health, environment, economy, land uses. When thinking about the future, what are some:

- Positives
- Enhancements
- Objections
- Remedies
- What else?

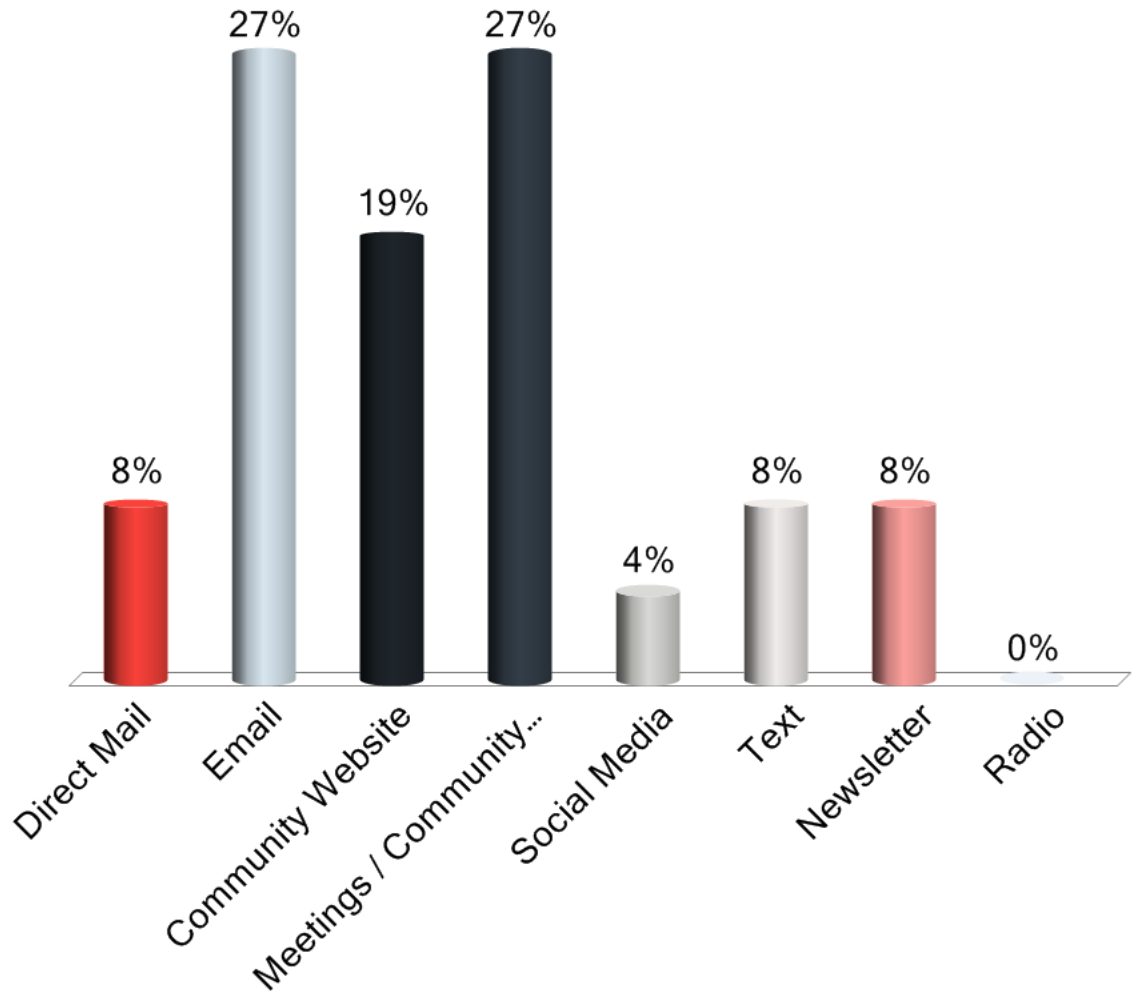
Next Steps

- Data Collection and Technical Assessment
- Socio-Economic Plan
- Formalize the Engagement Plan



How can you be best engaged and kept informed, moving forward?

1. Direct Mail
2. Email
3. Community Website
4. Meetings / Community Events
5. Social Media
6. Text
7. Newsletter
8. Radio



13th on 13th!!! Response #13 for Grand Prize!

Seconds	Participant	Seconds	Participant
5.798	6A7459	22.953	6A7382
5.879	69ED58	22.988	6A7426
7.077	6A7386	23.576	6A7439
7.467	6A742E		
11.529	6A7438		
12.691	6A7476		
14.88	6A7389		
18.887	6A73AB		
20.342	6A739C		
21.449	69ED79		

Miigwetch!
Thank you !

Chippewas of Georgina Island First Nation

Community Visioning

Appendix C:

MAP AND COMMENTS RECEIVED

GEORGINA ISLAND

DUCLOS POINT ROAD

WEST ST

HARBOUR

- heated deck => no icing
- lots of room for bikes so they don't interfere with traffic tourists on bikes

Palti's House

no cyclist access (hamper) in boat (Peri's class?)

ramp for boat launching

Change of direction possible.

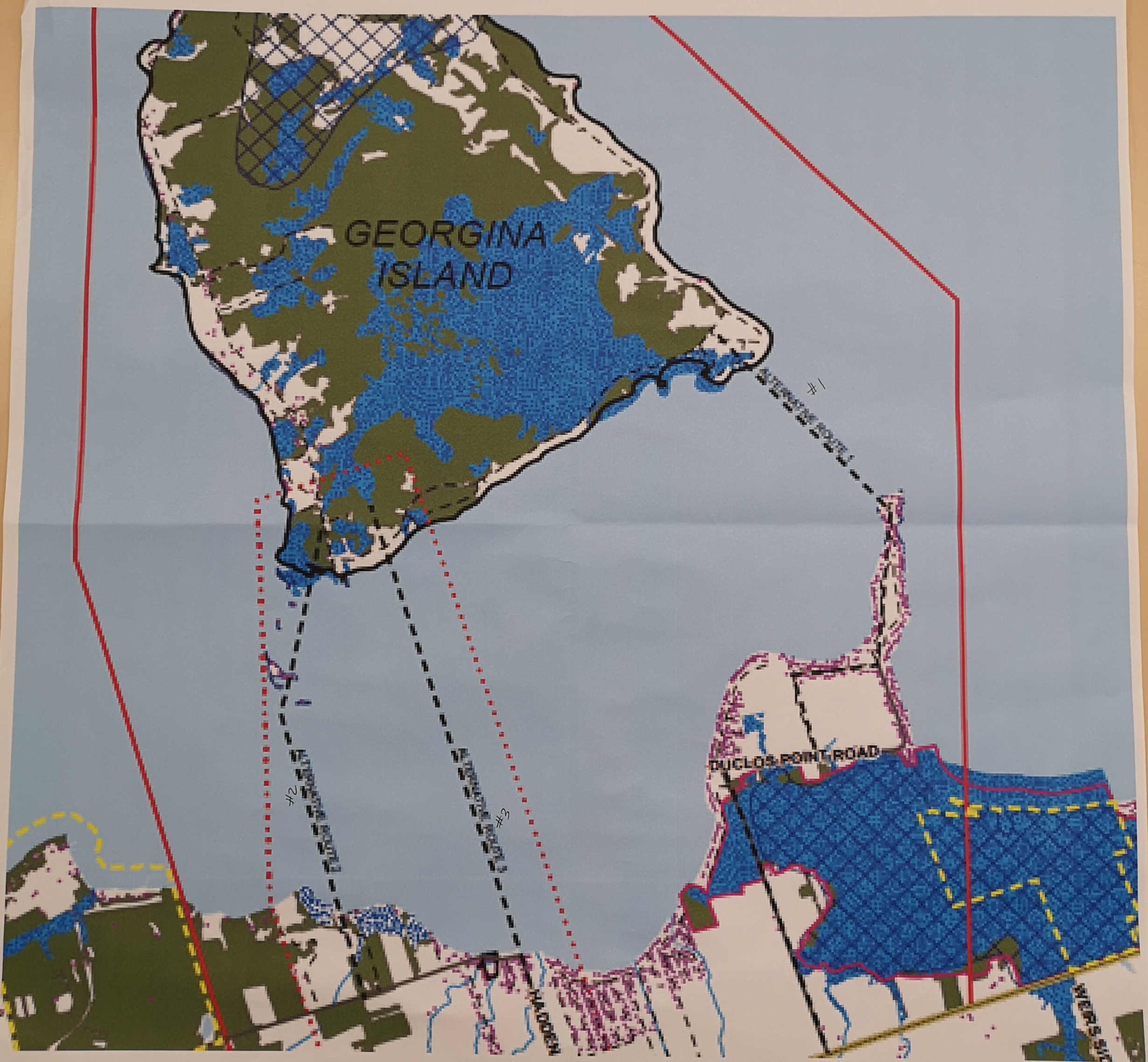
Separate gate for amber alerts

toll booth on mainland or member express lane to further lanes to prevent backups.

Connect to where docks are now

Don't need lot of bridge

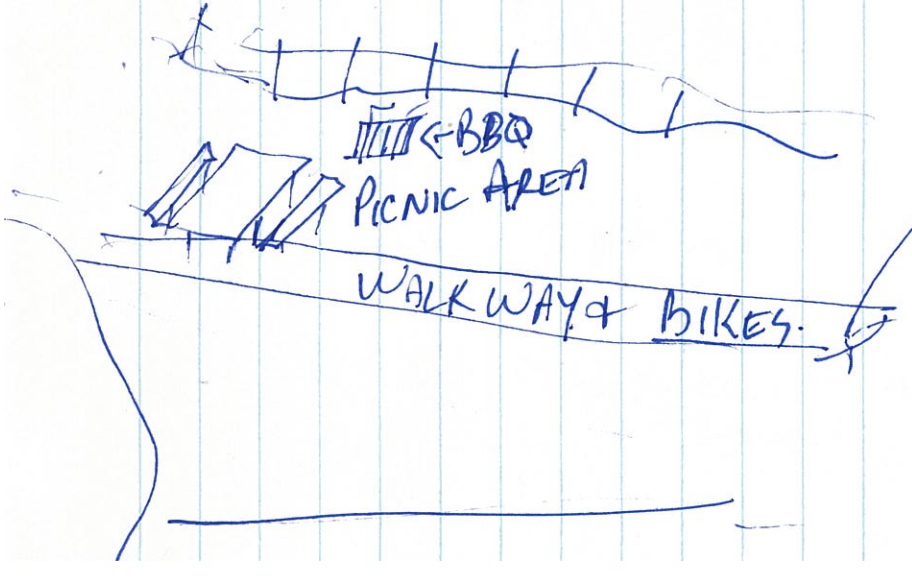
WBC parking? Old bigger location to build skate park


GEORGINA
ISLAND
#1
#2
#3
DUCLOS POINT ROAD
HADDEN
WORSLEY

- walking / bicycling lane.
- boat traffic
- environmental concerns.
- ~~toll~~
- 24/7 care/clearing of road.
- accident blocking travel
- lighting
- sand into water from bridge in winter.
- where would land on both sides be
- how long is study?
- " " to build?

Don't use abbreviations - not everyone knows what you mean - ie RFP. etc.

POSSIBILITIES



POSSIBLE VIEWING TUNNEL UNDER WATER SAY 14ft x 4' WIDE AGAIN - TOURIST DRAW

CAUSEWAY
MORE PARK AREA
WALKWAY

Appendix D:

POWER EXERCISE COMMENTS

ristmas Bazaar Feedback	environmental impacts.		Environmental
ristmas Bazaar Feedback	Is a fixed link needed - buy more scoots?	N/A	Transportation
ristmas Bazaar Feedback	A fixed link will change our way of life forever.	N/A	Cultural
ristmas Bazaar Feedback	A fixed link is needed ASAP.	N/A	Project/Schedule
ristmas Bazaar Feedback	Alternative 1 is out of the way and would result in large property impacts.	N/A	Access
ristmas Bazaar Feedback	Alternative 2 is in a shallow area where there are sensitive wetlands, traditional plants and medicines.	N/A	Environmental
ristmas Bazaar Feedback	The presence of perch grounds, eagles, deer, rabbit, fox otter, mink and wolf were noted.	N/A	Environmental
ristmas Bazaar Feedback	The shortest, least impactful route should be chosen.	N/A	Environmental
ristmas Bazaar Feedback	Keep interior protected; less cottages	N/A	Land Use
ristmas Bazaar Feedback	Ferry = pollution; we are polluting our lake	N/A	Environmental
ristmas Bazaar Feedback	Tax impact?	N/A	Economic
ristmas Bazaar Feedback	407 ETR type monitoring?	N/A	Access
ristmas Bazaar Feedback	Alternative 1 has cottages along this access point	N/A	Access
ristmas Bazaar Feedback	Alternative 1 is out of the way; more traffic and issues with cottages	N/A	Access
ristmas Bazaar Feedback	Alternative 3 could be a potential eyesore	N/A	Other
ristmas Bazaar Feedback	Alternative 2 could have the least impact	N/A	Environmental
ristmas Bazaar Feedback	If Alternative 2 is used, Black River Rd will need to be improved.	N/A	Transportation
ristmas Bazaar Feedback	Alternative 2 - Our land's here already; not a lot of cottages	N/A	Access
ap from Community Visioni	Set as similar to a gated community where non-members are asked where they will be going and record addresses and license plates.	N/A	Access
ap from Community Visioni	No fishing in boat access channel (add plexiglass?)	N/A	Environmental
ap from Community Visioni	Toll booth on mainland for member express lane; another lane to prevent backups	N/A	Access
ap from Community Visioni	South gate on mainland for Amber Alerts	N/A	Health and Safety
ap from Community Visioni	Connect Alternative 2 with existing docks	N/A	Technical
ap from Community Visioni	Don’t need IVBC parking lot with bridge – build bigger fuel station	N/A	Technical
ap from Community Visioni	Heated deck to prevent icing	N/A	Technical
ap from Community Visioni	Ensure there's lots of room for bikes (tourists on bikes) so they don't interfere with traffic	N/A	Transportation
ap from Community Visioni	Build new docks on GI with Alternative 3	N/A	Technical
ap from Community Visioni	There's a sand island located along Alternative 2.	N/A	Environmental
OWER Activity Feedback	Safety	P	Health and Safety
OWER Activity Feedback	Access to Services	P	Access
OWER Activity Feedback	Emergency Access	P	Health and Safety
OWER Activity Feedback	Children at Home	P	Cultural
OWER Activity Feedback	Time/Schedule	P	Project/Schedule
OWER Activity Feedback	Heated - Ice and Snow	E	Technical
OWER Activity Feedback	Bicycle Access	E	Transportation
OWER Activity Feedback	Security Control & Safety	E	Health and Safety
OWER Activity Feedback	"Fast Pass" and storage	E	Access
OWER Activity Feedback	Land-use plan to be ratified	O	Land Use
OWER Activity Feedback	Fishing off bridge / causeway	O	Environmental
OWER Activity Feedback	Security	O	Health and Safety
OWER Activity Feedback	No fishing	R	Environmental

OWER Activity Feedback	School bus access	E	Transportation
OWER Activity Feedback	Employment opportunities with building new infrastructure	E	Economic
OWER Activity Feedback	Potential for people to retun to live in the community	E	Cultural
OWER Activity Feedback	Emergency services	E	Health and Safety
OWER Activity Feedback	Speed limit	E	Transportation
OWER Activity Feedback	Railing height	E	Technical
OWER Activity Feedback	Snow drift	E	Technical
OWER Activity Feedback	Utilitiy improvements	E	Technical
OWER Activity Feedback	Heated bridge; no plowing required	E	Technical
OWER Activity Feedback	Ensure secutity and access is managed	O	Access
OWER Activity Feedback	Salt impacts to water	O	Environmental
OWER Activity Feedback	Safety	P	Health and Safety
OWER Activity Feedback	Convenience	P	Access
OWER Activity Feedback	Children can stay home during the winter months	P	Cultural
OWER Activity Feedback	Emergency access and response	P	Health and Safety
OWER Activity Feedback	Economic benefit for First Nation	P	Economic
OWER Activity Feedback	Job opportunities	P	Economic
OWER Activity Feedback	Social life and youth sports	P	Cultural
OWER Activity Feedback	Build this ASAP - we need it now	W	Project/Schedule
OWER Activity Feedback	Convenience	P	Access
OWER Activity Feedback	Emergency response times will improve	P	Health and Safety
OWER Activity Feedback	Jobs and education improvement (more teachers, no boarding, after school activities)	P	Cultural
OWER Activity Feedback	Safe winter travel	P	Health and Safety
OWER Activity Feedback	Sports and recreational access - no longer have to worry about late night games	P	Cultural
OWER Activity Feedback	Summer cottage traffic	P	Transportation
OWER Activity Feedback	Quality of Life	P	Health and Safety
OWER Activity Feedback	Extra family time	P	Cultural
OWER Activity Feedback	Access to social activities (i.e. movies)	P	Cultural
OWER Activity Feedback	Greater access to jobs off-island	P	Economic
OWER Activity Feedback	Greater self-employment opportunities	P	Economic
OWER Activity Feedback	Access for elders	P	Access
OWER Activity Feedback	Access to healthcare providers for all members	P	Health and Safety
OWER Activity Feedback	Fresh food in all seasons	P	Health and Safety
OWER Activity Feedback	Concept of member toll vs. non-member toll for passing into community	E	Access
OWER Activity Feedback	Card system (i.e. Nexus) for members and island professionals/workers	E	Access
OWER Activity Feedback	Multi-lane (moped, bike, pedestrian)	E	Transportation
OWER Activity Feedback	Bike rental and multi-use path	E	Transportation
OWER Activity Feedback	Speed control considered	E	Transportation
OWER Activity Feedback	Camera system for all fixed-link passengers	E	Access
OWER Activity Feedback	Noise increase due to traffic and construction vehicles	O	Health and Safety
OWER Activity Feedback	Increased garbage	O	Health and Safety
OWER Activity Feedback	Monitoring	R	Health and Safety
OWER Activity Feedback	Increase enforcement	R	Health and Safety
OWER Activity Feedback	Freedom	P	Access
OWER Activity Feedback	Health care	P	Health and Safety
OWER Activity Feedback	Employment	P	Economic
OWER Activity Feedback	Easy travel	P	Access
OWER Activity Feedback	Safety	P	Health and Safety
OWER Activity Feedback	Time management	P	Access
OWER Activity Feedback	Multi-use path	E	Transportation

ther Feedback	Convenience	N/A	Access	
ther Feedback	Children activities	N/A	Cultural	
ther Feedback	Walking / bicycle lane	N/A	Transportation	
ther Feedback	Boat traffic	N/A	Transportation	
ther Feedback	Environmental concerns	N/A	Environmental	
ther Feedback	Toll	N/A	Access	
ther Feedback	Accident blocking travel	N/A	Transportation	
ther Feedback	Lighting	N/A	Technical	
ther Feedback	Salt into water from bridge during the winter	N/A	Environmental	
ther Feedback	Where would land on both sides be?	N/A	Technical	
ther Feedback	Do not use abbreviations - not everyone know what you mean (i.e. RFP)	N/A	Engagement	
ther Feedback	Possibility to have a BBQ and picnic area, walkway for bikes	N/A	Other	
ther Feedback	Possibility to have a viewing tunnel under water (14ft x 4" wide) as a tourist attraction	N/A	Other	
ther Feedback	Possibility to include more park area and walkway along the causeway	N/A	Other	

th and Saftey	
er	used if theme is distinct and not relevant to the project - other design considerations
gement	
nical	Topics relatedto the design, cost and engineering of a fixed link (bridge)
ronmental	Terrestrial, Environmental, Air, Climate Change, etc
ect/Schedule	
l Use	
ural	Heritage, Histroy, tradition etc
sportation	Multi-modal uses, transit options, speed of driving,
nomic	

GIFN Fixed Link Project Visioning - Summary Report
Comment Summary Table

	Where did the comment come from?	*Please transcribe the comment*	*This column is specific to the POWER question (see Tab #2 in excel)*	**Determined theme by WSP Staff;**	**Example of Themes applied to a comment:**	**Example**
No.	**Context**	**Comment Received**	**Power Activity Area**	**Theme**		
1	Christmas Bazaar Feedback	Security should be of prime importance. Consideration should be given to tolling or gating the fixed link.	N/A	Access	**Access**	toll, gated community etc…
2	Christmas Bazaar Feedback	Any bridge should have no/limited piers in the water, to minimize environmental impacts.	N/A	Environmental	**Health and Saftey**	
3	Christmas Bazaar Feedback	Is a fixed link needed - buy more scoots?	N/A	Transportation	**Other**	used if theme is distinct and not relevant to the project - other design considerations
4	Christmas Bazaar Feedback	A fixed link will change our way of life forever.	N/A	Cultural	**Engagement**	
5	Christmas Bazaar Feedback	A fixed link is needed ASAP.	N/A	Project/Schedule	**Technical**	Topics relatedto the design, cost and engineering of a fixed link (bridge)
6	Christmas Bazaar Feedback	Alternative 1 is out of the way and would result in large property impacts.	N/A	Access	**Environmental**	Terrestrial, Environmental, Air, Climate Change, etc
7	Christmas Bazaar Feedback	Alternative 2 is in a shallow area where there are sensitive wetlands, traditional plants and medicines.	N/A	Environmental	**Project/Schedule**	
8	Christmas Bazaar Feedback	The presence of perch grounds, eagles, deer, rabbit, fox otter, mink and wolf were noted.	N/A	Environmental	**Land Use**	
9	Christmas Bazaar Feedback	The shortest, least impactful route should be chosen.	N/A	Environmental	**Cultural**	Heritage, Histroy, tradition etc
10	Christmas Bazaar Feedback	Keep interior protected; less cottages	N/A	Land Use	**Transportation**	Multi-modal uses, transit options, speed of driving,
11	Christmas Bazaar Feedback	Ferry = pollution; we are polluting our lake	N/A	Environmental	**Economic**	
12	Christmas Bazaar Feedback	Tax impact?	N/A	Economic		
13	Christmas Bazaar Feedback	407 ETR type monitoring?	N/A	Access		
14	Christmas Bazaar Feedback	Alternative 1 has cottages along this access point	N/A	Access		
15	Christmas Bazaar Feedback	Alternative 1 is out of the way; more traffic and issues with cottages	N/A	Access		
16	Christmas Bazaar Feedback	Alternative 3 could be a potential eyesore	N/A	Other		
17	Christmas Bazaar Feedback	Alternative 2 could have the least impact	N/A	Environmental		
18	Christmas Bazaar Feedback	If Alternative 2 is used, Black River Rd will need to be improved.	N/A	Transportation		
19	Christmas Bazaar Feedback	Alternative 2 - Our land's here already; not a lot of cottages	N/A	Access		
20	Map from Community Vision	Set as similar to a gated community where non-members are asked where they will be going and record addresses and license plates.	N/A	Access		
21	Map from Community Vision	No fishing in boat access channel (add plexiglass?)	N/A	Environmental		
22	Map from Community Vision	Toll booth on mainland for member express lane; another lane to prevent backups	N/A	Access		
23	Map from Community Vision	South gate on mainland for Amber Alerts	N/A	Health and Safety		
24	Map from Community Vision	Connect Alternative 2 with existing docks	N/A	Technical		
25	Map from Community Vision	Don’t need IVBC parking lot with bridge – build bigger fuel station	N/A	Technical		
26	Map from Community Vision	Heated deck to prevent icing	N/A	Technical		
27	Map from Community Vision	Ensure there's lots of room for bikes (tourists on bikes) so they don't interfere with traffic	N/A	Transportation		
28	Map from Community Vision	Build new docks on GI with Alternative 3	N/A	Technical		
29	Map from Community Vision	There's a sand island located along Alternative 2.	N/A	Environmental		
33	POWER Activity Feedback	Safety	P	Health and Safety		
34	POWER Activity Feedback	Access to Services	P	Access		
35	POWER Activity Feedback	Emergency Access	P	Health and Safety		
36	POWER Activity Feedback	Children at Home	P	Cultural		
37	POWER Activity Feedback	Time/Schedule	P	Project/Schedule		
38	POWER Activity Feedback	Heated - Ice and Snow	E	Technical		
39	POWER Activity Feedback	Bicycle Access	E	Transportation		
40	POWER Activity Feedback	Security Control & Safety	E	Health and Safety		
41	POWER Activity Feedback	"Fast Pass" and storage	E	Access		
42	POWER Activity Feedback	Land-use plan to be ratified	O	Land Use		
43	POWER Activity Feedback	Fishing off bridge / causeway	O	Environmental		
44	POWER Activity Feedback	Security	O	Health and Safety		
45	POWER Activity Feedback	No fishing	R	Environmental		
46	POWER Activity Feedback	Digital notice board	R	Engagement		
47	POWER Activity Feedback	Cameras	R	Health and Safety		
48	POWER Activity Feedback	Security system	R	Health and Safety		
49	POWER Activity Feedback	Gateway park for businesses	W	Economic		
50	POWER Activity Feedback	Suspension bridge for walking to attract tourism	W	Technical		
51	POWER Activity Feedback	Natural gas supply	W	Environmental		
52	POWER Activity Feedback	Partial tunnel	W	Technical		
53	POWER Activity Feedback	More people coming, security needed	O	Health and Safety		
54	POWER Activity Feedback	Ensure there are environmental mitigations	O	Environmental		
55	POWER Activity Feedback	Security - Gated community, mainland toll	R	Access		
56	POWER Activity Feedback	Gated community - Provide employment for ferry workers	R	Economic		
57	POWER Activity Feedback	Gated community - To be aware of all visitors	R	Health and Safety		
58	POWER Activity Feedback	Timeline for end of 2020	W	Project/Schedule		
59	POWER Activity Feedback	Remove waste from Island - Transfer Station	W	OTHER		
60	POWER Activity Feedback	Time saving	P	Access		
61	POWER Activity Feedback	Safety	P	Health and Safety		
62	POWER Activity Feedback	Ease of access	P	Access		
63	POWER Activity Feedback	Public transit opportunities	P	Transportation		
64	POWER Activity Feedback	Opportunities to better access children's sport and education	P	Cultural		
65	POWER Activity Feedback	Elders are able to stay on the island	E	Health and Safety		
66	POWER Activity Feedback	School bus access	E	Transportation		
67	POWER Activity Feedback	Employment opportunities with building new infrastructure	E	Economic		
68	POWER Activity Feedback	Potential for people to retun to live in the community	E	Cultural		
69	POWER Activity Feedback	Emergency services	E	Health and Safety		
70	POWER Activity Feedback	Speed limit	E	Transportation		
71	POWER Activity Feedback	Railing height	E	Technical		
72	POWER Activity Feedback	Snow drift	E	Technical		
73	POWER Activity Feedback	Utilitiy improvements	E	Technical		
74	POWER Activity Feedback	Heated bridge; no plowing required	E	Technical		
75	POWER Activity Feedback	Ensure secutity and access is managed	O	Access		
76	POWER Activity Feedback	Salt impacts to water	O	Environmental		
77	POWER Activity Feedback	Safety	P	Health and Safety		
78	POWER Activity Feedback	Convenience	P	Access		
79	POWER Activity Feedback	Children can stay home during the winter months	P	Cultural		
80	POWER Activity Feedback	Emergency access and response	P	Health and Safety		
81	POWER Activity Feedback	Economic benefit for First Nation	P	Economic		
82	POWER Activity Feedback	Job opportunities	P	Economic		
83	POWER Activity Feedback	Social life and youth sports	P	Cultural		
84	POWER Activity Feedback	Build this ASAP - we need it now	W	Project/Schedule		
85	POWER Activity Feedback	Convenience	P	Access		
86	POWER Activity Feedback	Emergency response times will improve	P	Health and Safety		
87	POWER Activity Feedback	Jobs and education improvement (more teachers, no boarding, after school activities)	P	Cultural		
88	POWER Activity Feedback	Safe winter travel	P	Health and Safety		
89	POWER Activity Feedback	Sports and recreational access - no longer have to worry about late night games	P	Cultural		
90	POWER Activity Feedback	Summer cottage traffic	P	Transportation		
91	POWER Activity Feedback	Quality of Life	P	Health and Safety		
92	POWER Activity Feedback	Extra family time	P	Cultural		
93	POWER Activity Feedback	Access to social activities (i.e. movies)	P	Cultural		
94	POWER Activity Feedback	Greater access to jobs off-island	P	Economic		

GIFN Fixed Link Project Visioning - Summary Report
Comment Summary Table

	Where did the comment come from?	*Please transcribe the comment*	*This column is specific to the POWER question (see Tab #2 in excel)*	**Determined theme by WSP Staff;**	**Example of Themes applied to a comment:**	**Example**
95	POWER Activity Feedback	Greater self-employment opportunities	P	Economic		
96	POWER Activity Feedback	Access for elders	P	Access		
97	POWER Activity Feedback	Access to healthcare providers for all members	P	Health and Safety		
98	POWER Activity Feedback	Fresh food in all seasons	P	Health and Safety		
99	POWER Activity Feedback	Concept of member toll vs. non-member toll for passing into community	E	Access		
100	POWER Activity Feedback	Card system (i.e. Nexus) for members and island professionals/workers	E	Access		
101	POWER Activity Feedback	Multi-lane (moped, bike, pedestrian)	E	Transportation		
102	POWER Activity Feedback	Bike rental and multi-use path	E	Transportation		
103	POWER Activity Feedback	Speed control considered	E	Transportation		
104	POWER Activity Feedback	Camera system for all fixed-link passengers	E	Access		
105	POWER Activity Feedback	Noise increase due to traffic and construction vehicles	O	Health and Safety		
106	POWER Activity Feedback	Increased garbage	O	Health and Safety		
107	POWER Activity Feedback	Monitoring	R	Health and Safety		
108	POWER Activity Feedback	Increase enforcement	R	Health and Safety		
109	POWER Activity Feedback	Freedom	P	Access		
110	POWER Activity Feedback	Health care	P	Health and Safety		
111	POWER Activity Feedback	Employment	P	Economic		
112	POWER Activity Feedback	Easy travel	P	Access		
113	POWER Activity Feedback	Safety	P	Health and Safety		
114	POWER Activity Feedback	Time management	P	Access		
115	POWER Activity Feedback	Multi-use path	E	Transportation		
116	POWER Activity Feedback	Architectural features and lights	E	Technical		
117	POWER Activity Feedback	Heated roadway (no de-icing material)	E	Technical		
118	POWER Activity Feedback	Community meetings	R	Engagement		
119	POWER Activity Feedback	Website to provide opinions and thoughts	R	Engagement		
120	POWER Activity Feedback	No charge for Members	R	Access		
121	POWER Activity Feedback	Get the project done	W	Project/Schedule		
122	POWER Activity Feedback	Love the Elders	W	Cultural		
123	Other Feedback	Black River Rd houses - get buy-in from these stakeholders	N/A	Engagement		
124	Other Feedback	Will the assessment include post-assessment? (i.e. testing, mitigating the impacts after the bridge is built)	N/A	Project/Schedule		
125	Other Feedback	Will the EA or bridge be done first?	N/A	Project/Schedule		
126	Other Feedback	How long does an EA study take?	N/A	Project/Schedule		
127	Other Feedback	Do outside companies run the EA?	N/A	Other		
128	Other Feedback	What is illumination?	N/A	Technical		
129	Other Feedback	Would the Community have to present to the governments? (i.e. Trent Severn Waterway)	N/A	Other		
130	Other Feedback	How long will the fixed link take to be built?	N/A	Project/Schedule		
131	Other Feedback	What traffic would occur on a causeway? Why would two lanes be needed? What is the allowable weight?	N/A	Technical		
132	Other Feedback	Convenience	N/A	Access		
133	Other Feedback	Children activities	N/A	Cultural		
134	Other Feedback	Walking / bicycle lane	N/A	Transportation		
135	Other Feedback	Boat traffic	N/A	Transportation		
136	Other Feedback	Environmental concerns	N/A	Environmental		
137	Other Feedback	Toll	N/A	Access		
138	Other Feedback	Accident blocking travel	N/A	Transportation		
139	Other Feedback	Lighting	N/A	Technical		
140	Other Feedback	Salt into water from bridge during the winter	N/A	Environmental		
141	Other Feedback	Where would land on both sides be?	N/A	Technical		
142	Other Feedback	Do not use abbreviations - not everyone know what you mean (i.e. RFP)	N/A	Engagement		
143	Other Feedback	Possibility to have a BBQ and picnic area, walkway for bikes	N/A	Other		
144	Other Feedback	Possibility to have a viewing tunnel under water (14ft x 4" wide) as a tourist attraction	N/A	Other		
145	Other Feedback	Possibility to include more park area and walkway along the causeway	N/A	Other		

andrew

P — SAFETY
— ACCESS TO SERVICES
— EMERGENCY ACCESS
— CHILDREN AT HOME
— TIME / SCHEDULE

E — HEATED / ICE & SNOW
— ~~BICYCLE~~ BICYCLE ACCESS | MUP
— SECURITY CONTROL | SAFETY
— "FAST PASS" & STORAGE

O - LAND USE PLAN to be RATIFIED

- FISHING OFF BRIDGE/CAUSEWAY

- SECURITY -

R - NO FISHING!

- NOTICE BOARD - DIGITAL.

- CAMERAS

- SECURITY SYSTEM

W — GATEWAY PARK — BUSINESS
— SUSPENSION BRIDGE/ — TOURISTY DRAW
WALKWAY

— NATURAL GAS SUPPLY

— PARTIAL TUNNEL

Enhancements

- speed limit
- railing height
- snow drift
- heated bridge; no plowing req'd.
- utilities improvements (natural gas / internet)

Objections

- none, if secure & access is managed.
- salt impacts to water

Positives
- Safety
- convenience
- keep our children home during winter months
- emergency access/response
- economic benefit for first Nation or members
- job opportunities
- social life/youth sports
-

what else

health + access

hurry up! need now

christine.

(P)

- convienence
- emergency response times will improve
- Jobs/education improvement
  - → more teachers
  - → no boarding
  - → after school activities
  - → sports/rec access no longer have to worry about late night game
- Safe winter travel.
- Summer cottage traffic
- quality of life
- Extra family time
- Access to social activities (movies etc.).
- greater access to jobs off-island
- " jobs on island
  - → greater self-employment opportunities
- access for ELDERS
- healthcare providers for all members ↑

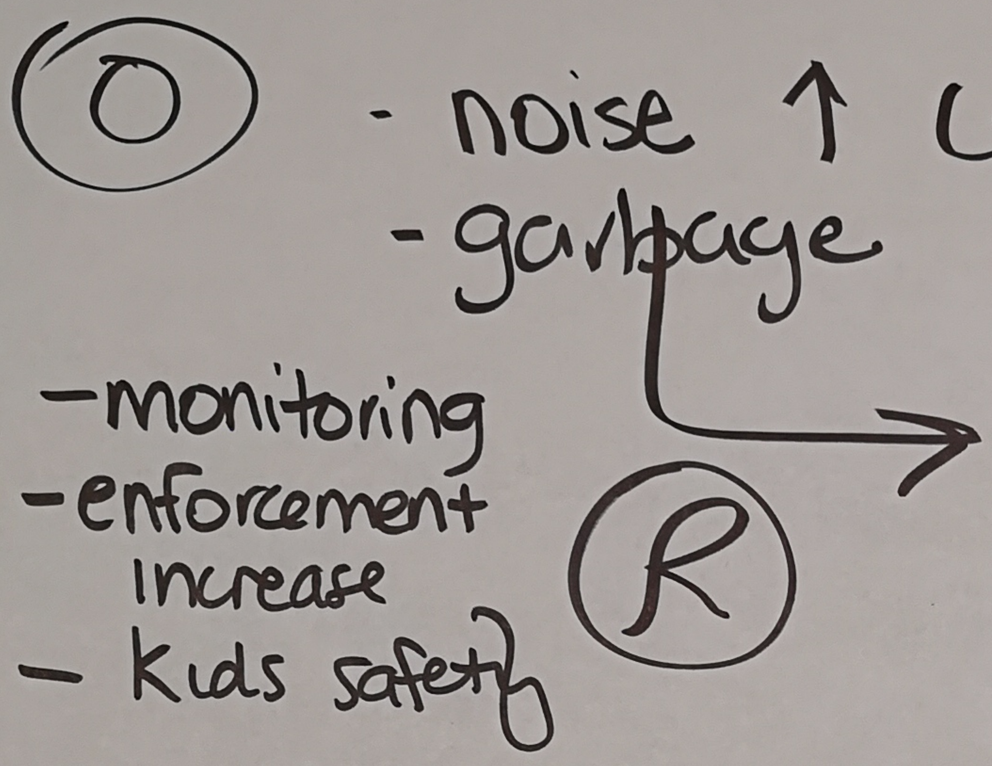
(E)

- fresh food in all season
- concept of member toll vs. non-member for passing into community

(E) cont'...

- card (eg. nexus) system for members and island professionals/workers.
- Multi-lane * - moped
  - bike
  - hike.

  } health improvement
- bike rental
- speed ~~saf~~ control considered
- camera system for all fixed-link passengers.


O
- noise ↑ (traffic and more construction trucks).
- garbage
- monitoring
- enforcement increase
- kids safety
R

Positives

1. Freedom
2. Healthcare
3. Employment
4. Easy travel
5. Safety
6. Time management
7.

maged.

Enhancements

1- MUP

2- Architectural features
Lights,

3- Heated Roadway
No deicing materal

Objections

1. No

Remedies

1- Community meetings

2. Web site to provide opinions and thoughts

3- No charge for members

What else

get it done

Love the elders

Sue

- Time Saving.
- Safety
- Ease of Access
- Opportunities — Employment
  — Childres Sport
  — Tranist — Public.
- Health — Elders
  — Emergancy
  — Appoinths
  (time)
  Children → Education Access
- Elders stay on island (Health)
- School Bus
- Build Infracture & have employment incomes
- Came back & live in community

Objections

- More people coming - need Security
- Environment → ensure mitigations.

Remedies

- Security - Manned Toll
  - Gated Community
  - Gated Community ÷ Employment for Ferry Workers
    Aware of all visitors

What Else?

Timeline by end of 2020

Get er dun

Waste off Island. Transfer Station

Appendix E:

TIMELINE

GEORGINA ISLAND FIXED LINK STUDY

TIMELINE

- WSP Awarded Study
- Community Engagement
- Community Visioning Presentation
- Community Visioning Report
- Community Visioning Presentation to GIFN
- Technical Visioning- Approval to proceed
- Vision of access Roads and Bridge - Draft
- Plans, Permits and Studies Required
- Technical Visioning Report to GIFN
- Specifications for Tender
- Tender award for GIFL EA and Preliminary Design
- EA and Preliminary Design Complete
- Detailed Design, Permits and Approvals
- GIFL Design Complete
- Tender and Award for Construction Phase

CONSTRUCTION START

CONSTRUCTION PERIOD

2008 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | BRIDGE

Jan | Feb | Mar | April | May | June | July | Aug | Sept | Oct | Nov | Dec

Historical Review:
2008–Neegan Burnside Study
-Community Survey
-Off Reserve Questionnaire
-Options (Alternatives) Review
Result: Bridge and or Causeway

October:
WSP Awarded Study
December:
Community Engagement

Community Visioning – confirm and expand on reasoning and requirements for a Fixed Link

Assessment of Technical Requirements (Studies, Permits, Approvals) in Engineering, Environmental, Water, Transportation - Municipal, Federal and various stakeholders.

Specification documents are a comprehensive description of all the objectives for a project and contains all goals, functionalities and details required for a contractor to fulfill the of the Design details for the GIFL project.

Design, plans and specifications are refined and cost estimates are created. Consultations/ Engagements with Community and Stakeholders throughout the design process.

Permits and approvals are prepared and submitted. Approvals received.

Note: Background image is not the GIFL design. Image will be updated with the GIFL as design progresses. Dates are approximate and will be updated as the project progresses.

Regional Citizens
Open Meeting
October 5, 2021

Engagement Notes

Regional Citizens - Open Meeting

October 5, 2021 | *Meeting Host:* Michael Jacobs, GIFL Project Manager

In Attendance

Registrations Via Eventbrite = 136

Attendees – 61 Via Zoom

Names and Zoom profiles of participants are documented via Eventbrite platform – not shared in these notes.

ENGAGEMENT ISSUE: A number of emails were received with people having trouble with the Zoom link. It appeared to be an issue between Eventbrite platform and Zoom platform. Video and notes will be posted to Fixed Link website and emails notifying of the video will we sent out to all registrants.

General Purpose of Engagement

This was the first Introduction to the Fixed Link for the community at large. The intent of the session was to bring the greater Lake Simcoe community informed on the project history from a First Nation lens through to the submission of the Draft Initial Project Description to the Impact Assessment Agency of Canada.

General Notes, Observations, Discussions

The following questions and responses we provided through the chat:

1. **Will there be a link available for the recording?**

Yes the link to the recording is provided at www.gifixedlink.com under the engagement + project presentations tab.

2. **Will there be a copy of the slide deck?**

The deck is part of the recorded presentation.

3. **When you refer to "the community" what does that include?**

Early in the presentation we discuss community visioning and the community has done this or that. This is referring only to the First Nation community of Georgina Island. To date, this is the lens that most of the work has been done from.

4. **Has consideration been given to other users of the lake? Will the bridge have sufficient clearance that boats can still get to either side? Will the causeways cause silting to make the water shallower in the area so boats will not be able to cross? (Similar question: will sail boats be able to pass under?)**

Yes, this is a consideration that will be explored more as studies begin. It was noted by Sail Georgina during a presentation that the depth does not allow for large vessel navigation. As users of the Lake for recreational and sustenance, the First Nation members also raised this as a concern during visioning exercises. As evaluation of options continues, this issue will be addressed in more details.

5. **Will fixed link make a casino possible on the island? Additional question #1: Once commissioned, is it expected that this will enable further development on the island like hotel, golf course, etc..? Additional Question #2: if the bridge gets built what is the vision going forward on the island as far as development?**

The reality is if the community desired a casino for economic development purposes, it would have many legal and permitting processes to go through whether there is a Fixed Link or not. The community Vision is one of protecting the community, not encouraging a high volume of unknown visitors to the Island at this time. The Fixed Link Project is driven by the improvement of the safety of the current transportation systems more so than any economic drivers, including large scale economic development projects such as resorts or golf courses on the Island.

6. **Will the ferry survive another 5 years?**

It is well documented that the ferry is nearing it's useful and intended life. The community has a strict maintenance schedule for the aging vessel to keep it safe and operational. It is believed, at this time, that the ferry will survive until the fixed link can be commissioned.

7. **What is estimated cost of building fixed link? Additional question #1 - who will pay for it? Additional question #2 - Will funding come only from Federal government?**

The initial rough order of magnitude costs for the fixed link is $250 Million. Without formal design and engineering consideration, this is the initial scenario based on the assumption provided in the technical review. We anticipate this to change and evolve over time.

At the present time, the community is working with the Canada Infrastructure Bank for funding. The community has investment funds that would be applied to the project. Other federal and provincial infrastructure funds will also be sought. At this time, a portion from the community, a portion from the federal/provincial governments and a loan portion from the Infrastructure Bank

8. **How long will it take to build?**

Based on the assumptions provided during the technical visioning process, the project timeline estimates approximately 2 years to construct. As more engineering and environmental studies are complete, efficiencies or inefficiencies may result making it a shorter or longer process. The First Nation Council resolution states they are working to a 2026 completion date.

9. **Is there going to be a toll to cross? Similar questions, the lifespan of the barge is a concern but this is great however wondering is it possible to make this a gated community so that we don't have anyone coming over?**

The community has expressed significant concern over people coming over with no intent – meaning that random visitors is not preferred. There are mechanisms that can be put in place to limit that – gated community or tolls have been discussed. No formal evaluation of this has been conducted and was primarily detailed during the community visioning process. Also, with a portion of the financing a loan, generating revenues to offset loan repayments may be a financial requirement for the viability of the project. This is not yet known, but there is a possibility of a toll.

10. **Can the island take increased traffic and what about parking?**

The Island roads are not meant for high traffic volumes or for the potential safety requirement of high traffic volumes at the present time. Traffic studies will be an important part of the research completed to ensure that any resulting or projected traffic increases (mainland and Island) will be accounted for and managed. As for parking, no design has been put in place as of yet, so this is unknown.

11. **Why not replace the ferry with a "greener" icebreaker ferry that can be used all year long?**

The fixed link is not the only option that has been reviewed during this process. The impact assessment process requires Georgina Island to state what other options have been explored. To document First Nation needs, a Health Impact Assessment has been completed (currently in draft form) that identifies the Fixed Link as the only solution to effectively meet the health issues currently facing the First Nation community. An executive summary will be available by the end of November to support the community's findings.

12. **What will happen to all the members who are currently working on the barge? As this is their income?**

The loss of the ferry will have some documented, negative socio-economic impacts – on the mainland and on the Island. The actual needs for barging services, even with a Fixed Link has not been assessed, but it is recognized that ferry requirements will be less significant than with the requirements with the present transportation system. As requirements are identified through the studies, it is anticipated that new opportunities for employment across all sectors of the economy will arise.

13. **Will residents and cottagers be treated the same in terms of possible tolls or other costs associated?**

This has not been assessed at this time. Financial viability will be addressed as the costs and operating expenses get evaluated over the next two years.

The following general comments were provided in the chat:

1. I am so glad that this will bring safety to the members physically and mentally....as a cottager it has always been a concern of mine for their safety...this will keep future generations safe...thank you for all the information
2. Many people have died try to cross this lake IT is the right choice!
3. Great Job!
4. great presentation, thank you!
5. positive start and great communication - thank you - you did a great job
6. Thanks Michael....Great Presentation!
7. Thanks for the info. Glad I tuned in to learn more.
8. If anyone needs any help from a cottager i would love to be involved...
9. great job
10. great presentation. very informative
11. Good Job!

Action Items For Secretariat

1. ASAP, get the presentation online and notify those that couldn't log in of the links available.

Other Items Requiring Follow-Up

1. Once the Impact Assessment Agency of Canada process is open, notify registrants and website subscribers that the official federal consultation process is open and able to accept community input from citizens, businesses, organizations, etc. (https://www.canada.ca/en/impact-assessment-agency.html)

Georgina Island Youth Workshop
November 9,2021

ATTENTION GI YOUTH!

FREE PIZZA

DRAW FOR AMAZON GIFT CARDS

OTHER PRIZES TO BE WON!



Nov 9, 2021

6:30 PM

GI Community Centre

Open To Youth 10 -20 years

Youth Meeting for Fixed Link Project

November 9th, 2021 6:30pm- 7:30pm

Objective:

Presentation, Questions and Discussion with GI youth

Present:

11 youth in attendance

Questions from youth:

- Where does funding come from?
- Can people use their land for anything, and build anything once things are more assessable?
- What studies have been done already?
- Will this put us in debt?
- If the studies don't go as planned what happens?
- Can something go wrong where this project won't go through with a bridge?
- Will people be able to develop on the land they own, like big projects that will effect everyone?
- What will happen to the boat drivers, will they just lose their jobs?
- Will there be gates, or toll booths to let people over?

Discussion:

Did you find the presentation informative?

- Very, learned a lot and thankful for people taking the time to explain it to us
- Yes, learning what the project is was nice
- Nice for the youth to be brought into what is happening
- Having it explained keeps us updated on what is happening in our community

What are some fears you have about the fixed link project?

- Effects it may have environmentally
- Cottagers being able to come and go more as they please
- Development that may happen after things are easier to bring over
- Security of the community
- Population may grow with cottagers
- If this will cost us money and put our community in debt
- If it's a waste of time (the studies don't go as planned)
- Having some people out of jobs with no ferry

How do you think you will benefit from this project?

- Appointments, school and work would be easier to get to
- Bridge would be cool and sports would be easier to get to, especially hockey during the winter
- Better for medical and emergency transportation
- Would not have to worry about death from the ice road

- Better for our safety and health
- Better for our elders
- No more boarding away from home
- Could have an actually store over here, with trucks being able to travel easier

Community Interest Groups Consultation

Non-for-profit Organizations
July 22, 2021

Engagement Summary

Date: July 22, 2021	Engagement Record: Project Introduction Meeting	Engagement With: Lake Simcoe Stakeholders
Location: Via Zoom (Hosted By GIFL Secretariat)	**Participants Present:** **Host:** **Michael Jacobs, GIFL Secretariat** **Marlene Stiles, GIFN Fixed Link Advisor** **Dylan Big Canoe, Councillor – GIFN** **Stakeholder Groups:** **Rescue Lake Simcoe Coalition, Claire Malcomson** **Carden Field Naturalists, Tom Wilson** **South Lake Simcoe Naturalists, Paul Harpley** **North Gwillimbury Forest Alliance, Jack Gibbons** **Lake Simcoe Association, Johanna Powell** **Windfall Ecology Centre, Brent Kopperson** **Lake Simcoe Watch, Jack Gibbons** **Ontario Rivers Alliance,Linda Herron** **Sail Georgina, Nancy Wright** **Ontario Water Centre, Annabel Slaight**	**Topic:** This was a presentation to inform our partners in protecting Lake Simcoe with project background and understanding prior to the official IAAC process being initiated. It is to ensure that there was time to understand and evaluate what may be required throughout the process and to ensure that an open line of communication was developed. No formal requests of this group were made, however some general feedback was received and documented below.

Item / Issue / Discussion Point	Comments / Discussion Items	Action Items
General project interest and support	The participants expressed appreciation for the project, it's need and value to the community. This historical context of the land bridge being there prior to the flooding was new information to some. In general, the project was met with primarily positive reactions, with a notable caution for protecting the Lake and how that can be done.	No actions required
GIFN's Overall protection of the environment	The First Nation presented the plan to protect the Lake and environment and the process was well received.	No action required
What was going to be done to protect the land and cottage owners and their land value?	The host indicated all of the socio-economic factors of the project will be considered during the impact Assessment Agency of Canada's project review. This will include both the positive to the FN and the negative to the land owners.	To ensure that a 'community at large' meeting is held to notify them of the project – CIPS

Item / Issue / Discussion Point	Comments / Discussion Items	Action Items
What processes will be used to ensure that the quality of Lake protection will meet that better than what is happening at the Bradford By-Pass.	The host reiterated three points from the presentation: • All First Nation visioning for the project reinforced the community's direction to Council to protect the Lake throughout this process • The community will be establishing a team of western scientists to complete a two- phase evaluation – once to evaluate the process being used to procure services and once to ensure any protection measures propose in study design were executed and further mitigations are included in final recommendations to Council • All contractors, for whatever purpose, will be required to undertake a community-based training on the importance of Lake Simcoe to the people of Georgina Island	GIFL to continue to identify the proposed western scientists and traditional knowledge keepers to sit on the team GIFL to continue to develop a community based training for all contractors working with the GIFL.
A question was raised about affecting boat traffic through the channel at the southwest points of Georgina Island.	The participant from Sail Georgina provided insight that safe passage for larger vessels is not possible through that channel. As long as bridge height meets the needs of the smaller vessels able to navigate that passage, bridge height should not affect most recreational boating enthusiasts.	Technical design team to include this information in an assessments going forward.
Further Engagement	Lake Simcoe living provided the opportunity to promote the Fixed Link project in their magazine to further the reach of the 'community at large' engagement.	GIFL will promote the community meeting in their publications as well as on social media and through web-based subscribers.
Other notes	It should be noted that other organizations were invited, however could not make the proposed time. The following organizations received a recorded link for the session without further comment: • Nature Barrie, Chris Evans • Carden Field Naturalists, Pam Fulford • Aware Simcoe, AWARE Simcoe	

Regulatory Agencies Consultation

Meeting #1 – MECP
March 09, 2021

Chippewas of Georgina Island First Nation (GIFN)
Fixed Link Study (GIFL)

MECP – GIFL Project Introduction

Participants

Sue Olguin	WSP – PM
Andrew Roberts	WSP – Environmental Technical Lead
Christine Furtado	WSP - Senior Planner, Engagement Specialist
Meghan MacMillan	WSP - Senior Planner, Engagement Specialist
Zachary Hupman	WSP - Planner
Kathleen O'Neill	MECP – Director
Andrew Evers	MECP – Manager
Jeff Butchart-on behalf of Celeste	MECP
Solange Desautels	MECP – Special Projects Officer
Lariena Rising	MCEP – Sr. Advisor – Indigenous Consultation

Purpose of the Meeting: to determine what is required for the EA process from MECP, if an EA is required.

WSP gave a short slide presentation to provide overview and context on the GIFL project. (attached)

MECP Potential EA Requirements

- An Individual EA will likely not be required; however, certain Class EA processes may apply.
- A key question to consider in determining applicability of EA requirements is "proponency" as the EA Act applies generally to public sector proponents, with some application to private sector proponents.
- Is an Indigenous-led project considered to be a Public Sector (Public Body) or a Private sector (Private Developer) project? MECP will review definition of regulation defining private sector proponents.
    - Is the project servicing residential development / land uses – this is another determining factor in defining private sector proponents
- Potential Class EAs that could apply include Municipal Class EA (MCEA) and MNRF Class EA. WSP to share analysis of potential applicability of these Class EA processes with MECP, pending GIFN approval.
- Who has the lake bed ownership? This would be key consideration in determining whether MNRF Class EA process applies.

MECP EA Modernization

- The provincial government is currently leading an overall modernization of the EA process in Ontario. They are currently consulting on various aspects of this modernization program. Similar to the IAAC, Ontario will move towards a comprehensive project list in the future and eventually away from Class EA processes.
- Currently no timelines for this transition – early stages.
- Should a new process be implemented during the GIFL project, there would likely be a transition period or a grandfathering of projects.

MECP – GIFL Project Introduction

MECP - Voluntary Individual EA

- If the Class EA is not required, the project may go to Ministerial approval, who may order an Individual EA.
- It may be in the GIFN's best interest to do a Voluntary Individual EA up front to eliminate potential duplication.

MECP – Coordination with Federal Impact Assessment

- MECP would participate as part of Federal Impact Assessment process, even in the event no provincial EA Act approval is required
- MECP will be part of the IAAC review team – the window for all other provincial ministries
- Any decision to follow a harmonized federal-provincial EA process requires Minister approval; however, in any EA process MECP would support principles of efficient and streamlined review to minimize duplication.

Consultation / Stakeholder Engagement

- Key stakeholders are the Municipality and LSRCA (development application will be required)
- MECP recommends review of Regional Transportation Master Plans to evaluate potential opportunities for coordination with municipal projects.
- Lariena notes consultation is very important to the success of the project and can support in an advisory capacity to ensure correct groups are engaged (depending on MECP involvement)

MNRF

- Who has ownership of the water will trigger the MNRF review. MECP will contact MNRF upon approval by GIFN to discuss potential application of MNRF Class EA process.

Lake Simcoe Protection Act (LSRCA) (Provincial Statute)

- Shoreline regulator – permits and regulations.
- Main stakeholders – a Development Application will likely be required.
- Solange recommended a review of the Act, which may have unique requirements for GIFL and to determine what the prohibitions to the GIFL project will be.

ACTION ITEMS:

Submit request GIFN permission to submit the following documents to MECP for review: • Project Summary • Project Description • Consultation Plan (list) *Continued next page*	WSP (Sue)

MECP requests GIFN permission to contact the MNRF	WSP (Sue)
WSP to review the Lake Simcoe Protection Act to determine requirements	WSP (Zach/Andrew
Review of Municipal Class EA to determine requirements	WSP (Andrew)
Review regulations for Private Developers and Private Roads	WSP (Andrew)
Lake Simcoe Protection Act – Review (already in process)	WSP (Andrew)
EA Modernization – timing	MECP
Review Regional Transportation Plans to determine planning in project area	WSP (Zach)

NEXT STEPS:

- WSP to submit approved documentation to MECP.
- Next meeting 2 weeks post documentation submission.

Prepared by: Sue Olguin
Reviewed by: Meghan MacDonald, Andrew Roberts

Meeting #2 – IAAC & MECP
May 12, 2021

Chippewas of Georgina Island First Nation (GIFN)
Fixed Link Study (GIFL)

IAAC-MECP Coordination Meeting – May 12, 2021

Participants

Chief Donna Big Canoe	GIFN
Marlene Stiles	GIFN - Economic Development
Sue Olguin	WSP – PM
Andrew Roberts	WSP – Environmental Technical Lead
Meghan MacMillan	WSP - Senior Planner, Engagement Specialist
Zachary Hupman	WSP - Planner
Mike Jacobs	CIPS
Sherry Du	IAAC – Project Manager
Marc Leger	IAAC – Team Leader
Rachelle Lalonde	IAAC
Andrew Evers	MECP – Manager
Solange Desautels	MECP – Special Projects Officer

Purpose of the Meeting: Coordination of Environmental Assessment requirements for the GIFL project

WSP gave a short slide presentation to provide status update and review next steps.

- Marc provided one point of correction on slide 8: it is not yet confirmed that the full federal impact assessment (IA) process is required for this project. This determination will only be confirmed once the final IPD is reviewed.

Nation to Nation – One EA Package for all requirements

- A "One Project, One Environmental Assessment" Package containing all requirements by IAAC, MECP and MNRF, supported by GIFN/WSP/CIPS is the goal.
- Discussions on a Binder Package with a Work Program that includes all requirements. Appendices or chapters within the document that can be utilized for Authorities use.

IAAC

- Draft IPD target for early June submission by WSP/GIFN
- IAAC will provide comments on the Draft IPD
    - Reasoning for comments on both the Pre-Draft and Draft discussed include reduced review cycle times and potential to have a fulsome IPD that will allow IAAC to make an informed determination on whether the full federal IA process is needed. The ideal scenario would be that IAAC decides the full federal IA process Is not required, or alternatively if an IA is needed that the scope will be narrowed..
    - Review will identify issues to close off as many gaps as possible.
- Sherry requested approval to provide impacted federal departments the current Pre-Draft IPD in advance of the Draft IPD submission in June for understanding and characterization. MECP also recommended to be provided with the Draft IPD when prepared.
- Request for WSP to provide 2 week advance notice of IPD submission

- Marc discussed the initial IAAC review and comment process, which would be an approximate 30 day timeline to provide comments on the draft IPD.

Consultation / Stakeholder Engagement

- Mike Jacobs (CIPS) confirmed that consultations with Rescue Lake Simcoe and others have taken place. Meeting with Williams Treaty Pending.
- COVID restrictions are making consultations difficult.
- Consultations will provide a robust understanding of the concerns, i.e. "Don't mess up the environment". Consultations are in line with GIFN goals.
- A robust Engagement Plan with consultations completed to date and planned will be included in the Draft IPD.

MECP Potential EA Requirements

- An Individual EA will likely not be required; however, certain Class EA processes may apply. Based on current understanding of the project, the Municipal Class EA is not applicable; however MNRF Class EA may apply.
- Andrew (Evers) confirmed that when the IPD is received, it will be circulated internally via MECP Regional Coordinator (one0window contact) to Technical Reviewers.
- Class EA review will stay within MECP – they do not coordinate with other ministries, i.e. MNRF.
- Class EA process is Proponent driven. MECP provide reviews of these documents and comment according to their policy areas.
- Elevation requests (formerly Part II orders) from a Class EA to an Individual EA are limited to impacts on constitutionally protected Aboriginal or Treaty Rights. If an elevation request is received, the request is reviewed by the Minister, who may order an Individual EA. There is no time frame for elevation request reviews.

MNRF Potential EA Requirements

- WSP has meeting May 26 to discuss if a Resource Stewardship and Facility Development (RSFD) Class EA is required.
- Class EA processes may apply under MNRF. MNRF will focus on approvals.

Next Steps

- WSP has meeting May 26 with MNRF to determine requirements
- Obtain permission from GIFN for IAAC to circulate current Pre-Draft IPD and communicate to IAAC
- WSP to facilitate Coordination Meeting with IAAC/MECP/MNRF post MNRF meeting
- **Finalize Draft IPD; Submission Target early June 2021**

ACTION ITEMS:

Obtain approval for IAAC to circulate existing Draft IPD to impacted federal departments	WSP (Sue)

Obtain and report on MNRF requirements	WSP
Coordinate IAAC/MECP/MNRF meeting	WSP/IAAC
Coordinate and update DRAFT IPD with MNRF and Consultations	WSP

Prepared by: Sue Olguin
Reviewed by: Andrew Roberts, Meghan MacDonald

Meeting #1 – NDMNRF
May 26, 2021

Chippewas of Georgina Island First Nation (GIFN)
Fixed Link Study (GIFL)

WSP-MNRF Coordination Meeting – May 26, 2021

Participants

Sue Olguin	WSP – PM
Andrew Roberts	WSP – Environmental Technical Lead
Meghan MacMillan	WSP - Senior Planner, Engagement Specialist
Zachary Hupman	WSP - Planner
Maria Jawaid	MNRF – District Planner, Aurora
Rachael Thom	MNRF - Lands and Water Technologist
Steve Rosewall	MNRF – Lands and Water Technologist

Purpose of the Meeting: Coordination of MNRF requirements for the GIFL project

WSP gave a short slide presentation to provide status update and review next steps (attached)

General - MNRF

- Maria identified that a designation request had been received by the MNRF from IAAC
- Confirmed that there are overlaps in requirements between MNRF and the IAAC. Integrated approach with IAAC in theory is agreed upon.
- Maria asked if Lake Simcoe unit of MNRF has been engaged?
    - WSP confirmed no, Lake Simcoe office has not been engaged; this is the first point of contact with MNRF.
    - Maria can assist with engagement of Lake Simcoe office and provide fisheries background information.
    - Maria – can coordinate through her department.

Draft IPD:

- When will it be submitted to IAAC and can it be circulated to MNRF? It was agreed circulation to MNRF is recommended, so MNRF can participate at review of alternatives stage and development of design criteria right from the onset.
- **Andrew – WSP will provide Draft IPD documentation when ready, and upon approval by GIFN**

Ownership

- Lakebed ownership is unconfirmed – this plays into the MNRF permit approval process.
- MNRF asked if the intent to purchase property permanently or obtain easement?
- Andrew – lands remain sensitive issue. These discussions have not yet been held.
- MNRF will provide assistance, to determine how the permitting will work depending on the status of the land transaction.

Scheduling and EA Process

- Andrew – Scheduling for the project – what to we need to provide up front/earliest point in the schedule to proactively schedule environmental assessment requirements.
- Maria – trigger for the RSFD is at the authorization (i.e. permitting / approvals) stage. Exact process to follow is to be determined by the specific authorization that is required.

- MNRF recommends that the best methodology is to be included at the beginning stages. Usually MNRF are only notified at the end of the process when a permit is sought, which causes delays.
- Andrew – we will include MNRF early in the process.
- Maria – some of the EA requirements are slimier as what is needed for other authorities (IAAC, municipal, etc.).
- Maria - There is a checklist as part of the EA Screening **– Maria to confirm if the checklist can be submitted to WSP.**

Consultations

- Documented Community Consultation – as with IAAC, this is an important and required step of the EA process.
- Duty to Consult is usually carried out by MNRF internally as part of EA process. **MNRF needs to discuss internally to confirm the consultation process**, however did not see this as an issue, rather as a positive.
- Meghan - GIFN has a Consultation Plan which is being carried out by GIFN. Consultations are ongoing. All consultations are being completed by GIFN and CIPS (Michael Jacobs) with support by WSP.
- **MNRF would like to receive a copy of the Consultation List to confirm/update as required.**

Permits - Steven Rowswell.

- There are a number of potential authorizations that could be required, including Public Lands Act (PLA), Fish and Wildlife Act, Lakes and Rivers Improvements Act.
- Work permit is required under PLA to allow construction on the lakebed.
- Purchase of lands by GIFN would relieve MNRF of future permit requirements (as these are only applicable on Crown lands)
- Andrew: What can GIFN do as a proponent to streamline processes and ensure that EA, federal impact assessment and permits / approvals are addressed in a coordinated way to minimize duplication?
- Coordination meeting with IAAC, MECP, GIFN and the MNRF was discussed.
    - Maria agrees this would be a good step towards the “one Environmental Assessment” approach.
    - **WSP to confirm with IAAC to set up a meeting.**

ACTION ITEMS:

WSP will provide Draft IPD documentation when ready, and upon approval by GIFN	WSP
Maria to confirm if the EA screening checklist can be submitted to WSP.	MNRF
MNRF needs to discuss internally to confirm the consultation process requirements	MNRF
WSP to confirm with IAAC/MECP/MNRF to set up a coordination meeting	WSP/IAAC
Coordinate and update DRAFT IPD for submission to IAAC with MNRF and Consultations	WSP

Prepared by: Sue Olguin
Reviewed by: Andrew Roberts, Meghan MacMillan

Meeting # 1 - Lake Simcoe Region Conservation Authority (LSRCA)
August 11, 2021

LSRCA – GIFL Project Introduction

Participants

Mike Jacobs	Project Secretariat - Cambium Indigenous Professional Services (CIPS)
Kassandra McKeown	Project Specialist - Cambium Indigenous Professional Services (CIPS)
Sue Olguin	WSP – PM
Andrew Roberts	WSP – Environmental Technical Lead
Lina ElSetouhy	WSP – Environmental Planner
Glen MacMillan	LSRCA
Robert Baldwin	LSRCA
B. Longstaff	LSRCA
A Brown	LSRCA
Brian Ginn	LSRCA
Kristen Yemm	LSRCA
Trish Barnett	LSRCA

Copy:

Marlene Styles	GIFN – FN Liaison

Purpose of the Meeting: To introduce the proposed Georgina Island Fixed Link project

Project overview and status to date presentation was given by Mike Jacobs. The proposed project is to be a Federal EA process as Lake Simcoe is navigable waters. As part of this process, GIFN will be consulting with multiple groups as part of the draft Initial Project Description (IPD) process.

1. **GIFN KEY PROJECT ISSUES**:

• The community understands that the current ferry system has its own negative impacts and they understand that the Fixed Link may also have negative impacts on the Lake through construction and operation. • The community understands that they must work with Mother Earth and will also rely on western science. The community is proposing the formation of a Lake Simcoe Committee consisting of community members of GIFN, Lake Simcoe stakeholders, GIFL secretariat, members of the technical team. The committee's role will be to review each RFP twice; review all technical studies to ensure that nothing has been missed in the process.	

2. CONSULTATIONS:

• To date, the GIFN has completed key milestones including consultation with the GIFN community, IAAC, MNRF, MECP, Williams Treaty FN, and various Lake Simcoe stakeholders; • Website: gifl@georginaisland.com • Communications channel through which all communication is to be directed at gifl@georginaisland.com. Please refer to the slide deck for the GIFL Secretariat.	

3. SOCIAL PRESENCE:

• Mike Jacobs confirmed communications will be channeled through a Facebook page, twitter page and a website. All have been developed, however not active as yet. • Kristen suggested the biggest challenge is growing the following so accurate information will be uploaded. Lead the narrative on the project. Kristen may be able to provide support.	

4. DISCUSSION – Q & A

• LSRCA noted that this portion of the lake has various hydromorphological hazards sensitive yet there was no mention of a Hydromorphology study.
  ○ WSP confirmed they are aware of these hazards and concerns, including issues with ice flows and jams, which are quite substantial on the island. WSP confirmed that there is a hydromorphologist and coastal marine engineer on the project team.
• LSRCA recommended that these risks/hazards be highlighted
• LSRCA inquired about how material for the island side of the causeway will be transported, as this section will need to be built prior to the bridge structure construction.
  ○ WSP confirmed internal discussions the causeway construction and fill requirements. Once the environmental studies are completed, WSP will be able to develop the specifications for the fill.
  ○ Mike Jacobs added that these issues were studied in the initial studies and no critical issues or fatal flaws were raised. Further research and more detailed information may be flagged by the community moving through the process.
• LSRCA inquired about the current financial program supporting the different options being studied and the EA process.
  ○ Mike Jacobs noted that the project has a number of funding sources; the Canada Infrastructure Bank has confirmed accelerator funding, GIFN has
	c

funds that will be utilized, plus a combination of debt financing for the bridge construction. It is currently estimated that the Project cost will be between $250 and $300 million.

- LSRCA noted that the increased access to the Island there may a higher demand for land use which will likely result in more external access to the island. LSRCA inquired whether this issue has been considered.
  - Mike Jacobs confirmed that this issue has been raised by the community and there will be a number of community driven approaches as the project progresses.
- LSRCA inquired whether the GIFN has considered this project as a design-build process, as constructability will be key and it will be helpful to have a team that has a strong understanding of the Project.
  - Mike Jacobs noted that one of the reasons WSP was selected was because of the of a similar project that they completed in PEI.
  - WSP also noted that environmental approvals are required prior to construction. At this time WSP is considering a design-build to ensure the continuity of the Project and to maintain the same team on the Project from design to construction.
- LSRCA inquired whether the DFO will be engaged.
  - WSP confirmed that engagement with the DFO is taking place through the IAAC process. DFO will be involved in reviewing the Draft IPD and Final IPD. The federal IAAC are leading engagement through their internal review process.
  - GIFN/CIPS/WSP have met with IAAC, MECP and MNRF to confirm the study requirements will meet the needs of all groups to facilitate schedule and review requirements to a single set of consolidated studies.
- The LSRCA confirm that they do not have any government jurisdiction for this the Project as it is under federal jurisdiction.
  - Mike Jacobs – GIFN wants to inform and look to LSRCA to provide support. GIFN is suggesting the LSRCA be a member in the committee/review process. The role would be to provide a holistic view of the lake and incorporate LSRCA knowledge based into the Environmental and Design teams.
  - WSP (Andrew) - As the Project is under federal jurisdiction, it is understood LSRCA has no regulatory authority over the Project. However, GIFN and LSRCA have the option to follow a Voluntary Process Review (VPR)... The VPR is to be discussed further with GIFN and LSRCA.
  - Mike Jacobs discussed the project's need for LSRCA support for technical advice and opinion as they have Lake Simcoe specific knowledge.
  - LSRCA noted that they will need to discuss with the Board of Directors to identify what level of support could be provided to Project. **The LSRCA will**

discuss the Project with their Board of Directors and provide an update to Mike Jacobs. ○ LSRCA suggested that CIPS/WSP give a presentation to their Board of Directors. It is suggested that CIPS (plus Marlene GIFN members) present to the Board, potentially at the September 2021 Board meeting. • LSRCA advised that they have a significant amount of Lake Simcoe data that can be shared by way of a data request form. There are also technical reports currently publicly available on the LSRCA's website. ○ WSP (Andrew) confirmed that WSP is familiar with the process. • LSRCA inquired about whether the Project team considered connecting with the Lake Simcoe Protection Plan Ministry Advisory Committee. ○ WSP noted that this will be an item for future consideration as it can be helpful for the Lake Simcoe Committee. ○ **Mike Jacobs also noted that a similar presentation will be planned and delivered to the advisory committee at a future date.** • LSRCA requested sharing the slide deck for internal use. ○ **Mike Jacobs will email it to the participants** • LSRCA – Key Considerations ○ Lake fronting municipalities will be a key consideration. ○ The movement of Traffic and trucks during construction. ○ Current issues with illegal fill were identified by LSRCA. Silver lining – building the fixed link may address some of these issues. This could be used as a local benefit to this issue which should be given consideration.	**Action : LSCRA** **Action : CIPS**

ACTION ITEMS:

Issue/Action:	**Name**
Coordinate CIPS/GIFN/WSP Presentation at Board of Directors Meeting	LSRCA
Circulate Presentation	CIPS

Minutes by Sue Olguin/Lina ElSetouhy
Reviewed by Andrew Roberts, Michael Jacobs

Meeting # 2 - Lake Simcoe Region Conservation Authority (LSRCA) - Board of Director's Meeting
September 24, 2021

FIXED LINK PROJECT INTRODUCTION

LSRCA BOARD OF DIRECTORS

Chippewas of Georgina Island First Nation





GIFL

A Project For Seven Generations

September 24, 2021

Virtual Meeting

COMMITMENT TO THE FIXED LINK

Pre - 2008

Federal commitments for a bridge were in place but changes in government resulted in changes in priorities.

<2007

2008

2008 - Neegan Burnside Report

The community has Neegan Burnside assess and document the potential for a fixed link to Georgina Island

- Well received
- No commitments to proceed

2018-19 Community Mandate

Community formally supports leadership to make the Fixed Link a priority at community meeting

2018

2019

2019 CIPS Engaged

CIPS Engaged to manage the ‘idea’ and develop the community project understanding

2019 WSP Engaged

WSP engaged to develop the GIFL Fixed Link Project Plan

2019

2021

2021 Council Resolution

GIFN Chief and Council formally resolve to complete a Fixed Link by 2030.

COMMUNITY ASSESSMENT
FIXED LINK COMMUNITY VISIONING (2019-2020)

Community Understanding of what would be involved

- The Chippewas of Georgina Island First Nation adopted the following Project Vision:

"Chippewas of Georgina Island First Nation is a responsible and sustainable community that values safety and community health. A fixed link will offer the community with safe passage during all seasons while protecting the environmental, cultural, social and economic future of the community."

Key Community Engagement Directives

- Build it now – don't wait
- Should be on a route we are used to
- Keep us safe (While In Transit / From Outsiders)
- Protect Lake Simcoe
- Protect our environment

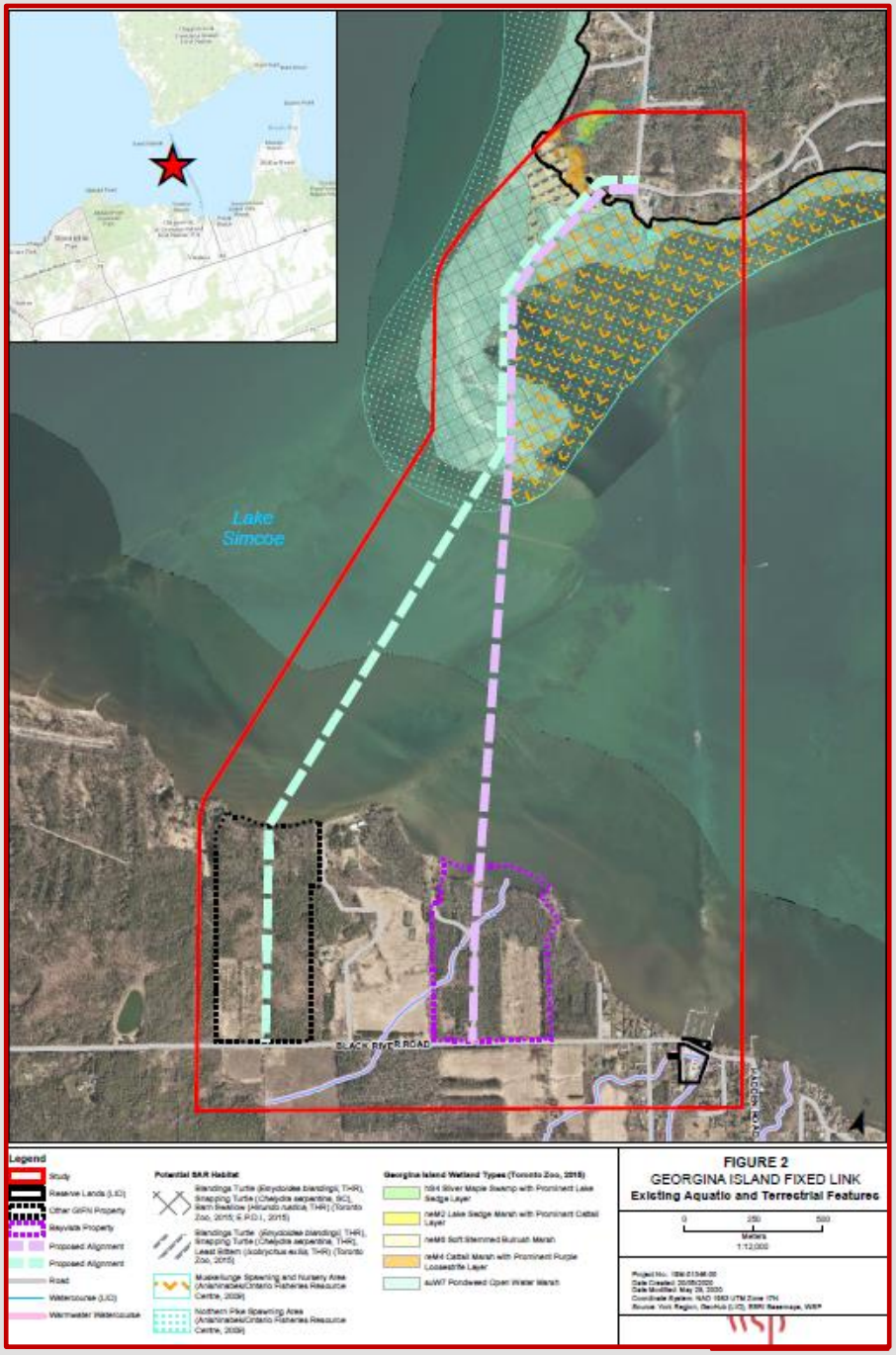
THE COMMUNITY DIRECTIVE
'PROTECT THE LAKE AND ENVIRONMENT'

- The Chippewas of Georgina Island First Nation take the impacts this project may have on Lake Simcoe and the environment seriously.
- The community has been very clear during engagements:
  - We understand that our current transportation system negatively impacts the Lake and environment now.
  - We understand that this project will impact Lake Simcoe through all phases of assessment, design, construction and use.
  - We must work with Mother Earth, traditional knowledge and western science to ensure we:
    1. Understand the impacts to the Lake and environment
    2. Investigate impact avoidance measures whenever possible
    3. Ensure comprehensive mitigation measures are used when required
  - We do not have the human resources or fulsome skills in the community to fully comprehend the impacts that may result from this project and therefore must look to others to support us.
    - Lake Simcoe Stakeholders
    - Lake Simcoe Regional Conservation Authority
    - CIPS / WSP (Other professional service firms)

TECHNICAL ASSESSMENT
FIXED LINK TECHNICAL VISIONING

WSP Technical Review

- No ground based investigation or reviews conducted
- Review 2008 Neegan Burnside Study
- Desktop review of potential 'deal-breakers':
  - Environmental Planning Needs
  - Ecology Factors
  - Traffic Factors
  - Civil Road Understanding
  - Hydrogeology Understanding
  - Geotechnical Desktop reviews
  - Contamination research
  - Archaeology needs assessment
  - Natural Heritage understanding
  - Air/Noise requirements



FIXED LINK PROJECT – TECHNICAL VISIONING CONTINUED

Technical Assumptions Developed

- The Fixed Link will connect:
  - Black River Road to existing section of Bear Road and Chief Joseph Snake Road on the Island.

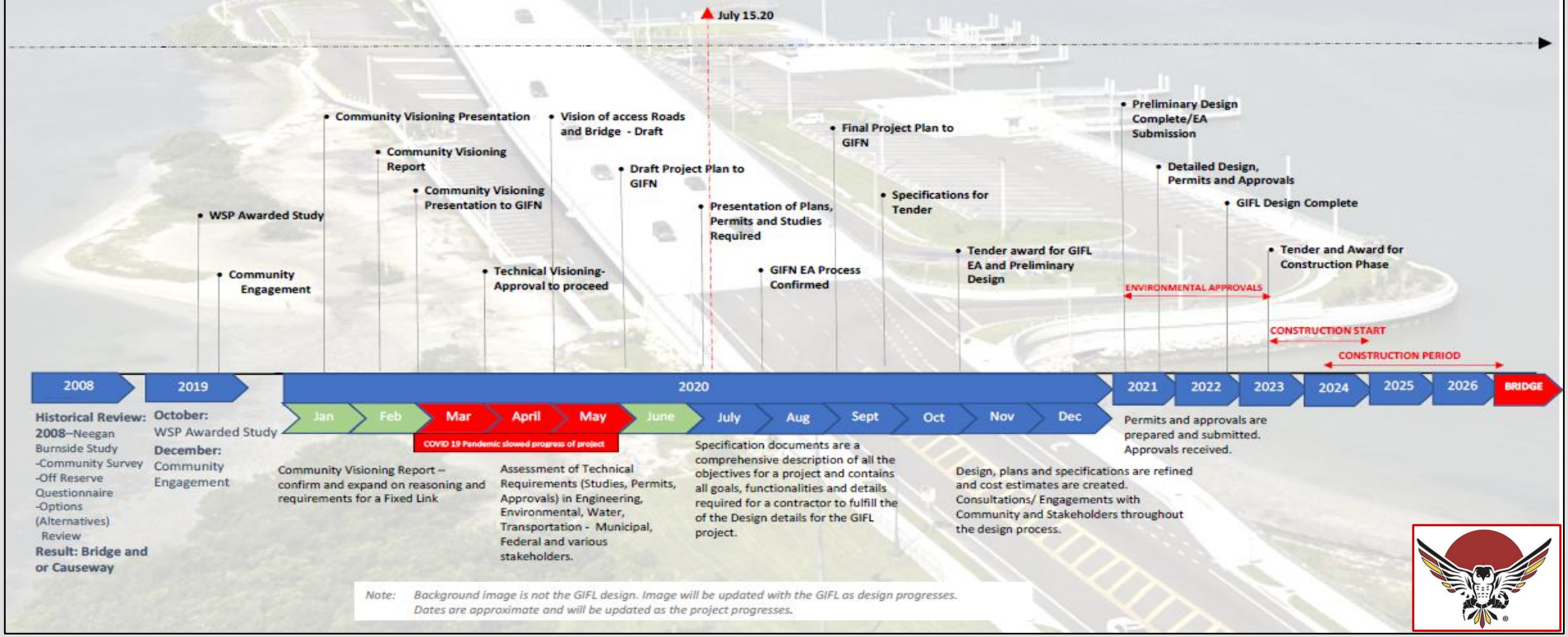
- Will require 3.3 km of roadway –
  - 1 km of roadway + 2.3 km of Fixed Link:
    - 800m causeway to bridge
    - 700m elevated Bridge
    - 800m causeway to mainland

- These are assumptions
  - Design based on vision has been examined, but not fully studied – why?
    - Need to fully evaluate the impacts of the project prior to investing heavily in design
      - Rerouting due to species at risk
      - Soils insufficient in certain space



GEORGINA ISLAND FIXED LINK STUDY

TIMELINE



Historical Review:
2008–Neegan Burnside Study
-Community Survey
-Off Reserve Questionnaire
-Options (Alternatives) Review
Result: Bridge and or Causeway

October: WSP Awarded Study
December: Community Engagement

Community Visioning Report – confirm and expand on reasoning and requirements for a Fixed Link

Assessment of Technical Requirements (Studies, Permits, Approvals) in Engineering, Environmental, Water, Transportation - Municipal, Federal and various stakeholders.

Specification documents are a comprehensive description of all the objectives for a project and contains all goals, functionalities and details required for a contractor to fulfill the of the Design details for the GIFL project.

Design, plans and specifications are refined and cost estimates are created. Consultations/ Engagements with Community and Stakeholders throughout the design process.

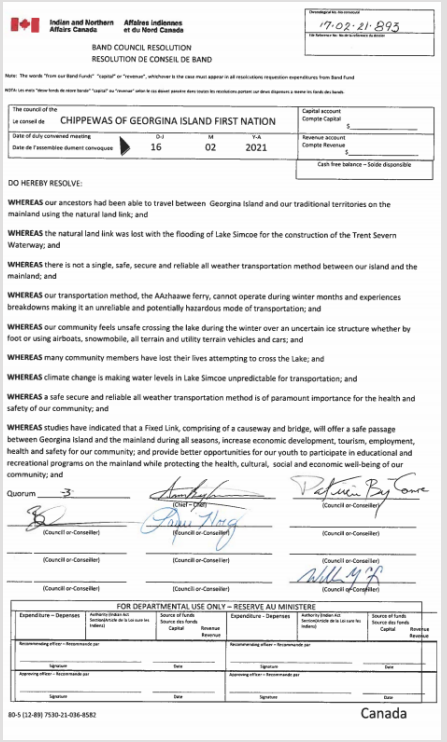
Permits and approvals are prepared and submitted. Approvals received.

Note: Background image is not the GIFL design. Image will be updated with the GIFL as design progresses. Dates are approximate and will be updated as the project progresses.

CHIPPEWAS OF GEORGINA ISLAND FIRST NATION
COUNCIL RESOLUTION
FEBRUARY 17, 2021

The Chief and Council…

1. **Reaffirm that ancestors used a natural land link**
2. **Reaffirm the loss of the land link during Trent Severn construction**
3. **Confirmation that there is not a single, safe, secure and reliable all weather transportation method currently**
4. **Confirmation that the community feels unsafe crossing the Lake during the winter months**
5. **Confirming that community members have lost their life attempting to cross the Lake**
6. **Affirming that climate change is affecting the Lake and making crossing unpredictable**
7. **Affirming that a safe, secure and reliable all weather transportation method is of paramount importance**
8. **Affirming that research has indicating that a Fixed Link, comprised of causeway and bridge will offer safe passage**
9. **Affirm that the GIFN Members, through consultation and engagement have directed the Council to proceed with the planning, design and construction of a Fixed Link as the most desired solution**



Indian and Northern Affairs Canada / Affaires indiennes et du Nord Canada

17-02-21-893

BAND COUNCIL RESOLUTION
RESOLUTION DE CONSEIL DE BAND

The council of the / Le conseil de: CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

Date of duly convened meeting / Date de l'assemblée dument convoquée: D-J 16 M 02 Y-A 2021

Capital account / Compte Capital $

Revenue account / Compte Revenue $

Cash free balance – Solde disponible

DO HEREBY RESOLVE:

WHEREAS our ancestors had been able to travel between Georgina Island and our traditional territories on the mainland using the natural land link; and

WHEREAS the natural land link was lost with the flooding of Lake Simcoe for the construction of the Trent Severn Waterway; and

WHEREAS there is not a single, safe, secure and reliable all weather transportation method between our island and the mainland; and

WHEREAS our transportation method, the AAzhaawe ferry, cannot operate during winter months and experiences breakdowns making it an unreliable and potentially hazardous mode of transportation; and

WHEREAS our community feels unsafe crossing the lake during the winter over an uncertain ice structure whether by foot or using airboats, snowmobile, all terrain and utility terrain vehicles and cars; and

WHEREAS many community members have lost their lives attempting to cross the Lake; and

WHEREAS climate change is making water levels in Lake Simcoe unpredictable for transportation; and

WHEREAS a safe secure and reliable all weather transportation method is of paramount importance for the health and safety of our community; and

WHEREAS studies have indicated that a Fixed Link, comprising of a causeway and bridge, will offer a safe passage between Georgina Island and the mainland during all seasons, increase economic development, tourism, employment, health and safety for our community; and provide better opportunities for our youth to participate in educational and recreational programs on the mainland while protecting the health, cultural, social and economic well-being of our community; and

Quorum 3

(Chief or Chef) (Council or Conseiller) (Council or Conseiller) (Council or Conseiller) (Council or Conseiller) (Council or Conseiller) (Council or Conseiller) (Council or Conseiller) (Council or Conseiller) (Council or Conseiller)

FOR DEPARTMENTAL USE ONLY – RESERVE AU MINISTERE

Expenditure – Dépenses	Authority (Indian Act Section/article de la Loi sur les Indiens)	Source of funds / Source des fonds: Capital / Revenue Revenue	Expenditure – Dépenses	Authority (Indian Act Section/article de la Loi sur les Indiens)	Source of funds / Source des fonds: Capital / Revenue Revenue
Recommending officer – Recommandé par			Recommending officer – Recommandé par		
Signature / Date			Signature / Date		
Approving officer – Approuvé par			Approving officer – Approuvé par		
Signature / Date			Signature / Date		

80-5 (12-89) 7530-21-036-8582 Canada

And therefore resolved:

- **The Chief and Council of the Georgina Island First Nation intend to build a Fixed Link that will connect Georgina Island to the mainland**
- **The Chief and Council desire to complete the Impact Assessment by December 31, 2024**
- **The Chief and Council intend to have the Fixed Link operational by December 31, 2026**

FROM RESOLUTION TO TODAY

Community Meeting

Establishing GIFL Secretariat

Pre-IAAC Engagement / CIB accelerator fund

March

April

May

June

July / August

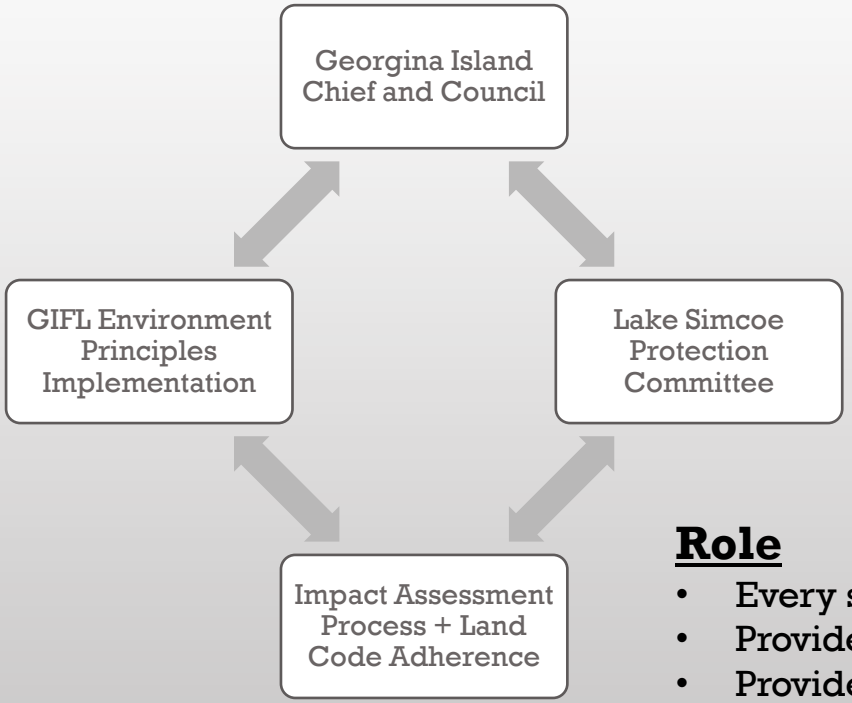
Beyond August

Impact Assessment Agency of Canada

Website, Project Communications

IAAC Process Initiated

DESIRED LAKE SIMCOE/ENVIRONMENT PROTECTION PROCESS



Lake Simcoe Protection Committee

- Community Members of GIFN (2)
- Lake Simcoe Stakeholders
- GIFL Secretariat Technical Team
- Who else?

Role

- Every study or evaluation will go through the committee 2x
- Provide input into study design (protect & forethought)
- Provide comment, concern and alternatives into impacts and proposed avoidance or mitigation
- Advice will be promoted to Chief and Council for review
- Point of contact for all LS Stakeholders?
- Two meetings will be built into every RFP

DESIRED LAKE SIMCOE/ENVIRONMENT PROTECTION PROCESS

LSRCA Relationship

- We desire your professional, science-based eyes.
  - To confirm to our community that we are protecting the Lake
  - To affirm our protection processes are valid and accepted beyond the FN community

- We need your information
  - To ensure we are not reinventing a process or redoing work that has already been done
  - To confirm our Traditional Knowledge for third party reviewers (as a development proponent)

DISCUSSION – Q&A

Subscribe at:

www.gifixedlink.com

Contact the Secretariat

gifl@indigenousaware.com

Board of Directors' Meeting

Board of Directors' Meeting No. BOD-09-21
Friday, September 24, 2021
Held virtually via Zoom

Meeting Minutes

LSRCA Board Members Present

Regional Chairman W. Emmerson (Chair), Councillor P. Ferragine (Vice Chair), Councillor K. Aylwin, Mayor D. Barton, Mayor B. Drew, Councillor A. Eek, Councillor K. Ferdinands, Councillor W. Gaertner, Deputy Mayor J. Gough, Councillor R. Greenlaw, Mayor V. Hackson, Councillor S. Harrison-McIntyre, Councillor C. Pettingill, Mayor M. Quirk, Councillor C. Riepma, Regional Councillor T. Vegh, Councillor A. Waters

LSRCA Board Members Absent

Councillor E. Yeo

LSRCA Staff Present

R. Baldwin, T. Barnett, A. Brown, M. Bessey, K. Christensen, M. Critch, J. Doyley, N. Hamley, S. Jagminas, B. Kemp, B. Longstaff, G. MacMillan, L. McLean, N. O'Dell, G. Peat, M. Rosato, C. Sharp, C. Taylor, B. Thompson, K. Toffan, K. Yemm, K. Zeppieri

Guests Present

R. Gilliland, M. Jacobs, T. Krsul, E. Mahoney, S. Olguin, M. Rabeau, A. Roberts

I. Land Acknowledgement

II. Declarations of Pecuniary Interest or Conflict of Interest

None noted for the meeting.

III. Approval of Agenda

Chair Emmerson noted that a deputation was requested by Mike Rabeau of York Region after the agenda had been posted. Board approval to add this deputation was sought, and the required two thirds of Board members signified their approval of this addition to the agenda. The agenda was amended accordingly.

Moved by: V. Hackson

Seconded by: T. Vegh

BOD-128-21 **Resolved That** the content of the Agenda for the September 24, 2021 meeting of the Board of Directors be approved as amended to include Item VIIIb), a Deputation by Mr. Mike Rabeau, Director, Capital Planning and Delivery at the Regional Municipality of York, regarding an update on the Holland Marsh Treatment Facility. **Carried**

IV. Adoption of Minutes

a) Board of Directors' Meeting

Moved by: C. Riepma

Seconded by: W. Gaertner

BOD-129-21 **Resolved That** the minutes of the Board of Directors' Meeting, No. BOD-08-21, held on Friday, July 23, 2021 be approved as circulated. **Carried**

b) Conservation Ontario Council Meeting

Moved by: C. Riepma

Seconded by: W. Gaertner

BOD-130-21 **Resolved That** the minutes of the Conservation Ontario Council meeting held on Monday, June 21, 2021 be received for information. **Carried**

V. Announcements

a) CAO Rob Baldwin provided an update on the newly acquired Georgina lands known as Maple Lake Estates, noting the purchase and sale agreement has been signed; however, Minister Clark must remove the subdivision designation through a Minister's Zoning Order, and until this takes place the land has not yet been transferred to the Authority. A Board report regarding plans for this land will be brought forward once the Authority officially owns the land.

b) General Manager, Conservation Lands, Brian Kemp was pleased to advise that a purchase and sale agreement was recently signed regarding an additional 137 acres of provincially significant wetland to the Beaver River Conservation Area. The property is located east of the trail and north of Highway 7. He noted that funding support from Region of Durham, the Lake Simcoe Conservation Foundation, and the Authority's land acquisition reserve made this acquisition possible.

c) General Manager, Conservation Lands, Brian Kemp was pleased to advise that Nicole Hamley, Manager of Education, was recently successful in securing a contract with the

Simcoe County District School Board to provide Environmental Education to Grade 4 students for the next three years. This is a great achievement which will see about 70 classes per year for the next three years, involving about 15,000 students in total.

d) The Lake Simcoe Conservation Foundation Executive Director, Cheryl Taylor, provided an update on the 32nd Annual Conservation Dinner held on September 22nd. She thanked staff, volunteers and all in attendance for making it a successful evening. She noted that with COVID protocols in place, participation was down about one third; however, it is anticipated that the fundraising goal of $200,000 was still met. The new Connect Campaign 2021 video that was shared with the Board can be viewed by clicking the following link: https://www.lakesimcoefoundation.ca/connect-campaign/2021-update

VI. Presentations

There were no presentations at this meeting.

VII. Hearings

There were no hearings at this meeting.

VIII. Deputations

a) Georgina Island Fixed Link

Mr. Michael Jacobs of Cambium Indigenous Professional Services, and Project Manager for the Georgina Island Fixed Link project, provided the Board with an overview of the proposed Georgina Island Fixed Link project, which is a planned bridge from Georgina Island to mainland Georgina. He reviewed the timeline dating back pre 2008 where discussions were held and Federal commitments were made; however, nothing happened at that time. In 2018 a formal resolution was made by Band council to complete a fixed link by 2030.

Cambium Indigenous Professional Services was engaged in 2019, and in turn engaged WSP for a technical assessment to create a fixed link project plan. Council's resolution for the protection of the community, its citizens and lake are all top priorities of the project. The current ferry system is nearing the end of its life and negatively impacts the lake. The proposed fixed link will require 3.3km of roadway, comprised of 800m of causeway, followed by 700m of elevated bridge, followed by another 800m of causeway to mainland.

He reviewed the timeline, noting it is hoped a community impact assessment will be completed by end of 2024, with a bridge operational by the end of 2026. Seeking input from all stakeholders including the Authority and its scientific knowledge of the lake will be critical to the project's success. Community meetings and discussions with Impact Assessment Agency of

Canada and various government agencies are being held. A website has been set up where interested community members can sign up for updates (https://www.gifixedlink.com/)

To view this presentation, please click this link: Georgina Island Fixed Link Project

Moved by: M. Quirk

Seconded by: D. Barton

BOD-131-21 **Resolved That** the presentation by Mr. Michael Jacobs of Cambium Indigenous Professional Services regarding the Georgina Island Fixed Link project be received for information; and

Further that a report be brought back to the Board once more information becomes available. **Carried**

b) Holland Marsh Treatment Facility Update

Mr. Mike Rabeau of the Regional Municipality of York provided the Board with an overview of the Holland Marsh Treatment Facility and its relation to the Upper York Sewage Solutions project, noting that the Upper York Sewage Solutions is a project to service sewage in York Region (Aurora, EG, Newmarket) that has three components: i) a water reclamation facility to treat sewage and discharge a higher quality water into the Holland Marsh providing a major improvement in water quality; ii) the York Durham Sewage System Forcemain Twinning Project, which has already been constructed; and iii) the phosphorus offsetting project as directed by the Province. In 2014, York Region submitted an Environmental Assessment to the Ministry for a phosphorus offsetting project, a $25 million investment aimed at retrofitting stormwater ponds to move enough phosphorus to create at 3:1 ratio net benefit for the watershed; however, continued approval delay creates uncertainties for the Region to deliver the program prior to commissioning of water reclamation centre.

Mr. Rabeau advised that in 2017, York Region initiated a partnership with the Authority and local municipalities to prepare for the Project Specific Phosphorus Offset Program through a Phosphorus Removal Demonstration project. In 2018, York Region was made aware of a phosphorus removal opportunity in the Holland Marsh and in partnership with the Authority submitted an Expression of Interest to the Infrastructure Canada Disaster Mitigation and Adaptation Funding for a potential Holland Marsh Phosphorus Removal Facility project. The project was submitted as a potential alternative technology to the Project Specific Phosphorus Offset Program, and in July 2020, Infrastructure Canada invited York Region to submit a formal application for Disaster Mitigation and Adaptation Funding. This application was approved in principle in November 2020.

The Holland Marsh Phosphorus Removal Facility Project was submitted as an alternative technology to the stormwater retrofits on the principles that the facility would achieve a higher level of phosphorus removal than stormwater retrofits; the project would leverage Disaster Mitigation and Adaptation funding and Upper York Sewage Solutions project funding (development charges) to build the facility. This proposed alternative technology would require the Ministry approval upon the Upper York Sewage Solutions Environmental Assessment approval. Disaster and Mitigation funding will provide 40% of the eligible cost for the project, and Environmental Assessment approval and further discussions would be required to ensue the balance of funding for the project. He went on to note that the project includes a new treatment facility and upgrades to the existing Art Janse Pumping Station, and the location, capacity and technologies of the treatment facility will be determined by a Municipal Class Environmental Assessment Study. The cost of the facility is estimated in the range of $40 million. York Region's ability to implement the Holland Marsh Phosphorus Removal Facility is contingent upon the Upper York Sewage Solutions Environmental Assessment approval to secure a funding source. Steps required to implement the project include a Class Environmental Assessment study, including consultation with regulatory agencies, stakeholders and Indigenous peoples, detailed design and regulatory permitting, and construction to meet the objectives of the Project Specific Phosphorus Offset Program of the Upper York Sewage Solutions Environmental Assessment.

To view this presentation, please click this link: Holland Marsh Treatment Facility

Moved by: V. Hackson

Seconded by: T. Vegh

BOD-132-21 **Resolved That** That the update by Mr. Mike Rabeau, Director, Capital Planning and Delivery at the Regional Municipality of York, regarding the Holland Marsh Treatment Facility be received for information. **Carried**

IX. Determination of Items Requiring Separate Discussion

Items No. 1 and 3 were identified under items requiring separate discussion.

X. Adoption of Items not Requiring Separate Discussion

Items No. 2 and 4 were identified under items not requiring separate discussion.

Moved by: K. Aylwin

Seconded by: R. Greenlaw

BOD-133-21 **Resolved That** the following recommendations respecting the matters listed as "Items Not Requiring Separate Discussion" be adopted as submitted to the Board, and staff be authorized to take all necessary action required to give effect to same. **Carried**

2. Update: Bill 229 Regulatory Proposal and Conservation Authorities Act Amendments

BOD-134-21 **Resolved That** Staff Report No. 45-21-BOD regarding Bill 229 Regulatory Proposal and Conservation Authorities Act Amendments be received for information. **Carried**

4. Kennedy Street, Aurora, Stream and Wetland Creation Project

BOD-135-21 **Resolved That** Staff Report No. 47-21-BOD regarding the Kennedy Street Stream and Wetland Creation Project in Aurora be received; and

Further that funding for the project through the Authority's Ecological Offsetting Cash in Lieu funds and Restoration Assistance as outlined in this report be approved. **Carried**

XI. Consideration of Items Requiring Separate Discussion

1. Correspondence

Councillor Greenlaw requested an update on the Oro-Station permit issued earlier in the year. CAO Baldwin updated that he and Chair Emmerson have signed the agreement that must accompany the permit; however, there appears to be a delay in receiving back the proponent's signature on the agreement. He noted that he doesn't understand the delay, as the agreement was worked on with the proponent and their legal counsel, and all parties were thought to be in agreement.

Moved by: R. Greenlaw

Seconded by: C. Riepma

BOD-136-21 **Resolved That** Correspondence Item 1a) be received for information. **Carried**

3. Preliminary Design and Class Environmental Assessment Study for the Proposed Highway 400 – Highway 404 Link (Bradford Bypass)

CAO Baldwin advised that as noted in the staff report, the Authority's expected role in the Bradford Bypass is as a voluntary technical reviewer only. Being a Provincial project, it is exempt from the S.28 Regulation. He noted he understands the project is getting to the point where a technical group will be created, and Authority staff will participate as requested to provide technical data and expertise. Chair Emmerson noted that this project will consume a lot of staff

time and asked that staff keep track of time spent on this project to better understand the cost of being a voluntary consultant on projects of this nature.

Moved by: C. Pettingill

Seconded by: W. Gaertner

BOD-137-21 **Resolved That** Staff Report No. 46-21-BOD regarding the Environmental Assessment Study for the proposed Bradford Bypass be received for information. **Carried**

XII. Closed Session

The Board moved to Closed Session to deal with confidential matters.

Moved by: S. Harrison-McIntyre

Seconded by: J. Gough

BOD-138-21 **Resolved That** the Board move to Closed Session to deal with confidential land and human resources matters; and

Further that the Chief Administrative Officer, members of the Executive Leadership Team, and the Coordinator BOD/CAO remain in the meeting for the discussion. **Carried**

The Board rose from Closed Session and reported findings.

Moved by: C. Riepma

Seconded by: M. Quirk

BOD-139-21 **Resolved That** the Board rise from Closed Session and report findings. **Carried**

a) Confidential Land Matter

Moved by: D. Barton

Seconded by: T. Vegh

BOD-140-21 **Resolved That** Confidential Staff Report No. 48-21-BOD regarding a confidential land matter be received; and

Further that the recommendations contained within the report be approved. **Carried**

b) Confidential Human Resources Matter

Moved by: D. Barton

Seconded by: T. Vegh

BOD-141-21 **Resolved That** Confidential Staff Report No. 49-21-BOD regarding a confidential human resources matter be received; and

Further that the recommendations contained within the report be approved. **Carried**

XIII. Other Business

XIV. Adjournment

Moved by: V. Hackson

Seconded by: R. Greenlaw

BOD-142-21 **Resolved That** the meeting be adjourned at 11:15 a.m. **Carried**

<Original signed by>

Regional Chairman Wayne Emmerson
Chair

<Original signed by>

Rob Baldwin
Chief Administrative Officer

Elected Officials and Municipal Consultation

Member of Parliament (MP)
for York Simcoe
Scott Davidson
August 31, 2021

Engagement Summary

Date:	Engagement Record:	Engagement With:
August 31, 2021	**Meeting with Member of Paliament – York Simcoe**	**Scot Davidson, MP York Simcoe**
Location: Via Zoom	**Host: Chief Donna Big Canoe** **Presenter: Michael Jacobs** **Participants Present:** **MP Scot Davidson, York Simcoe**	**Topic:** Project Introduction

Item / Issue / Discussion Point	Comments / Discussion Items	Action Items
General project interest and support	Following introductions, a presentation was made. MP Davidson's was in favour of the project provided it was the the will of the community. Chief Big Canoe assured MP that this was a community based directive and that she too was following the desires of her community.	None Required
How would MR's Constituents get more information about the Fixed Link	The host informed the MP of the website and the social media links along with a copy of the presentation. The host also informed the MP of how his constituents can tie into the IAAC process.	GIFL provide a digital copy of the presentation.
How can the MP's office support the project?	Chief Big Canoe expressed a need for more politicians to be aware and support the Project, in particular, the Minister of ISC and CIRNAC, as well as to show support with his provincial counterparts. Also, to remain informed and positive about the project as it develops over the next 5 years. This support was provided to the Chief from the MP.	Following the election, reconnect to form a political approach.

Town of Georgina Mayor and Council
November 17, 2021

Engagement Summary

Date:	Engagement Record:	Engagement With:
Nopvember 17, 2021	**Town of Georgina Mayor and Council**	**Town of Georgina Mayor and Council**
Location: Via Zoom	**Host: Town of Georgina Mayor and Council** **Presenter: Michael Jacobs, GIFL Secretariat / Marlene Stiles, GIFN** **Participants Present:** **Recorded by Town of Georgina**	**Topic:** Project Introduction

Item / Issue / Discussion Point	Comments / Discussion Items	Action Items
General project interest and support	• The Council is excited and happy to support the project overall with obvious concerns similar to those presented by GIFN. • The Council would like to be kept up to date on the project. • The Council was very appreciative of being included so early in the project process.	None Required – Michael Jacobs acknowledged the support and
Project Communications regarding the project will be very important. How does the community remain informed on the project?	The Secretariat has one primary method of direct links with the Project. Anyone is able to subscribe to the website www.gifixedlink.com to receive all updates and new information posted on the website. This is the official website of the community and where all releases of information will be made. The Secretariat also maintains a Facebook and Twitter account, however, the most reliable source is through subscribing to the website. In the event that a constituent does not feel they are being heard or that our community will be biased or ignore their request, the federal Impact Assessment Agency of Canada (IAAC) website will be live in early 22 to provide comments that must be addressed by the First Nation (as the Project Proponent) to the federal government either through reports or directly. This is the path for unbiased notifications. This mechanism is not available until we submit the Initial Project Description to the IAAC. At that time, we will let all subscribers to the website know that this is available.	The Secretariat is to continue to work with the Town of Georgina to ensure that presentations are made consistently (suggested to be quarterly) and that the CAO's office will open a line of communication with the Secretariat and the Town to ensure open communication moving forward

Item / Issue / Discussion Point	Comments / Discussion Items	Action Items
Are the properties identified on the Project Study Area as potential mainland landing areas owned by the Chippewas of Georgina Island First Nation?	Yes, the properties are currently owned by the Chippewas of Georgina Island First Nation. They are not part of the community's First Nation lands at this point. All of the properties are going through the Additions to Reserve process through the federal government and there is no distinct timeline on when that might occur have been provided.	None
How many members at the First Nation?	The number provided was 500 members and 200 households on the Island with a bit of uncertainty on the actual figures. Based on 2021 data from the *Aboriginal Affairs and Northern Development First Nation Profiles,* GIFN have a total membership of approximately 936 Members of which approximately 209 reside on the Island and 726 live off the Island (IAND, 2021; GIFN, 2019).	Secretariat provided, through Carolyn Lance, more accurate details to the clerk
It was acknowledged by the Town that a large quantity of fill would be required and what would the composition be. The formal question, where is the fill coming from was posed.	The fill source has not been determined yet, although this question has been raised a number of times across the engagement sessions. It is assumed that the type of fill would be coming from the north along the highway and that truck traffic will be considerable during the construction phase of the project. LSRCA also stated the same issue about truck volume as a project issue in the Region The volume of fill required has spurred brainstorming by the community about potentially owning their own quarry, but conversations have not gone beyond 'dreaming' stages.	None at this time.

MPP Carolyn Mulroney,
MPP York-Simcoe
December 3, 2021

Engagement Summary

Date:	Engagement Record:	Engagement With:
December 3, 2021	Meeting with Member of Provincial Parliament – York-Simcoe	MPP Carolyn Mulroney, MPP York-Simcoe
Location: Via Zoom	**Host: Chief Donna Big Canoe** **Presenter: Michael Jacobs** **GIFN Representative: Marlene Stiles** **Participants Present:** **MPP Carolyn Mulroney, York Simcoe**	**Topic:** Project Introduction

Item / Issue / Discussion Point	Comments / Discussion Items	Action Items
General project interest and support	Following introductions, a presentation was made. MPP was appreciative of the presentation and appreciated the opportunity and benefit the project will bring to the community	None Required
With respect to the 2008 study who in the Federal Government made the commitment for the Bridge?	MPP requested information on who may have been involved in the decision making historically. Chief Big Canoe noted that the information could be requested if required from longer serving Council members if required.	Chief Big Canoe to enquire internally and provide details prior to (or at) next update meeting.
It was mentioned that Georgina Island would like to see protection measures put in place, what thoughts were on this?	There was discussion of possibly a gated community or a toll gate discussed but no serious community consideration has been done at this point. It is in the scheduled project study elements to examine.	None Required
There was mention of the life of the Ferry coming to and end what is the intention for the Ferry Boat.	Chief Big Canoe stated that the community is maintaining it and trying to keep it running for as long as the First Nation. The Chief also mentioned some repair issues and the impact it has had on the Island members personal safety and confidence in the vessel. It was noted by the Chief that as the ferry ages and more diesel is used, the environmental certainty would increase with the Bridge project.	None Required
MPP mentioned that CIB provides financing and not funding.	The Secretariat and Council were aware of this and acknowledged that to be the case.	None required

Item / Issue / Discussion Point	Comments / Discussion Items	Action Items
MPP Mulroney mentioned advocacy of Upper York and other projects on the Lake.	Chief Big Canoe reiterated the community's opposition to Upper York that is well documented. The hope with GIFN as a Proponent is that all parties are being notified ahead of studies and IAAC submission to ensure the community is engaging in a good way	None required

Indigenous Community Consultation

Impact Assessment Agency of Canada | Agence d'évaluation d'impact du Canada

Ontario Region
600-55 York Street
Toronto ON M5J 1R7

Région de l'Ontario
600-55 rue York
Toronto ON M5J 1R7

February 26, 2021

Sent by email to sue.olguin@wsp.com

Chief Donna Big Canoe
Chippewas of Georgina Island First Nation
R.R.#2 N-13
Sutton West, Ontario L0E 1R0
donna.bigcanoe@georginaisland.com

Dear Chief Big Canoe:

Subject: Preliminary list of Indigenous groups for proponent engagement on the proposed Georgina Island Fixed Link Project

In preparing the submission of an Initial Project Description under the *Impact Assessment Act*, the Impact Assessment Agency of Canada strongly encourages Chippewas of Georgina Island First Nation to engage meaningfully with the following Indigenous groups who may be impacted by the Georgina Island Fixed Link Project (the Project):

- Alderville First Nation
- Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama
- Curve Lake First Nation
- Hiawatha First Nation
- Huron Wendat Nation[1]
- Métis Nation of Ontario – Region 7
- Mississaugas of Scugog Island First Nation

The Agency has identified the Indigenous groups listed above based on information available to the Crown from the Aboriginal and Treaty Rights Information System[2], and from publicly available information.

.../2

[1] The Huron Wendat (*Conseil de la Nation Huronne-Wendat*) has been included in the Crown's list due solely to a possibility that the Nation's right to the integrity of its archaeological and burial sites may be impacted. The proposed Project falls within the Nation's first area of archaeological interest in Ontario (*https://wendake.ca/cnhw/bureau-du-nionwentsio/wendake-sud-ontario/*). Therefore, it is recommended that Huron Wendat Nation be informed of the Project insofar as the Project may impact site of physical and cultural heritage or any structure, site or thing of historical, archaeological, paleontological, or architectural significance.

[2] Aboriginal and Treaty Rights Information System – Available here: *https://sidait-atris.aadnc-aandc.gc.ca/atris_online/home-accueil.aspx*

This list represents the Indigenous groups with whom the Agency recommends proponent-led engagement during a potential impact assessment. The list is subject to change as additional information becomes available. The Agency recommends that you also engage any other nearby or surrounding communities that you consider as having the potential to be affected by the Project, based on information available.

Information gathered through proponent-led engagement activities must be included in the Initial Project Description[3], including:

- a list of the Indigenous groups that may be affected by the Project;
- a summary of, and the results of, any engagement undertaken with Indigenous groups;
- a description of how the proponent intends to address the issues raised; and
- a description of potential effects and impacts on Indigenous peoples.

In addition, the Agency strongly encourages that you provide information on mitigation measures for adverse effects and potential impacts on the exercise of Aboriginal or Treaty rights as well as any monitoring measures, if possible.

The above noted information will facilitate the Agency's understanding of the scope of the interests in relation to the Project.

Crown Consultation

Indigenous consultation is integrated to the greatest extent possible into the impact assessment process. The Agency does not delegate the Crown's legal duty to consult and, as such, will consult the above-noted groups in relation to the Project. However, the Agency does require proponents to engage Indigenous groups when preparing documents and assessing effects as defined in the *Impact Assessment Act*.

.../3

[3] For a complete list of the information that must be included in an in Initial Project Description, please refer to Schedule 1 of the Information and Management of Time Limits Regulations – available here: *https://laws-lois.justice.gc.ca/eng/regulations/SOR-2019-283/index.html*

If you have any questions regarding the list, or the Agency's expectations on engagement, please do not hesitate to contact Sherry Du, Project Manager, at *iaac.ilegeorginaisland.aeic@canada.ca* or 647-631-8121.

Sincerely,

Anjala Puvananathan
Director, Ontario Region

c.c.: Sue Olguin, WSP
Christine Furtado, WSP
Andrew Roberts, WSP
Zachary Hupman, WSP
Meghan MacMillan, WSP

Williams Treaty First Nations
July 17, 2021

Engagement Summary

Date:	Engagement Record:	Engagement With:
July 15, 2021 (10:00 am)	**Meeting of the Chiefs of WTFN**	**Williams Treaty First Nations**
Location: Via Zoom (Note that Chief Big Canoe was connected by phone due to technology issues.	**Participants Present:** **Chief Donna Big Canoe, Georgina Island First Nation** **Chief Joanne Sandy, Beausoleil First Nation** **Councillor Jeremy St. Germaine, Rama First Nation** **Chief Emily Whetung, Curve Lake First Nation** **Chief Dave Mowat, Alderville First Nation** **Chief Laurie Carr, Hiawatha First Nation** **Chief Kelly LaRocca, Scugog Island First Nation** **Karry Sandy, WTFN Coordinator** **Other FN Councillors were present as observers.**	**Topic:** Project Support and Consultation

Item / Issue / Discussion Point	Comments / Discussion Items	Action Items
General project interest and support	All communities have expressed support for the project in general terms and will commit in writing (following extra information submissions) via independent BCR and Collective WTFN Letter of Support. Beausoleil First Nation – full project support with a particular interest as an Island community. Rama First Nation – Support project (verified by Chief Williams at Chippewas Tri-Council meeting the day previous) and verified by Councillor St. Germaine Curve Lake, Scugog, Alderville and Hiawatha offer support and will provide formal support upon receipt of further information	Donna to request the slide deck and initial draft IPD provide to Karry Sandy for distribution MIKE SENT FRiDAY JULY 17 AND CHIEF SENT AFTER THAT: Slide deck + draft DRAFT IPD to Chiefs via Karry Sandy
Duty to Consult	• The Williams Treaty First Nations will follow an internal process for the Consultation to ensure that indigenous consultation is occurring. • GIFN has informed all communities, that regardless of this process the IAAC will be contacting on this process and that there are	Chief Big Canoe to send additional information and reconfirm the request made in writing via email through Karry Sandy to the Chiefs directly.

Item / Issue / Discussion Point	Comments / Discussion Items	Action Items
	funds available to support their consultation efforts pertaining to this project • The WTFN collectively will provide a letter to this effect prior to the end of August • Each individual community will prepare a FNCR to express their individual community's support for the project.	Chief Big Canoe will be the contact for any return questions and she will solicit responses from her team as required. MIKE SENT FIRDAY JULY 17 AND CHIEF SENT AFTER THAT

ALDERVILLE FIRST NATION

11696 Second Line Road
Roseneath, Ontario K0K 2X0
Phone: (905) 352-2011
Fax: (905) 352-3242

Chief: Dave Mowat
Councillor: Wes Marsden Sr
Councillor: Nora Sawyer
Councillor: Sean Crowe
Councillor: Jason Marsden

Chief Donna Big Canoe
Georgina Island Administration Office
R.R.#2 Box N-13
Sutton West Ontario L0E 1R0

September 13, 2021

Dear Chief Big Canoe:

Re: Georgina Island First Nation Fixed Link Impact Assessment:

On behalf of the Alderville First Nation Council, I am writing to thank you for your presentation at the August 26, 2021 Williams Treaties First Nations Chiefs meeting on the matter of Georgina Island First Nation's Fixed Link project and related impact assessment.

We understand that the proposed fixed link will provide the Georgina Island First Nation a permanent solution to community transportation challenges, including ensuring access to a safe and reliable means of transport to and from the community. We note that the impact assessment is to be completed at 2024 and that you have committed to directly consulting the Williams Treaties First Nations signatories as required throughout the study, design process and construction of the fixed link, which is welcomed.

As such, please accept this correspondence as a record of our support of your community endeavor too obtain a fixed link to the mainland as well as an expression of our ongoing interest to participate in consultations with you on the matter going forward, particularly as it relates to the environmental impact assessment and related issues that will detail any concerns regarding the Lake Simcoe and area protection.

Please let us know if you require further information at this time, otherwise, we trust you will advise us when you would like to meet to discuss further.

Yours truly,
<Original signed by>

Chief Dave Mowat

Beausoleil First Nation
Office of Chief and Council
11 O-Gemaa Miikan
Christian Island, ON
L9M 0A9
705-247-2051 Fax: 705-247-2239 Email: executiveassistant@chimnissing.ca

Chief Joanne Sandy, Chief Councillor Tanya Roote-Jamieson, Councillor Trevor Reid, Councillor Whitney Walsh, Councillor Jane Copegog, Councillor Murray Sandy

September 15th, 2021

Chief Donna Big Canoe
Georgina Island Administration Office
R.R.#2 Box N-13
Sutton West Ontario L0E 1R0

Dear Chief Big Canoe:

RE: Georgina Island First Nation Fixed Link Impact Assessment

On behalf of the Beausoleil First Nation Council, I am writing to thank you for your presentation at the August 26, 2021 Williams Treaties First Nations Chiefs meeting on the matter of Georgina Island First Nation's Fixed Link project and related impact assessment.

We understand that the proposed fixed link will provide the Georgina Island First Nation a permanent solution to community transportation challenges, including ensuring access to a safe and reliable means of transport to and from the community. We note that the impact assessment is to be completed at 2024 and that you have committed to directly consulting the Williams Treaties First Nations signatories as required throughout the study, design process and construction of the fixed link, which is welcomed.

As such, please accept this correspondence as a record of our support of your community endeavor to obtain a fixed link to the mainland as well as an expression of our ongoing interest to participate in consultations with you on the matter going forward, particularly as it relates to the environmental impact assessment and related issues that will detail any concerns regarding the Lake Simcoe and area protection.

If you require any further information, contact our Executive Assistant, Lance Copegog, via e-mail at lcopegog@chimnissing.ca or 705-247-2215.

<Original signed by>

Government Services Building
22 Winookeedaa Road
Curve Lake, Ontario K0L1R0

Phone: 705.657.8045
Fax: 705.657.8708
www.curvelakefirstnation.ca

August 10, 2021
Via Email

Attention: Chief Donna Big Canoe and Georgina Island Council

Aaniin Gimaa Big Canoe,

Miigwetch for sharing your proposed bridge link project with us at the concept stage. We are excited for you at the possibility of increased access to the mainland and those services that are not always available in our communities. We have now had an opportunity to review the information at a high level and we look forward to continuing this journey with you.

As you are aware, our concern when we are engaged on any major infrastructure project is ensuring the minimum environmental impact. We understand that you share this concern, and we trust that you will continue to work toward developing your bridge project with this in mind. As such, we would like to request that you share any environmental impact studies or assessments with us when they become available.

Should you require anything further from us, please feel free to reach out at any time.

<Original signed by>

Chief Emily Whetung
On behalf of Curve Lake Chief and Council

HIAWATHA FIRST NATION
MISSISSAUGAS OF RICE LAKE

Chief Donna Big Canoe
Georgina Island Administration Office
R.R.#2 Box N-13
Sutton West, Ontario
L0E 1R0

September 15, 2021

Dear Chief Big Canoe,

Re: Georgina Island First Nation Fixed Link Impact Assessment

On behalf of the Hiawatha First Nation Council, I am writing to thank you for your presentation at the August 26, 2021 Williams Treaties First Nations Chiefs meeting on the matter of Georgina Island First Nation's Fixed Link project and related impact assessment.

We understand that the proposed fixed link will provide the Georgina Island First Nation a permanent solution to community transportation challenges, including ensuring access to a safe and reliable means of transport to and from the community. We note that the impact assessment is to be completed at 2024 and that you have committed to directly consulting the Williams Treaties First Nations signatories as required throughout the study, design process and construction of the fixed link, which is welcomed.

As such, please accept this correspondence as a record of our support of your community endeavor too obtain a fixed link to the mainland as well as an expression of our ongoing interest to participate in consultations with you on the matter going forward, particularly as it relates to the environmental impact assessment and related issues that will detail any concerns regarding the Lake Simcoe and area protection.

Please let us know if you require further information at this time, otherwise, we trust you will advise us when you would like to meet to discuss further.

Miigwetch,

<Original signed by>

Chief Laurie Carr

431 Hiawatha Line, Hiawatha, ON K9J 0E6 • Telephone (705) 295-4421 • Fax (705) 295-7177

MISSISSAUGAS OF SCUGOG ISLAND
FIRST NATION

22521 ISLAND ROAD · PORT PERRY, ON · L9L 1B6 · TEL: 905-985-3337 · FAX: 905-985-8828 ·
www.scugogfirstnation.com

September 13, 2021

Chief Donna Big Canoe
Georgina Island Administration Office
R.R.#2 Box N-13
Sutton West Ontario L0E 1R0

Dear Chief Big Canoe:

Re: Georgina Island First Nation Fixed Link Impact Assessment:

On behalf of the Scugog Island First Nation Council, I am writing to thank you for your presentation at the August 26, 2021 Williams Treaties First Nations Chiefs meeting on the matter of Georgina Island First Nation's Fixed Link project and related impact assessment.

We understand that the proposed fixed link will provide the Georgina Island First Nation a permanent solution to community transportation challenges, including ensuring access to a safe and reliable means of transport to and from the community. We note that the impact assessment is to be completed at 2024 and that you have committed to directly consulting the Williams Treaties First Nations signatories as required throughout the study, design process and construction of the fixed link, which is welcomed.

As such, please accept this correspondence as a record of our support of your community endeavor too obtain a fixed link to the mainland as well as an expression of our ongoing interest to participate in consultations with you on the matter going forward, particularly as it relates to

the environmental impact assessment and related issues that will detail any concerns regarding the Lake Simcoe and area protection.

Please let us know if you require further information at this time, otherwise, we trust you will advise us when you would like to meet to discuss further.

Yours truly,

<Original signed by>

Chief Kelly LaRocca

Chippewas of RAMA First Nation

5884 Rama Road, Suite 200
Rama, Ontario L3V 6H6
T 705.325.3611 F 705.325.0879

A Proud Progressive First Nation Community

Chief Donna Big Canoe
Georgina Island Administration Office
R.R.#2 Box N-13
Sutton West Ontario L0E 1R0

September 13, 2021

Dear Chief Big Canoe:

Re: Georgina Island First Nation Fixed Link Impact Assessment:

On behalf of the Rama First Nation Council, I am writing to thank you for your presentation at the August 26, 2021 Williams Treaties First Nations Chiefs meeting on the matter of Georgina Island First Nation's Fixed Link project and related impact assessment.

We understand that the proposed fixed link will provide the Georgina Island First Nation a permanent solution to community transportation challenges, including ensuring access to a safe and reliable means of transport to and from the community. We note that the impact assessment is to be completed at 2024 and that you have committed to directly consulting the Williams Treaties First Nations signatories as required throughout the study, design process and construction of the fixed link, which is welcomed.

As such, please accept this correspondence as a record of our support of your community endeavor too obtain a fixed link to the mainland as well as an expression of our ongoing interest to participate in consultations with you on the matter going forward, particularly as it relates to the environmental impact assessment and related issues that will detail any concerns regarding the Lake Simcoe and area protection.

Please let us know if you require further information at this time, otherwise, we trust you will advise us when you would like to meet to discuss further.

Yours truly,

<Original signed by>

Chief Ted Williams

Metis Nation of Ontario
August 12, 2021

Engagement Summary

Date: August 12, 2021	Engagement Record: Meeting with Metis Nation of Ontario	Engagement With: Metis Nation of Ontario
Location: Via Zoom	**Host: Michael Jacobs, GIFL Secretariat** **Participants Present:** **David Dusome – Region 7 Councillor** **Greg Garratt - Georgian Bay Métis Council President and Region 7 Captain of the Hunt** **Tony Muscat - Barrie South-Simcoe Métis Council Chair** **Peter Coture – Great Lakes Metis Council President** **Vic Brunelle – Moon River Metis Council Senator** **Justin Hunt - Consultation Advisor -Métis Nation of Ontario**	**Topic:** Project Introduction

Item / Issue / Discussion Point	Comments / Discussion Items	Action Items
General project interest and support	Following introductions, a presentation was made to the Metis Nation of Ontario on the project. Both parties agree it was a nice treat to see only Indigenous faces on the call – one as Proponent. Overall, the project was received favourably and MNO expressed the economic benefit this project could have to Georgina Island and the Indigenous community and the regional economy.	None Required
How can the Metis Nation of Ontario share in the economic benefits of the Project?	The host informed the MNO participants that there would be an order to procurement that began with GIFN members, Williams Treaty FN Members and then Indigenous members, obviously including the Metis Nation in this group. Also, there might be the need for supply agreements of rock, etc. and there may be partnership opportunities there. The Metis Nation indicated access to the Voyageur Fund to support economic opportunities that may help indigenous communities access more economic benefit	GIFL to ensure that when the procurement plan is finalized in fall 2021, that the Metis Nation of Ontario will be provided a copy.

Item / Issue / Discussion Point	Comments / Discussion Items	Action Items
How will archaeological process and findings be handled?	Although no formal process is in place, the host indicated that GIFN would like to have MNO support the archaeological firm selected to undertake the work. This will ensure that all Indigenous groups will support and validate the findings and what is to happen if anything is uncovered throughout the entire process. Also, GIFN ensured that their consultation department would assist with information whenever feasible or relevant.	GIFL Secretariat to pay particular attention and include the MNO in any archaeological works for the project.
How will the environment be protected?	The host went over the proposed process with MNO participants and the process was well received, however, inclusion and transparency on the work should be maintained	Ongoing relationship to be maintained with MNO
The MNO requested that GIFN enter an MOU to direct the future relationship	The host will welcome and review a proposed MOU with the MNO. The contents and desired elements are to be proposed by MNO. Justin Hunt to prepare.	MNO to draft MOU for GIFN at their convenience.

Huron Wendat First Nation
November 30, 2021

Engagement Notes

Nation Huronne-Wendat - Project Introduction

November 30, 2021 | *Meeting Host:* Michael Jacobs, GIFL Project Manager

In Attendance

Michael Jacobs, GIFL Secretariat (GIFN)
Marlene Stiles, Fixed Link Economic Development Advisor (GIFN)
Courtney Charles- Fixed Link Community Liaison (GIFN)
Dominic Ste.Marie- Land Management Advisor, Nation Huronne-Wendat
Lori-Jeanne Bolduc- Advisor in Land Use Planning, Nation Huronne-Wendat

General Purpose of Engagement

This was a project introduction call to Nation Huronne-Wendat, for the Georgina Island Fixed Link Introduction Presentation. Giving knowledge of the project and offering the Huron Wendat Nation the opportunity to make any initial comments about the project in general and any specific consultation elements that may be of concern moving forward. A copy of the presentation and project website was provided via email prior to the session.

General Notes, Observations, Discussions

It was recognized that this is a unique project with an Indigenous proponent and as such, a shared consultation lens was apparent. At this time the Huron Wendat Nation supports the project and feels it is an important step for the Chippewas of Georgina Island.

Aside from some location clarity, the presentation was well received as excellent background information and inspired two key comments from the Huron Wendat Nation:

1. The Huron Wendat Nation has a shared concern for any archaeology findings or processes that are to be put in place during planning, research and construction phases of this project. This is discussed in greater detail below.
2. The Huron Wendat would like to participate in the potential economic opportunity that this project presents. Regardless of what that opportunity may specifically be, the Huron Wendat Nation put forward their current skills and economic capabilities in direct archaeology services as well as construction services as possible players in project development and execution.

The Chippewas of Georgina recognized that there will be a number of potential opportunities resulting and that the community will not be able to capture all of the benefit. The current procurement strategy in development does provide competitive advantage to those suppliers with Indigenous ownership and participation, of which the Huron Wendat Nation could take advantage of.

To initiate discussions, The Chippewas of Georgina Island First Nation would like to arrange a presentation from Yändata regarding the potential inclusion in archaeology services with planned studies being required in 2022.

Issues Raised, GIFN Response

Issue Raised During Engagement	GIFN Response	Additional Notes
Will the fixed link travel through the Sand Islands?	No, the study area goes to the east of the Sand Islands. The community specifically asked to stay 'inside' the sand Islands for this Project. It was noted to the Huron Wendat Nation that the Lake Simcoe Regional Conservation Authority also commented on this and that specific environmental concerns would be evaluated along proposed route	No additional actions required.
The Huron Wendat support the project from a community based lens.	This information was received and it was noted that project transparency will be maintained with the Huron Wendat Nation throughout the project	The Chippewas of Georgina Island First Nation have committed to scheduling an update meeting to discuss the final report schedule with two objectives in mind: • Evaluate consultation elements of concern in the reports being developed • Evaluate economic opportunities that may be presented within the studies being completed (i.e. Archaeology)
Economic participation by the Huron Wendat Nation would be desired and time would be committed to discussion if the Chippewas of Georgina Island First Nation were in need of economic partners, suppliers or human resources (skilled or training programs)	The Chippewas of Georgina Island explained the proposed procurement strategy that emphasizes partnerships with Williams Treaties allies first and then the Indigenous communities following that. With that being said, it was also acknowledged that there is enough project scope to go around and that the Huron Wendat would be encouraged to identify economic opportunities. Also, Georgina Island will remain cognizant of the Huron Wendat desires as the project progresses for potential economic involvement.	The Chippewas of Georgina Island will make the Procurement strategy available to the Huron Wendat Nation. The presentation also noted how to use the website to remain up to date in real time with publications, reports and tender opportunities on the Fixed Link project. The idea of supporting training programs of indigenous participants, including Huron Wendat Nation members, also was of interest to both parties. Finally, the Chippewas of Georgina Island First Nation have also indicated that a presentation from Yändata' would be of value to the community.

Environmental and technical issues outside of archaeology are entrusted to the Chippewas of Georgina Island and the Williams Treaties First Nation evaluation and mitigations measures.	The Huron Wendat Nation will be included in archaeology based studies as a relevant Indigenous community of note for any of the findings, communications and policies prepared as part of this project. The Chippewas of Georgina Island acknowledge this and will consider Yändata' to complete the work on behalf of all of the Indigenous nations interest in this area. Aside from that, the Huron Wendat would like to be kept informed of project progress on other issues around the Project but believe that GIFN and their Williams Treaties counterparts will take the required environmental care of the site and would trust that stewardship to the Proponent and their Treaty allies.	The Chippewas of Georgina Island First Nation have committed to the following steps: 1. Examine a potential working relationship with Yändata' to conduct or peer review all archaeology related works with the project. An introductory meeting with Yändata' and GIFN will be completed by March 31, 2022 2. GIFN will present to the Huron Wendat Nation the schedule of reports to be completed in 2022 for input into content and potential participation by the end of February 2022. 3. GIFN will conduct project update meetings on a quarterly basis with the Huron Wendat Nation to remain transparent in project activities and obtain Indigenous lens input from the Huron Wendat Nation

Action Items For Secretariat

1. Schedule meeting with Yändata prior to February 2022
2. Schedule initial project update meeting prior to March 31, 2022 with Huron Wendat Nation and GIFL Secretariat
3. Forward completed procurement plan to Huron Wendat Nation on approval of the document by the Chief and Council of Georgina Island.
4. Remain cognizant of the willingness of the Huron Wendat Nation to partipate economically in this major infrastructure project.

Other Items Requiring Follow-Up

5. None at this time.

Correspondence with IAAC

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February 26, 2021

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Dear Chief Big Canoe:

Subject: Preliminary list of Indigenous groups for proponent engagement on the proposed Georgina Island Fixed Link Project

In preparing the submission of an Initial Project Description under the *Impact Assessment Act*, the Impact Assessment Agency of Canada strongly encourages Chippewas of Georgina Island First Nation to engage meaningfully with the following Indigenous groups who may be impacted by the Georgina Island Fixed Link Project (the Project):

- Alderville First Nation
- Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama
- Curve Lake First Nation
- Hiawatha First Nation
- Huron Wendat Nation[1]
- Métis Nation of Ontario – Region 7
- Mississaugas of Scugog Island First Nation

The Agency has identified the Indigenous groups listed above based on information available to the Crown from the Aboriginal and Treaty Rights Information System[2], and from publicly available information.

.../2

[1] The Huron Wendat (*Conseil de la Nation Huronne-Wendat*) has been included in the Crown's list due solely to a possibility that the Nation's right to the integrity of its archaeological and burial sites may be impacted. The proposed Project falls within the Nation's first area of archaeological interest in Ontario (*https://wendake.ca/cnhw/bureau-du-nionwentsio/wendake-sud-ontario/*). Therefore, it is recommended that Huron Wendat Nation be informed of the Project insofar as the Project may impact site of physical and cultural heritage or any structure, site or thing of historical, archaeological, paleontological, or architectural significance.

[2] Aboriginal and Treaty Rights Information System – Available here: *https://sidait-atris.aadnc-aandc.gc.ca/atris_online/home-accueil.aspx*

This list represents the Indigenous groups with whom the Agency recommends proponent-led engagement during a potential impact assessment. The list is subject to change as additional information becomes available. The Agency recommends that you also engage any other nearby or surrounding communities that you consider as having the potential to be affected by the Project, based on information available.

Information gathered through proponent-led engagement activities must be included in the Initial Project Description[3], including:

- a list of the Indigenous groups that may be affected by the Project;
- a summary of, and the results of, any engagement undertaken with Indigenous groups;
- a description of how the proponent intends to address the issues raised; and
- a description of potential effects and impacts on Indigenous peoples.

In addition, the Agency strongly encourages that you provide information on mitigation measures for adverse effects and potential impacts on the exercise of Aboriginal or Treaty rights as well as any monitoring measures, if possible.

The above noted information will facilitate the Agency's understanding of the scope of the interests in relation to the Project.

Crown Consultation

Indigenous consultation is integrated to the greatest extent possible into the impact assessment process. The Agency does not delegate the Crown's legal duty to consult and, as such, will consult the above-noted groups in relation to the Project. However, the Agency does require proponents to engage Indigenous groups when preparing documents and assessing effects as defined in the *Impact Assessment Act*.

.../3

[3] For a complete list of the information that must be included in an in Initial Project Description, please refer to Schedule 1 of the Information and Management of Time Limits Regulations – available here: *https://laws-lois.justice.gc.ca/eng/regulations/SOR-2019-283/index.html*

If you have any questions regarding the list, or the Agency's expectations on engagement, please do not hesitate to contact Sherry Du, Project Manager, at *iaac.ilegeorginaisland.aeic@canada.ca* or 647-631-8121.

Sincerely,

Anjala Puvananathan
Director, Ontario Region

c.c.: Sue Olguin, WSP
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Dear Chief Big Canoe:

Subject: Preliminary list of public groups for proponent engagement on the proposed Georgina Island Fixed Link Project

In preparing the submission of an Initial Project Description under the *Impact Assessment Act*, the Impact Assessment Agency of Canada encourages Chippewas of Georgina Island First Nation to engage meaningfully with the following public groups for the Georgina Island Fixed Link Project (the Project):

- Georgina Chamber of Commerce and Tourism Information Center
- Georgina Island Cottage Association
- Lake Simcoe Region Conservation Authority
- Ontario Federation of Anglers and Hunters
- Ontario Streams
- Sail Georgina

This list represents the public groups with whom the Agency recommends proponent-led engagement during a potential impact assessment. In developing this list of public groups, the Agency considered the potential localized effects of the Project, including impacts to water quality, fish and fish habitat, navigation, and recreational use of Lake Simcoe.[1] The Agency also reviewed publicly available information to confirm the following screening criteria:

- whether the group is located near the project area or the potential effects of the Project;
- whether the group uses or has interest(s) in Lake Simcoe;
- whether the group has direct and/or local interest(s) in the Project (*e.g.* living in or owning property near the Project);
- whether the group has previously expressed interest in the Project; and,

.../2

[1] The Agency is of the view that the following effects are anticipated based on the information provided in the draft Initial Project Description submitted on January 22, 2021.

- whether the group has expert knowledge related to the anticipated effects of the Project (*e.g.* expertise in environmental, legal, social, or health conditions).

This list is subject to change as additional information becomes available. The Agency recommends that you also engage with any other public groups that you consider as having the potential to be affected by the Project, based on information available.

Information gathered through proponent-led engagement activities must be included in the Initial Project Description[2], including:

- a summary of, and the results of, any engagement undertaken with public groups;
- a brief description of any plan(s) for future engagement; and,
- a description of how the proponent intends to address the issues raised.

Public Participation
Meaningful public participation is an essential part of the impact assessment process. For more information about the Agency's approach to implementing meaningful public participation, you are invited to review the Agency guidance available online through the Practitioner's Guide to the *Impact Assessment Act*: *https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/guidance-public-particaption-impact.html.*

If you have any questions regarding the list, or the Agency's expectations on engagement, please do not hesitate to contact Sherry Du, Project Manager, at *iaac.ilegeorginaisland.aeic@canada.ca* or 647-631-8121.

Sincerely,

Anjala Puvananathan
Director, Ontario Region

.../3

[2] For a complete list of the information that must be included in an Initial Project Description, please refer to Schedule 1 of the Information and Management of Time Limits Regulations – available here: *https://laws-lois.justice.gc.ca/eng/regulations/SOR-2019-283/index.html*

c.c.: Sue Olguin, WSP
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Dear Chief Big Canoe:

Subject: Agency comments on draft Initial Project Description for the proposed Georgina Island Fixed Link Project

Thank you for your submission on September 20, 2021 of the draft Initial Project Description for the Georgina Island Fixed Link Project (the document) to the Impact Assessment Agency of Canada.

The Agency has reviewed the document for conformance with the requirements of the *Information and Management of Time Limits Regulations*[1] (the Regulations), under the *Impact Assessment Act*. Comments are compiled in the attached table. These comments are based on input from federal departments, including:

- Canada Infrastructure Bank
- Employment and Social Development Canada
- Environment and Climate Change Canada
- Federal Economic Development Agency for Southern Ontario
- Fisheries and Oceans Canada
- Health Canada
- Indigenous Services Canada (both the Lands and Environmental Management Branch, as well as First Nations and Inuit Health Branch)
- Natural Resources Canada
- Transport Canada
- Women and Gender Equality Canada

…/2

[1] *https://laws-lois.justice.gc.ca/eng/regulations/SOR-2019-283/page-2.html#h-1193965*

The provincial ministries that commented on the document are:

- Ministry of Environment, Conservation and Parks
- Ministry of Northern Development, Mines, Natural Resources and Forestry

A well-documented Initial Project Description contributes significantly to the Agency's understanding of the potential issues associated with the carrying out of a project, and informs the Agency's determination of whether an impact assessment is required. The comments provided in the attachment should be considered in the development of the final Initial Project Description.

The attachment includes comments that are linked with the proponent's requirements to meet the Regulations in order to prepare a complete Initial Project Description. The attachment also provides further recommendations from federal and provincial reviewers that, taken into account, will help to reduce the amount of issues that could be identified in the Agency's Summary of Issues, support the Agency's decision on whether an impact assessment is required for this Project, and allow the Agency to tailor the Impact Statement Guidelines if an impact assessment is required.

Should you wish to discuss the Agency's comments on the draft Initial Project Description and next steps, you can contact Sherry Du at *ilegeorginaisland@iaac-aeic.gc.ca* to schedule a meeting.

Sincerely,

<Original signed by>

Marc Leger
Team Leader
Impact Assessment Agency of Canada

Enclosures: Comments on the draft Initial Project Description for Georgina Island Fixed Link Project (submitted on September 20, 2021)

c.c.: Michael Jacobs, Cambium Indigenous Professional Services
Sue Olguin, WSP
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Appendix G
Health Impact Assessment of Transportation Options to and from Georgina Island

SCIENCE INTEGRITY KNOWLEDGE

HEALTH IMPACT ASSESSMENT (HIA) OF TRANSPORTATION OPTIONS TO AND FROM GEORGINA ISLAND

FINAL REPORT

November 2021

Prepared for: **Chippewas of Georgina Island First Nation**
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and

Ontario Trillium Foundation / Fondation Trillium de l'Ontario

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HEALTH IMPACT ASSESSMENT OF TRANSPORTATION OPTIONS TO AND FROM GEORGINA ISLAND

ACKNOWLEDGEMENTS

We would like to acknowledge that the Health Impact Assessment (HIA) was conducted on lands originally and currently used and occupied by the First Peoples of the Williams Treaties First Nations and other Indigenous Peoples and we thank them for sharing this land. We would specifically like to thank the Chief, Council, and community members of the Chippewas of Georgina Island First Nation for their assistance and gracious input into this project.

We would also like to thank the members of the HIA Steering Committee for their assistance and guidance through the HIA process, as well as everyone who provided input and feedback to the HIA via the Community Health Survey and Key Person Interviews.

This project was made possible through a grant from the Ontario Trillium Foundation.

Ontario Trillium Foundation / Fondation Trillium de l'Ontario

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HEALTH IMPACT ASSESSMENT OF TRANSPORTATION OPTIONS TO AND FROM GEORGINA ISLAND

EXECUTIVE SUMMARY

Intrinsik Corp. (Intrinsik) has been retained by the Chippewas of Georgina Island First Nation (GIFN) to conduct a Health Impact Assessment (HIA) on available transportation options to and from Georgina Island (the Island).

The purpose of this HIA was to evaluate the potential positive and negative impacts on the health and well-being of Members of GIFN community that may result due to current transportation options available to them, based on current and future changes in environmental conditions. Transportation has positive health impacts and negative health impacts. Transportation impacts health by providing a means of access to healthcare services, healthy food, recreational facilities, education, and employment while also providing the opportunity for physical activity (e.g., walking, cycling, etc.) (Mackett & Thoreau, 2015). As such, it is important to consider how transportation planning decisions influence communities, health behaviours and ultimately health outcomes.

It is important to note that this HIA was not conducted for a proposed project, or as part of a provincial Environmental Assessment or federal Impact Assessment process. It was completed for Chief and Council for the purposes of understanding how the current transportation options available to GIFN impact the health of the community.

This HIA has developed recommendations to address potential health concerns voiced by community members. This HIA can also serve as a decision-making tool for Chief and Council as part of their long-term community planning process. Based on the objectives for the HIA, a standard HIA framework was utilized. The HIA framework includes the following phases: screening, scoping, assessment, recommendations, reporting and conclusions (Figure 2-1). An engagement strategy entailing a Community Health Survey and a meeting with the HIA Steering Committee and Key Person Interviews were completed to provide crucial input into the HIA.

The screening phase consists of a rapid review of available evidence to determine whether a health assessment is needed and whether sufficient data and time are available to conduct the assessment. However, as this HIA was approved based on specific funding received by GIFN, the screening step was considered already completed.

The scoping phase identified five determinants of health (i.e., climate change, safety and security, economic, mental well-being, and access to services) and all were assessed in the context of the current transportation options. To ensure the HIA considered issues important to GIFN, the determinants of health were discussed in the Steering Committee meeting and in the Community Health Survey.

The assessment phase consisted of:

- Developing a baseline community health profile of GIFN, depending on available data;
- Analyzing the assessment findings to determine whether or not the current transportation options could result in significant health effects; and,
- Collating and summarizing relevant findings for each of the determinants of health.

As part of the assessment phase of the HIA, a baseline community health profile of GIFN was developed. The baseline health assessment establishes the current health status of the community to evaluate vulnerabilities to various health outcomes, and also to provide a benchmark to characterize the extent of change from current health conditions. The following information focuses on GIFN community:

- Demographics: As of the 2016 Census data, the population of GIFN was appropriately 261 (which included Members and non-members); the majority of the population in 2016 was in the age range of 15-64. Based on 2021 data from the Aboriginal Affairs and Northern Development First Nation Profiles, GIFN have a total membership of approximately 936 Members of which approximately 209 reside on the Island and 726 live off the Island.
- Education: The Island has an elementary school that goes up until grade 5. Based on Statistics Canada (2017a), 6.98% of GIFN Members were aged 25 to 64 had a bachelor's degree or higher in 2016, while 27.91% had a college, CEGEP or other non-university certificate or diploma as their highest level of education. 13.95% of GIFN Members had an apprenticeship or trades certificate or diploma as their highest.
- Employment: From the 2016 Census data, the population of GIFN in the labour force included 130 individuals, out of which approximately 96% were employed in various industries.
- Income: Based on Statistics Canada (2017a), the median total income for GIFN was $26,368 versus an Ontario-wide median of $33,539, and a Canada-wide median of $34,204.
- Health Services: There are a range of health and wellness programs and services available to GIFN community on the Island which include diabetes clinics, family support programs, women's health issues, and school programs. A health profile for GIFN community was not available.
- Environmental Quality: Climate change is having a profound impact on ice formation on the Lake. Increasing ambient air and lake temperatures have been shown to decrease the duration of ice over on Lake Simcoe.
- Vulnerable populations: Children and the elderly are considered to be vulnerable populations with respect to numerous different types of environmental exposure. Additionally, pregnant women and individuals with chronic conditions or pre-existing health issues are also considered to be vulnerable populations in this HIA.

The assessment of effects for the HIA combines information about current conditions with evidence from the literature to arrive at conclusions about the nature and extent of impacts due to available transportation options. In order to present these conclusions in a standardized way, a number of effect characterization parameters have been selected including magnitude (i.e., what is the potential severity of the effect on human health?), likelihood (i.e., what is the probability of the impact occurring?), and potential health outcomes (i.e., will the effect be helpful or harmful to human health?) (Table 2-2).

Table ES-1 summarizes the individual assessments and impact characterizations for each of the health determinants.

Table ES-1 GIFN Transportation Options Health Impact Assessment – Summary of Results				
Health Determinant	**Affected Populations**	**Magnitude**	**Likelihood**	**Potential Health Consequence**
Climate change	Regional	High	High	Negative
Safety and Security	Regional/ Proximate	High	Medium	Negative
Economic	Proximate	Medium	High	Negative
Mental Well-Being	Regional/Proximate	Medium	High	Negative
Access to Services	Proximate	Medium - High	High	Negative

The following recommendations have been made based on assessment of health determinants in the HIA (Table ES- 2):

Table ES- 2 Recommendations based on Results of HIA		
No.	**Recommended Action**	**Health determinant to be addressed**
1	Review opportunities to further improve current transportation options by: • Considering changes to the Ferry and Scoot schedules; • Considering implementing a Members-only line; and, • Prioritizing lines for boarding of the Ferry and Scoot where priority goes to GIFN Members	• Economic • Mental well-being • Access to services
2	Consider alternatives to the current options which provide permanent and reliable access to services and resources on the mainland, such as a bridge or a fixed link with the mainland.	• Climate change • Safety and security • Economic • Mental well-being • Access to services
3	Continue providing support for mental well-being on the Island with further communication to notify Members regarding services available on the Island.	• Mental well-being
4	Proposed safety workshops for individuals crossing in fall/winter/spring	• Climate change • Mental well-being • Safety and security

5	Implementing the results of GIFN Climate Change Adaptation Plan (GIFN, 2015) by Chief and Council. The Plan includes four themes:
	• Engage people
	  ○ E.g., developing communication plans for the community on various environmental conditions including ice and wind conditions on a regular basis
	• Reduce threats
	  ○ E.g., proposed amendments to the Transportation Manual for the sections related to ice roads maintenance and monitoring, including lands, high wind events, ice pile-up and maintenance of the Ferry and airboat
	• Enhance adaptive capacity
	  ○ E.g., monitor weather forecasts/conditions to prepare for extreme weather events
	• Improve knowledge
	  ○ E.g., develop programs to monitor wind conditions, ice during high wind events
		• Climate change
		• Mental well-being
		• Safety and security

As part of HIA process, the following data gaps, limitations and uncertainties were noted:

- Given the small population of GIFN, it was difficult to find data specific to the community. Data for this HIA was mainly supplied by a diverse range of references provided by GIFN Project Manager, GIFN website, input from GIFN Members on the HIA Steering Committee, input from the Key Person Interviews, discussions with Chief and Council as well as by primary and grey literature. While some information was available on the Chippewas of Georgina Island website, and some statistics were available through Statistics Canada, little additional information was publicly accessible.
- The demographic data retrieved from the Statistics Canada Census were from the 2016 Census reporting year. Since then, there have been changes to community demographics. It would be beneficial to have a Census focused for the community to better understand health status.
- This is not a comprehensive health assessment and, aside from the Community Health Survey, did not involve primary collection of data. As such, only the topics of most concern, as noted by Chief and Council and from the results of the online Community Health Survey were assessed. It is important to note that the scope of the HIA was discussed with the HIA Steering Committee.
- The HIA itself does not provide a quantitative assessment of the impacts to health, but rather uses the gathered data to qualitatively assess how the selected determinants of health are impacted due to the current transportation options and may continue to impact health outcomes.
- In some cases, evidence and data related to potential health impacts were collected from the primary and grey literature under scenarios that were not specific to First Nations. In these cases, inferences were made to extrapolate potential impacts to GIFN specifically, using local, regional and national data wherever possible. Where this was not possible, a discussion of the implications is provided in the relevant assessment sections.
- Generally, the response rate to the Community Health Survey was high, with a total of ninety-six (96) respondents. During the HIA Steering Committee, the importance of a diverse group of respondents was highlighted. There was a low response rate from Members under 25 years of age. Based on discussions with the Steering Committee, additional responses were sought out from individuals that were under 25 years of age.
- In some cases, in the absence of quantitative data, the current conditions and project impact were based, in part, on community knowledge communicated by Chief and Council, and GIFN community members in the Community Health Survey and those members who were a part of the Steering Committee.

Table ES-1 summarizes the individual assessments and impact characterizations for each of the health determinants and Table ES- 2 presents the recommendations made based on assessment of health determinants in the HIA. Overall, the HIA concluded that:

- The current transportation option is aging (i.e., the Ferry);
- The Ferry runs for a longer duration every year and there have been increased costs associated with its repair and maintenance;
- The Ferry is over capacity and community members face long wait times;

- The Scoot is uncomfortable to ride but it is the safest mode of transportation during the freeze-up and thaw seasons;
- The Scoot is routinely replaced due to its overuse as a shuttle (really intended to be a search and rescue vehicle);
- The community members try to use the Scoot as little as possible as it is built mainly for search and rescue, and emergency purposes;
- There are concerns about occupational health and safety for transportations workers due to weather and the pounding they take operating the Scoots, and it is becoming more difficult maintaining existing or hiring new staff to operate these vessels;
- The ice road is used during favourable ice conditions. However, the duration of the ice road season is reducing, which means there is more community reliance on the Scoot;
- The ice road has inherent risks that are exacerbated by the changing climate and the unreliable mode of transportation has led to loss of life and stress within the community; and,
- Improvements to the current transportation options can potentially be made by adding new infrastructure, replacing old infrastructure, or considering other options such as a bridge to connect the Island and the mainland.

The following figure presents an illustration on how the current transportation options impact health of GIFN community.

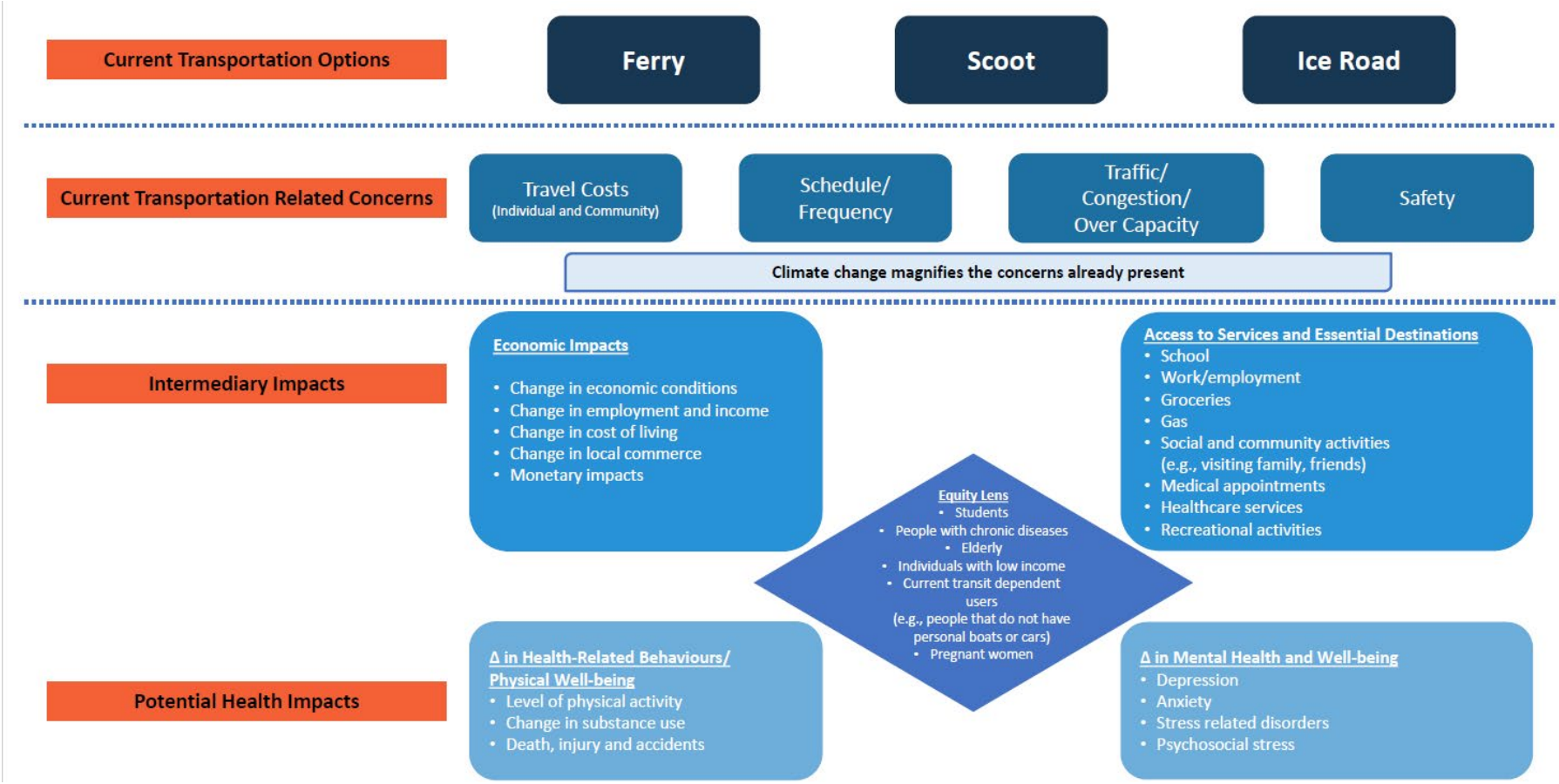

Figure ES-1 Project Summary – Illustration on Health Impacts due to Current Transportation Options

HEALTH IMPACT ASSESSMENT OF TRANSPORTATION OPTIONS TO AND FROM GEORGINA ISLAND

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LIST OF ACRONYMS

ECCC	Environment and Climate Change Canada
GIFN	Chippewas of Georgina Island First Nation
GTA	Greater Toronto Area
HIA	Health Impact Assessment
MECP	Ministry of the Environment, Conservation and Parks
NHS	National Household Survey
WHO	World Health Organization

HEALTH IMPACT ASSESSMENT OF TRANSPORTATION OPTIONS TO AND FROM GEORGINA ISLAND

1.0 INTRODUCTION

Intrinsik Corp. (Intrinsik) has been retained by the Chippewas of Georgina Island First Nation (GIFN) to conduct a Health Impact Assessment (HIA) on available transportation options to and from Georgina Island. Transportation has enormous positive health impacts, but motorized modes of transport can also have potential negative health impacts. Transportation planning decisions influence health behaviours, which in turn impact rates of chronic diseases, such as heart disease and diabetes, and related conditions such as obesity and physical inactivity, as well as air quality and respiratory illnesses, access to healthy foods and health services, noise levels, mental well-being, and accidents and injuries. Figure 1-1 is an example of potential health impacts related to transportation (Mackett & Thoreau, 2015).

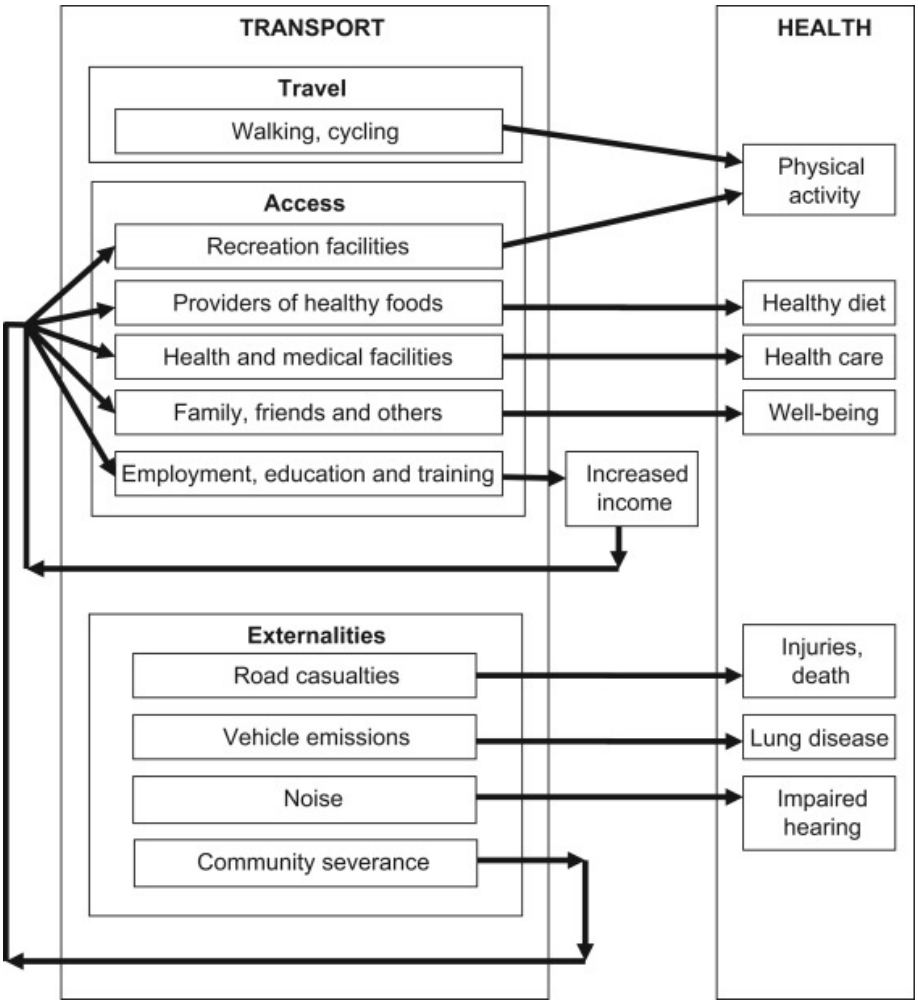


Figure 1-1 Example of potential health impacts related to transportation (Mackett & Thoreau, 2015)

Current transportation options for GIFN include the Aazhaawe Ferry, the airboat (commonly referred to as the “Scoot”), water taxi, personal watercraft, and the ice road (during appropriate winter conditions). A changing climate has the potential to significantly impact these transportation modes, especially those dependent on the thickness and extent of ice formation.

1.1 Purpose

The main purpose of this HIA was to evaluate the potential positive and negative impacts on the health and well-being of Members of GIFN community that may result due to current transportation options available to them, based on current and future changes in environmental conditions. The HIA also aimed to develop recommendations to address potential health concerns from community members. In doing so, the HIA proposed measures to either reduce or mitigate potential harmful impacts and to enhance potential positive impacts, and also provided GIFN community with a structured platform to enhance communication and address concerns. The HIA included historical experience gathered through regulatory monitoring, community knowledge, traditional knowledge from Elders and Knowledge Keepers within the community, as well as available academic knowledge on potential health impacts of transportation, especially in a changing climate.

In general, there are several benefits to conducting an HIA, including:

- 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.

- Addresses Rightsholders Concerns: Addresses rightsholders/ community concerns in an upfront and transparent manner.

- Develop a Baseline: During the Assessment step, the HIA develops a baseline health profile that sheds light on the current overall health status of the community.

- 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.

- Enhanced Communication: The HIA process is based on open and transparent communication of issues and concerns with the proponent as well as key rightsholders. 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.

It is important to note that this HIA was not conducted for a proposed project, or as part of a provincial Environmental Assessment or federal Impact Assessment process. It was completed for Chief and Council for the purposes of understanding how the current transportation options available to GIFN impact the health of the community.

1.2 Project Description

Georgina Island First Nation are Anishnaabe people based in Lake Simcoe, Ontario, who are descendants of a larger group known as the Chippewas of Lakes Huron and Simcoe. GIFN Reserve lands include three separate islands: the Georgina, Snake and Fox Islands. GIFN also own property at two mainland access points located on Virginia Beach and Island Grove. A large proportion of GIFN population reside on Georgina Island (hereafter referred to as “the Island”) year-round. This HIA focused on the potential health impacts due to the current transportation options to and from the Island to the mainland. As discussed previously, the current transportation options for GIFN include the Aazhaawe Ferry, water taxi, personal watercraft, the ice road (during appropriate winter conditions), or “the Scoot” airboats.

The water taxi is available for Members only and allows for the safe passage of GIFN staff and Members. The Aazhaawe Ferry is the main mode of transportation as it is available for majority of the year, except during the winter months. It operates between the mainland at Virginia Beach and Georgina Island and employs several GIFN community members (Figure 1-2). The Aazhaawe Ferry was built in 1999 and comfortably fits 50 walk-on passengers and 18 cars. Prices differ for type of crossing (i.e., passengers, cars, or oversized vehicles) as well as age and Membership status. The car or passenger rates for Members are $10.00 per person or $5.00 for seniors. According to the Community Energy Plan Update (GIFN, 2015), the Ferry is the largest energy user within GIFN, running seven days a week and completing an average of 13 crossings (to and from Georgina Island) a day at 20 minutes per crossing (GIFN, 2011). Although the Ferry normally operates from April to December, this mode of transportation relies on good weather conditions and is unavailable in winter when Lake Simcoe freezes. When the Aazhaawe Ferry is inaccessible due to weight and ice formation, the 'Scoot' airboats or ice road is used. Figure 1-4 and Figure 1-5 are pictures of the Ferry. The images presented in the report were provided by the courtesy of GIFN Members and/or were available on GIFN website.

The airboats (often referred to as the "Scoot" by community members) is utilized during the winter freeze-up and spring thaw seasons. The Scoot is an air-propelled vehicle that can travel over ice and open waters (Figure 1-3). The airboats can seat up to four to five passengers not including the driver (Key Person Interview in August 2021). The ice road is considered safe for travel when it reaches a thickness of at least 30 cm (Neegan Burnside, 2008).



Figure 1-2 Route of the Aazhaawe Ferry to and from Georgina Island



Figure 1-3 The Airboat aka 'Scoot' on Lake Simcoe



Figure 1-4 The Aazhaawe Ferry



Figure 1-5 The Aazhaawe Ferry Travelling During High Winds

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). 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) defines HIA as:

> *"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 2-1).

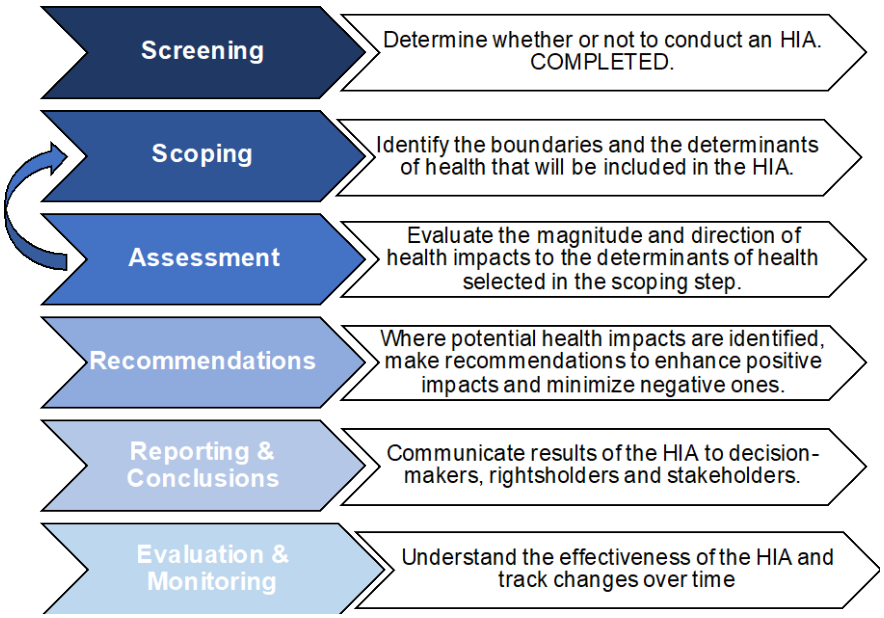


Figure 2-1 Health Impact Assessment Process

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

2.1 Methodology for the HIA

HIA is a neutral and transparent method for evaluation of potential health impacts. This current assessment considers protection of community health with respect to the transportation options available to GIFN. This HIA does not make judgements on the current transportation options, but highlights the potential health impacts due to these transportation options and their impact on the overall health and wellbeing of GIFN community.

A brief overview of the HIA steps and the approach used for this HIA is described below.

2.1.1 Screening

The screening step consists of a rapid review of available evidence to determine whether a health assessment is needed and whether sufficient data and time are available to conduct the assessment. However, as this HIA was approved based on specific funding received by GIFN, the screening step was considered already completed.

2.1.2 Engagement Strategy

It is common practice for the HIA process to include engagement with rightsholders, such as Indigenous peoples within a given project area, and stakeholders to define the scope of the assessment, obtain input on the methodology used, and discuss potential recommendations to enhance positive outcomes and minimize or mitigate possible negative effects on health. The engagement strategy proposed for this HIA was three-fold: i) a Community Health Survey; ii) a meeting with the HIA Steering Committee; and, iii) Key Person Interviews. The components of the engagement strategy are described in detail below.

The Community Health Survey was prepared to engage with the community members on their health concerns related to the transportation options to and from the Island. The survey consisted of 50 questions. The questions were distributed into five sections, including demographics, access to transportation options to and from Georgina Island, health and access to healthcare services, community health and well-being, and recreational activities. The survey questions are presented in Appendix A and the results of the survey are presented in Appendix B. The survey received a good response from the community; in total, there were 96 respondents. The results from the survey were integrated throughout this HIA report.

The rightsholder and stakeholder engagement in an HIA is also often completed through the use of an HIA Steering Committee, which is made up of a diverse group of individuals who are members of key rightsholder and stakeholder groups. The purpose of the HIA Steering Committee for this project was to gain an understanding of HIA and its usefulness in evaluating the health effects of the transportation options currently available, foster discussions on the results of the Community Health Survey, and gain relevant input for the HIA process. Participation on the Steering Committee was voluntary and involved attendance at a virtual meeting. The HIA Steering Committee meeting was held on a virtual platform on August 4, 2021 and consisted of six community members interacting with the HIA team to receive an overview of the project and proposed determinants of health, as well as providing feedback to the HIA team.

In addition to the survey and Steering Committee meeting, Key Person Interviews were also conducted. The interviews were held on August 11th and August 24th, 2021. The questions were focused on the area of expertise of the Key Person interviewed. The purpose of the Key Person Interviews was to gather additional data from community members who hold important community knowledge regarding current transportation options and develop an understanding of important issues such as ice thickness and formation around the Island and emergency transportation options and their availability.

2.1.3 Scoping

The HIA scoping process is intended to provide the blueprint for the HIA. It involves identifying the populations that might be affected, which health issues will be evaluated within the HIA, and specifies the data and methods to be used and alternatives to be assessed. Intrinsik's HIA Team conducted a comprehensive and well-facilitated scoping process to ensure that this HIA considers those issues that are important to GIFN.

The initial task in scoping is to conduct a review of all relevant information to characterize the key issues around potential health impacts. This information can be gathered from several sources. Primarily, for this HIA, the rightsholder engagement informed the scope of the assessment. Other sources relied upon include the academic and grey literatures, community knowledge, knowledge from Elders in GIFN community, assessments on similar projects, and professional judgment (based on previous experience with HIAs on transportation projects).

Geographic Boundaries

It is important to understand the geographic boundaries that are included in the HIA. The geographical scope of this HIA was the entire GIFN community, with focus on GIFN Members who primarily reside on Georgina Island, as they are expected to experience any ongoing potential health impacts as a result of transportation options available to them to travel to and from the mainland.

Health Issues Included in the Assessment

The scope and final list of determinants of health for the HIA were selected based on input received from GIFN community via the meeting with the HIA Steering Committee, the Community Health Survey of GIFN community members, and Key Person Interviews with individuals who have subject matter expertise in the areas of transportation, emergency services and travel on the ice roads during winter. Table 2-1 outlines the list of determinants of health that were assessed and the assessment approach. The HIA evaluated the potential positive and negative health impacts due to each determinant of health.

Table 2-1 Selected Determinants of Health and Approach

Determinant of Health	Focus Areas
Climate change	➢Changing ice thickness over the years and impacts to transmission of community knowledge related to ice travel due to a changing climate
Safety and security	➢Accidents and injuries due to thin ice and unsafe travel conditions in the winter and deaths in the community due to unsafe travel conditions
Economic	➢Employment opportunities affected as a result of unpredictable travel conditions year round, especially during freeze-up and thaw seasons ➢Local economic growth, including lost revenue due to unpredictable tourism
Mental Well-Being	➢Perception of lack of physical and emotional safety, and increased stress due to unpredictable access to emergency health care services ➢In-person social interactions can be unpredictable due to unsafe travel conditions, leading to lack of social capital and cohesion
Access to services	➢Access to health, social, community and family services on the mainland is unpredictable ➢Access to education is jeopardized due to unpredictable and unsafe travel conditions to and from the mainland

2.1.4 Assessment

The assessment phase consisted of:

- Developing a baseline community health profile of GIFN in order to provide a snapshot of the current health status of the community;
- Analyzing the assessment findings to determine whether or not those effects due to the current transportation options could result in significant health impacts; and

- Collating and summarizing relevant findings for each of the determinants of health (see Table 2-1).

For the assessment step the following information sources have been used: community knowledge and information; academic and grey literatures to identify potential health effects related to transportation; and data on current conditions in the local area (available via GIFN). Broadly, the following approach was taken to assess each of the health determinants included in the HIA:

- Providing the health linkage (e.g., climate change and health);
- A discussion of current conditions for each determinant of health within GIFN community; and,
- Characterization and assessment (qualitative) of potential health impacts.

Vulnerable populations were also included as part of the assessment and the potential for disproportionate impacts on these individuals was carefully considered in the classification of magnitude and likelihood. They were also taken into account when making additional recommendations to protect health and wellbeing of community members.

Health Linkages

The first step in assessing potential health impacts was to identify the relevance to health. For each determinant of health, a description of how the determinant is relevant to health and well-being outcomes in the context of transportation is provided. Where available, both community and academic knowledge and data on health impacts via the determinant of health being assessed is provided.

Current Conditions

Information on current conditions is presented in the following manner:

- The Baseline Community Health Profile section of this report presents information on the overall current health status of the community. The purpose was to provide context for the assessment, by describing at a high level how healthy the local community currently is, in comparison to other areas of Ontario, and what health issues are of top concern.

Impact Due to Current Transportation Options

Using available information, an assessment of potential health impacts on each determinant of health due to current transportation options is conducted.

Effect Characterization

For effect characterization, the assessment of effects combines information about current conditions with evidence from the literature to arrive at conclusions about the nature and extent of health impacts due to available transportation options. In order to present these conclusions in a standardized way, a number of effect characterization parameters were developed (Table 2-2).

Table 2-2 Effect Characterization Definitions		
Parameter	**Rating**	**Definition**
Affected populations Who is likely to experience the effect?	**Specific**	Effect is limited to certain individuals or specific groups within GIFN community
	Proximate	Effect may be experienced generally by those living on the Island
	Regional	Effect may be experienced generally on a broader scale (i.e., beyond those GIFN Members living on the Island)
Magnitude What is the potential severity of the effect on human health?	**Low**	Effects are small or may be experienced by a few individuals
	Medium	Effects are moderate or may be experienced by a wide range of individuals or be noticed by the community
	High	The effects are severe or could create a change at an entire community level
Likelihood What is the probability of the impact occurring?	**Low**	The impact is anticipated to occur rarely, if ever. This classification is appropriate for those situations where impacts are not zero but they are limited to very rare occurrences, catastrophic events, or highly unlikely system failures.
	Medium	The impact may happen, but is not certain to occur
	High	The impact will almost certainly occur
Potential Health Consequence Will the effect be helpful or harmful to human health?	**Positive**	The effect is anticipated to improve health and well-being
	Negative	The effect is anticipated to diminish health and well-being
	Mixed	The effect may both improve and diminish health and well-being
	Neutral	The effect is negligible and is anticipated to have little to no effect on health and well-being
Level of Confidence How conclusive are these predictions?	**Low**	The effect characterization based on very limited (low quality) data and/or the information is general in nature without any GIFN-specific consideration
	Medium	The effect characterization based on some (moderate quality) data and/or the information is general in nature with limited GIFN-specific consideration
	High	The effect characterization based on substantial (high quality) data and/or the information is GIFN-specific in nature

2.1.5 Recommendations

Based on the results of the assessment phase, high-level recommendations are presented in Section 5.0. These recommendations were aimed at enhancing potential positive health impacts and minimizing potential negative health impacts.

2.1.6 Reporting and Monitoring

Reporting and Monitoring are the last two steps of an HIA. In the reporting phase, the design, methods and findings of the HIA are communicated to GIFN community. This HIA report is the main method of communication being used. Although not part of this HIA, monitoring of potential future health impacts was included as one of the recommendations of the HIA.

Section 7.0 includes a discussion of Data Gaps, Limitations and Uncertainties that were pertinent to this HIA, and Section 8.0 provides the overall conclusions of the HIA. The references used in the preparation of this report are provided in Section 9.0.

3.0 BASELINE COMMUNITY HEALTH PROFILE

The first step of the HIA process is to create a baseline health profile that describes the current health conditions in the community (Ross et al., 2014). The baseline health profile provided here establishes the current health status of GIFN community in order to evaluate whether the current health status of the community reveals vulnerabilities to any number of health outcomes, and also to provide a benchmark so that the HIA can characterize the extent of impacts to current health conditions due to transportation options available to community members.

The results and analysis of the Community Health Survey, which was administered by Intrinsik, was critical to developing the baseline health profile of the community. Information available from previous health studies and a previous HIA conducted for GIFN community (also by Intrinsik was also utilized in the preparation of this baseline health profile. As such, the baseline health profile is based on collating data and information gained from the community health survey, as well as from identification and analysis of existing health data and information for GIFN, where available.

Following completion of the baseline health profile, a data gap analysis has been provided 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. These areas have been identified as areas of uncertainty (or data gaps) in the report. A discussion regarding limitations, and uncertainties for the HIA process has been included in Section 7.0.

Existing health and demographic data were available for York Region as a whole but little information specific to GIFN was available. Therefore, in order to supplement the data that were available through Statistics Canada and GIFN website, the HIA Team collaborated with GIFN Project Manager to administer a Community Health Survey and to access recent community specific data. Additionally, as Lake Simcoe is surrounded by Durham Region and County of Simcoe, brief overviews are provided for these areas as well.

3.1 The Regional Municipality of York

York Region, Durham Region and Simcoe County are the three regions surrounding Lake Simcoe. York Region is located between Lake Simcoe and Toronto, in the heart of the Greater Toronto Area (GTA). Town of Aurora, Town of Georgina, Town of East Gwillimbury, Township of King, City of Markham, Town of Newmarket, City of Richmond Hill, City of Vaughan, and the Town of Whitchurch-Stouffville are the nine municipalities which make up York Region. These municipalities are shown on Figure 3-1 along with Georgina Island and GIFN lands as they are located within York Region. York Region includes hectares of protected Greenbelt and is Ontario's third largest business centre which includes industries such as technology, life sciences and financial services (The Regional Municipality of York, 2020). As of the 2016 Statistic Canada Census, the population of York Region was approximately 1.11 million (Statistics Canada, 2017d).



Figure 3-1 Map of Municipalities within York Region (York Link, 2020).

3.2 Durham Region

Durham Region makes up the eastern side of the GTA, in between Lake Ontario, Lake Simcoe and Lake Scugog. Durham Region is the largest municipal region within Ontario and is one of Canada's fastest growing economic communities. Durham Region is made up of eight cities and townships displayed on Figure 3-2 (i.e., City of Oshawa, City of Pickering, Town of Ajax, Town of Whitby, Municipality of Clarington, Township of Brock, Township of Scugog, and Township of Uxbridge). Based on the 2016 Census of the Regional Municipality of Durham, there is an estimated population of nearly 700,000 (Durham Region, 2021).



Figure 3-2 Map of Municipalities within Durham Region and the Georgina Island
(modified from Durham Region, 2021)

3.3 Simcoe County

Simcoe County is located north of the GTA, in central southern Ontario. Georgian Bay is to the west of Simcoe County while Lake Simcoe is to the east. Simcoe County is in a densely populated and industrialized region comprised of twenty-two townships displayed on Figure 3-3. As of the 2016 Statistic Canada Census, the population of Simcoe County was 479,650 (Statistics Canada, 2017c).



Figure 3-3 Map of Municipalities within Simcoe County
(Barrie: Simcoe County, 2020)

3.4 The Chippewas of Georgina Island First Nation

GIFN are the only community of interest for this HIA whose traditional lands exist on Lake Simcoe and within York Region.

3.4.1 Demographics

The land area of the Island is 14.55 square kilometers and the population density, as of 2017, was 17.9 people per square kilometer (Statistics Canada, 2017a). As per 2016 Census data, the population of GIFN was appropriately 261 (including GIFN Members and non-members); the majority of the population in 2016 was in the age range of 15-64, as seen in Table 3-4.

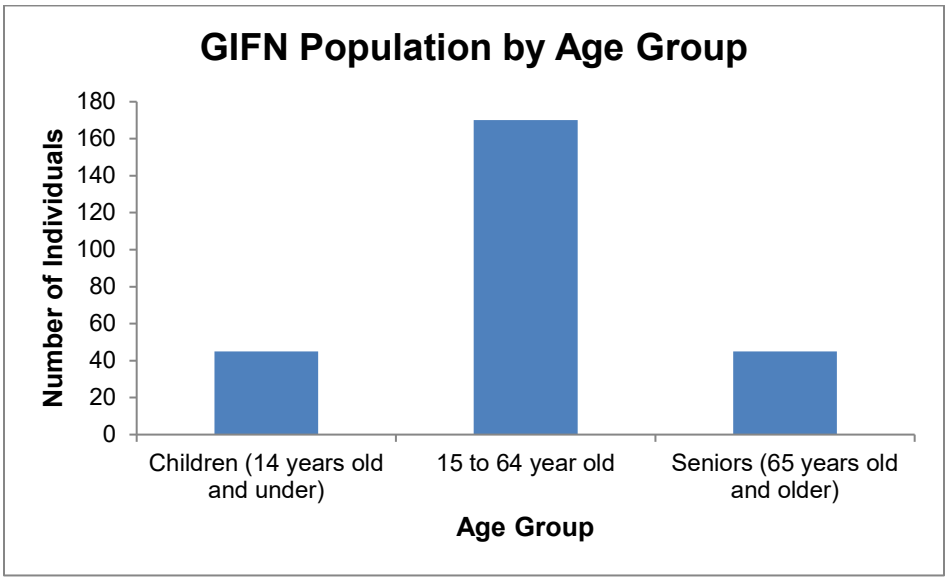


Figure 3-4 GIFN Population by Age (2017)
(Statistics Canada, 2017a)

Based on 2021 data from the *Aboriginal Affairs and Northern Development First Nation Profiles,* GIFN have a total membership of approximately 936 Members of which approximately 209 reside on the Island and 726 live off the Island (IAND, 2021; GIFN, 2019). Of the 209 Members who reside on the Island, approximately 98 are male and 111 are female as identified in Table 3-1 (IAND, 2021).

Table 3-1 Chippewas of Georgina Island Registered Population

Residency	Number of People
Registered Males on Own Reserve	98
Registered Females on Own Reserve	111
Registered Males Off Reserve	353
Registered Females Off Reserve	373

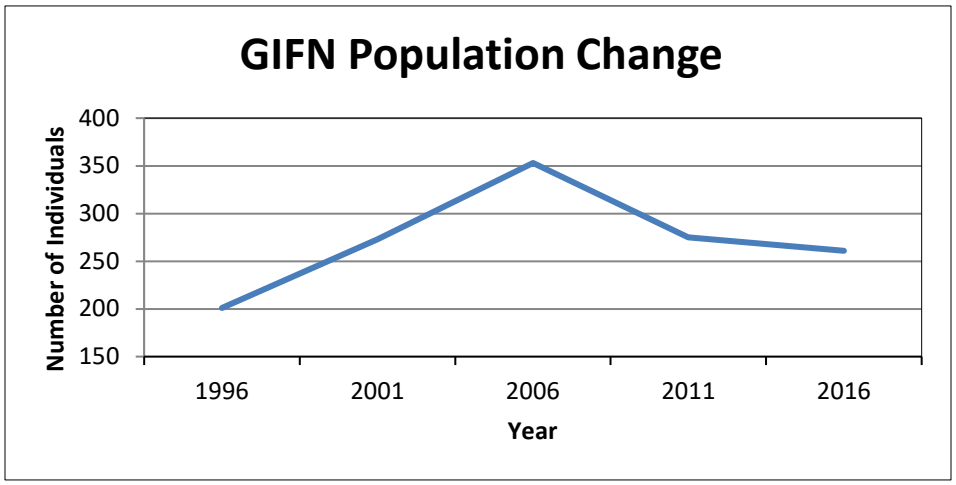


Figure 3-5 GIFN Population Over Time (1996-2016) Based on Census Data
(Statistics Canada, 2017a; Statistics Canada, 2012)

Based on the Census data from 1996 to 2016, GIFN population (which includes both GIFN Members and non-members) has shown a decreasing trend. The population percentage change between 2011 to 2016 was -5.1. As of 2016, there are 565 private dwellings on the Reserve and 118 dwellings which are occupied by usual residents (Statistics Canada, 2017a).

Table 3-2 Population by Age for GIFN

Total Population by Age Group	GIFN	
	Number	Percent (%)
Total Population	260	100
Average Age of the Population	41.3	-
Median Age of the Population	44.6	-
Children (14 years old and under)	45	17.3
15 to 64 years old	165	63.5
Seniors (65 years old and older)	45	17.3

(Statistics Canada, 2017a)

Table 3-3 Population by Sex for GIFN

Total Population by Age Group	GIFN	
	Number	Percent (%)
Total	260	100
Male	120	46.1
Female	140	53.8

(Statistics Canada, 2017a)

EDUCATION

According to GIFN website, there is an elementary school for children from kindergarten to Grade 5 with an attached community library on the island. The community library offers programs such as skills upgrading, early learning literacy computers for children and E-learning. Individuals such as the Aboriginal Student Advisor, Education Manager and Post-Secondary Education Coordinator can be contacted and are available for assistance for those seeking higher education. For grade 6 through to 12, students need to travel from the Island to the mainland.
In 2016, 70.4% of GIFN Members aged 25 to 64 had a high school diploma or equivalency certificate, compared with 86.3% in Canada (Statistics Canada, 2017b).

In the GIFN community, 6.98% of people aged 25 to 64 had a bachelor's degree or higher in 2016, while 27.91% had a college, CEGEP or other non-university certificate or diploma as their highest level of education, and 13.95% had an apprenticeship or trades certificate or diploma as their highest level of education (Table 3-4).

Table 3-4 Level of Education for GIFN

Education by highest certificate, diploma or degree	Chippewas of Georgina Island First Nation			
	Total Number [a]	Percentage	Male [a]	Female [a]
Total Population (aged 15 years and over)	215	100	100	115
No certificate, diploma or degree	50	23.26%	25	30
Secondary (high) school diploma or equivalency certificate	50	23.26%	25	25
Apprenticeship or trades certificate or diploma	30	13.95%	20	10
College, CEGEP or other non-university certificate or diploma	60	27.91%	20	35
University certificate or diploma below bachelor level	10	4.65%	0	0
University certificate, diploma or degree at bachelor level or above	15	6.98%	0	15
Bachelor's degree	10	66.67%	0	10

Table 3-4 Level of Education for GIFN				
Education by highest certificate, diploma or degree	**Chippewas of Georgina Island First Nation**			
	Total Number [a]	**Percentage**	**Male [a]**	**Female [a]**
University certificate, diploma or degree above bachelor level (i.e., degree in medicine, dentistry, veterinary medicine or optometry, Master's degree, and earned Doctorate)	10	66.67%	0	0

(Statistics Canada, 2017a)

[a] Users should be aware that the estimates associated with this variable are more affected than most by the incomplete enumeration of certain Indian Reserves and Indian settlements in the 2016 Census of Population. For more information on Aboriginal variables, including information on their classifications, the questions from which they are derived, data quality and their comparability with other sources of data, refer to the Aboriginal Peoples Reference Guide, Census of Population, 2016 and the Aboriginal Peoples Technical Report, Census of Population, 2016.

[b] Total – Secondary (high) school diploma or equivalency certificate for the population aged 15 years and over in private households – 25% sample data.

EMPLOYMENT

In 2016, the population of GIFN in the labour force was 130 individuals, out of which approximately 96% were employed (Table 3-5). 29% of the working population was employed in public administration, while the other 71% was split between 7 other industries as illustrated in Figure 3-6 (Statistics Canada, 2017a).

Table 3-5 Labour Force Status for GIFN				
Labour Force Status	**Chippewas of Georgina Island First Nation**			
	Total Number [a]	**Percentage**	**Male[a]**	**Female[a]**
Total Population (aged 15 years and over) [b]	215	100%	100	115
In the Labour Force	130	60.47%	65	65
Employed	125	96.15%	60	60
Unemployed	10	7.69%	0	0
Not in the Labour Force	80	37.21%	35	50

(Statistics Canada, 2017a)

[a] Users should be aware that the estimates associated with this variable are more affected than most by the incomplete enumeration of certain Indian Reserves and Indian settlements in the 2016 Census of Population. For more information on Aboriginal variables, including information on their classifications, the questions from which they are derived, data quality and their comparability with other sources of data, refer to the Aboriginal Peoples Reference Guide, Census of Population, 2016 and the Aboriginal Peoples Technical Report, Census of Population, 2016.

[b] Labour force status for the population aged 15 years and over in private households – 25% Sample data. Refers to whether a person aged 15 years and over was employed, unemployed or not in the labour force during the week of Sunday, May 1 to Saturday, May 7, 2016.

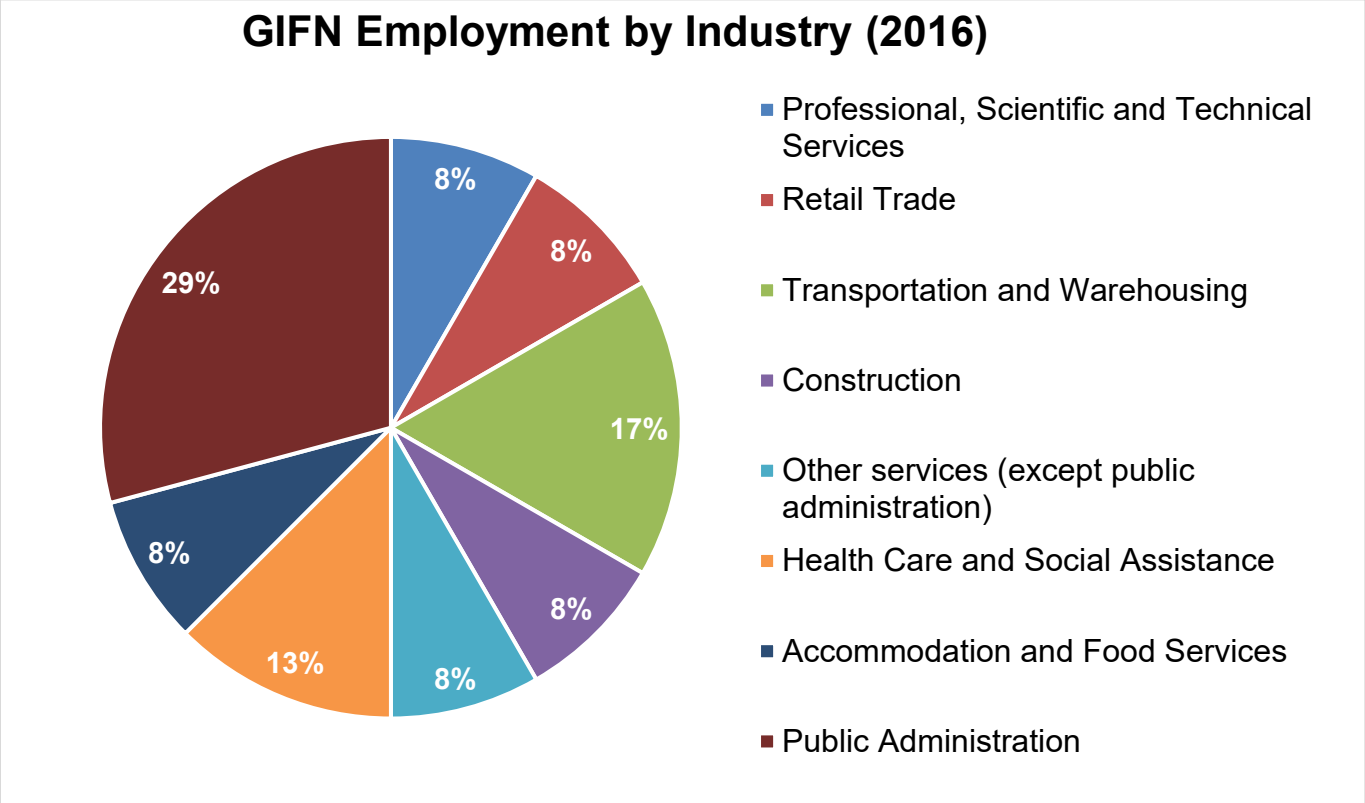


Figure 3-6 GIFN Employment by Industry (2016)
(Statistics Canada, 2017a)

INCOME

The median total income for GIFN in 2015 was $26,368 (Table 3-6), which is significantly less than provincial median income of $33,539, and a national median income of $34,204 (Statistics Canada, 2017a).

Table 3-6 Income by Sex for GIFN

Income statistics in 2015	GIFN		
	Total	Male	Female
Number of income recipients aged 15 years and over	200	90	110
Median total income	$26,368	$29,632	$25,504
Average total income	$36,627	$36,679	$36,583
Median after-tax income	$25,728	$29,632	$25,024
Average after-tax income	$34,684	$34,624	$34,735

The largest percentage of the population fell in the under $10,000 income group with 23.26% of individuals compared to Ontario which only had 15.3%, and Canada having 14% of individuals (Table 3-7).

Table 3-7 Total Income Groups in 2015 for GIFN		
Income statistics in 2015	**GIFN**	
	Total	**Percentage**
Total income groups for the population aged 15 years and over in private households	200	100%
Under $10,000 (including loss)	50	23.26%
$10,000 to $19,999	35	16.28%
$20,000 to $29,999	35	16.28%
$30,000 to $39,999	25	11.63%
$40,000 to $49,999	10	4.65%
$50,000 to $59,999	10	4.65%
$60,000 to $69,999	10	4.65%
$70,000 to $79,999	0	0%
$80,000 to $89,999	15	6.98%
$90,000 to $99,999	10	4.65%
$100,000 and over	10	4.65%

3.4.2 Health Services and Resources

There are a range of health and wellness programs and services available to the GIFN community which include: diabetes clinics, family support programs, women's health programs, and school programs (Health: Georgina Island, 2020). In addition, there are monthly visits from a doctor, along with other specialists such as a chiropodist, nurse practitioner, and a registered social worker who visit regularly. A full list of the programs and services offered are provided in Table 3-8.

Health profiles are available for the York Regional Health Unit (which encompass GIFN) and Ontario (Statistics Canada, 2013). However, there is no health profile specific to the GIFN community. The health profiles include statistics associated with the perception of wellness, rates of health conditions, health behaviours, deaths, etc. A health status profile for GIFN community is not available from any other source.

Table 3-8 Georgina Island First Nation Health Programs and Services	
GIFN Health Programs and Services	
Ticks	Ticks in our Area (submission protocol)
Diabetes	Regular clinics for blood pressure and blood sugar
	Diabetic support group
	Diabetic screening for students
Nutrition	Community garden
Family Support	Healthy babies, healthy children program
	Parenting workshops
	After care program
	Sex education
	Alcohol / drug awareness
	Psychology and counselling
Women's Health Programs	Breast feeding support
	Screening clinic / pap tests
School Programs	Breakfast program
	Healthy relationships
	Hearing / vision testing

Table 3-8 Georgina Island First Nation Health Programs and Services	
GIFN Health Programs and Services	
Prevention	Sun safety
	Suicide prevention
	Immunization clinics
	Blood pressure clinics
	Blood sugar clinics
	STD / HIV
	Tobacco

A breakdown of the costs associated with several of the health services listed above are provided in Table 3-9 below.

Table 3-9 Yearly Cost of Operating the Georgina Island Aazhaawe Ferry for Health Services

Service	# of Visits	# of Ferry Trips (round trip) per Year	Yearly Cost ($10/trip)
Doctor	Monthly	12	$120
Nurse Practitioner	Weekly	50	$500
Masseuse	3 days per week	150	$1,500
Chiropodist	Once every 6 weeks	12	$120
Two off-Reserve staff	5 days per week	500	$5,000
Counselling	2 times per week	50	$500
Medical Transportation Trips (two drivers)	Twice a day each, at least (sometimes more)	500	$5,000
Total	-	**1,274**	**$12,740**

Note: Yearly Cost of Georgina Island Aazhaawe Ferry for Health Services provided to Intrinsik by GIFN

3.5 Environmental Quality

The Lake Simcoe watershed includes 18 major river systems and 4,225 km of creeks, streams, and tributary channels. The Lake Simcoe watershed crosses 20 municipal borders (Figure 3-7). Lake Simcoe's water quality is affected by the surrounding land uses and surface water runoff.

Due to climate change, earlier stratification and an increase in the length of stratified periods are seen in some lakes in North America (Stainsby et al., 2011). Stratification is a phenomenon when two layers are created within waterbodies due to temperature differences. Warming temperatures due to climate change are impacting Lake Simcoe's water quality as well as duration and timing of the freeze-up and thaw seasons. Data from 2002 shows that stratification in Kempenfelt Bay (a 14.5 km long bay that connects to Lake Simcoe; Figure 3-7) occurred approximately 20 days earlier in the year when compared to when stratification occurred in 1980 (LSRCA & GIFN, 2017). The City of Barrie is located on Kempenfelt Bay. Similarly, the fall turnover occurred increasingly later each year, leaving the Lake frozen for shorter periods each year.

As discussed previously, the use of the ice road, during the winter freeze-up is one of the modes of transportation for GIFN. The two main impacts to the quality and duration of the ice road are the amount of chloride entering Lake Simcoe and climate change. Chloride enters the system mainly through roadway runoff and can impact the water quality of the Lake as well as the quality of the ice road. The main source of chloride within Lake Simcoe is the use of road salt on mainland roads.

Climate change has shortened the ice road season by impacting the freezing and thawing of the Lake. In addition, ice quality is reduced and leads to unsafe travel conditions (LSCR & GIFN, 2017). Higher than average temperatures occurring due to climate change leading to poor ice formation also affect ice activities such as ice fishing and snowmobiling.

A Subwatershed Plan was completed by the Lake Simcoe Region Conservation Authority (LSRCA) and GIFN in 2017 and assessed Georgina, Snake and Fox Islands and areas which made up the subwatershed associated with the 3 islands. Based on the recommendations from the Subwatershed Plan, minimizing the amount of salt and other pollutants by regulating and reducing traffic on the ice road, as well as developing a communications plan involving ice conditions to convey to Georgina Island residents were made (LSRCA & GIFN, 2017).

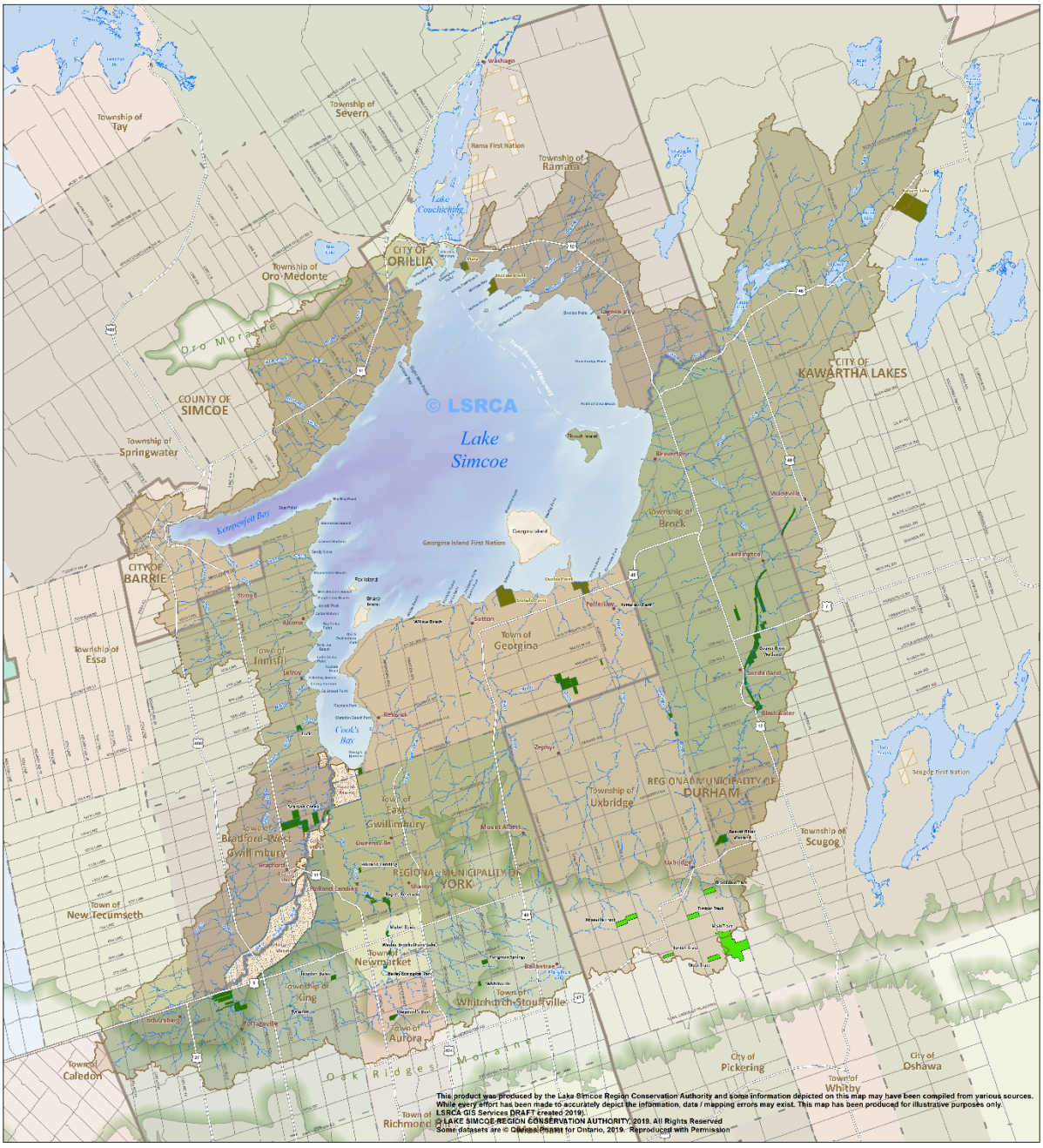


Figure 3-7 Map of the Lake Simcoe Watershed (LSRCA, 2019)

3.6 Community History

The Chippewas of Georgina Island First Nation consists of three islands which are Georgina Island, Snake Island and Fox Island. There are two mainland access points at Virginia Beach Marina and Island Grove Marina. The Chippewas of Georgina Island are Anishnaabe people, descendants of the Chippewas of Lakes Huron and Simcoe. The Indian Department of Upper Canada began to relocate Indigenous peoples in the 1820s. Due to the increasing pressure to farm and the size of the Islands, Georgina Island was the place of settlement (History of Georgina Island, 2016).

Prior to the development of the Trent Severn Waterway, the water level on Lake Simcoe was ankle depth which allowed for growing wild rice, a main staple for the First Nations, and travelling the mainland. The Island residents were able to walk from Nolan's Point to the Georgina Island prior to the 1920's (GIFN, 2011). Traveling to the mainland became much more difficult once the waterway was constructed. The water level increased nearly 3 metres and production of wild rice around Georgina Island was halted. The Island residents then had to row across the lake in canoes to get supplies from the mainland (History of Georgina Island, 2016).

The Aazhaawe Ferry was built in 1999 for GIFN in Nova Scotia (Transportation: Georgina Island, 2021). To reach Georgina Island this Ferryboat sailed through the Trent Severn Waterway and into Lake Simcoe. Transport Canada approved the Ferry and the coast guard conducts regular inspections, ensuring safe passage for all. The Aazhaawe Ferry comfortably fits 50 walk-on passengers and 18 cars (Transportation: Georgina Island, 2021). Although the Ferry is set to operate starting in April and running through to December, this mode of transportation relies on good weather conditions to operate and is not available when Lake Simcoe is frozen over.

Besides the Aazhaawe Ferry, there are several modes of transportation currently offered to residents travelling to and from the Island including the Water Taxi and the airboat/Scoot. These options are discussed in Section 1.2. Based on the data available from the GIFN Project Manager, the Ferry and Scoot are the most utilized modes of transportation to and from the Island (Figure 3-8).

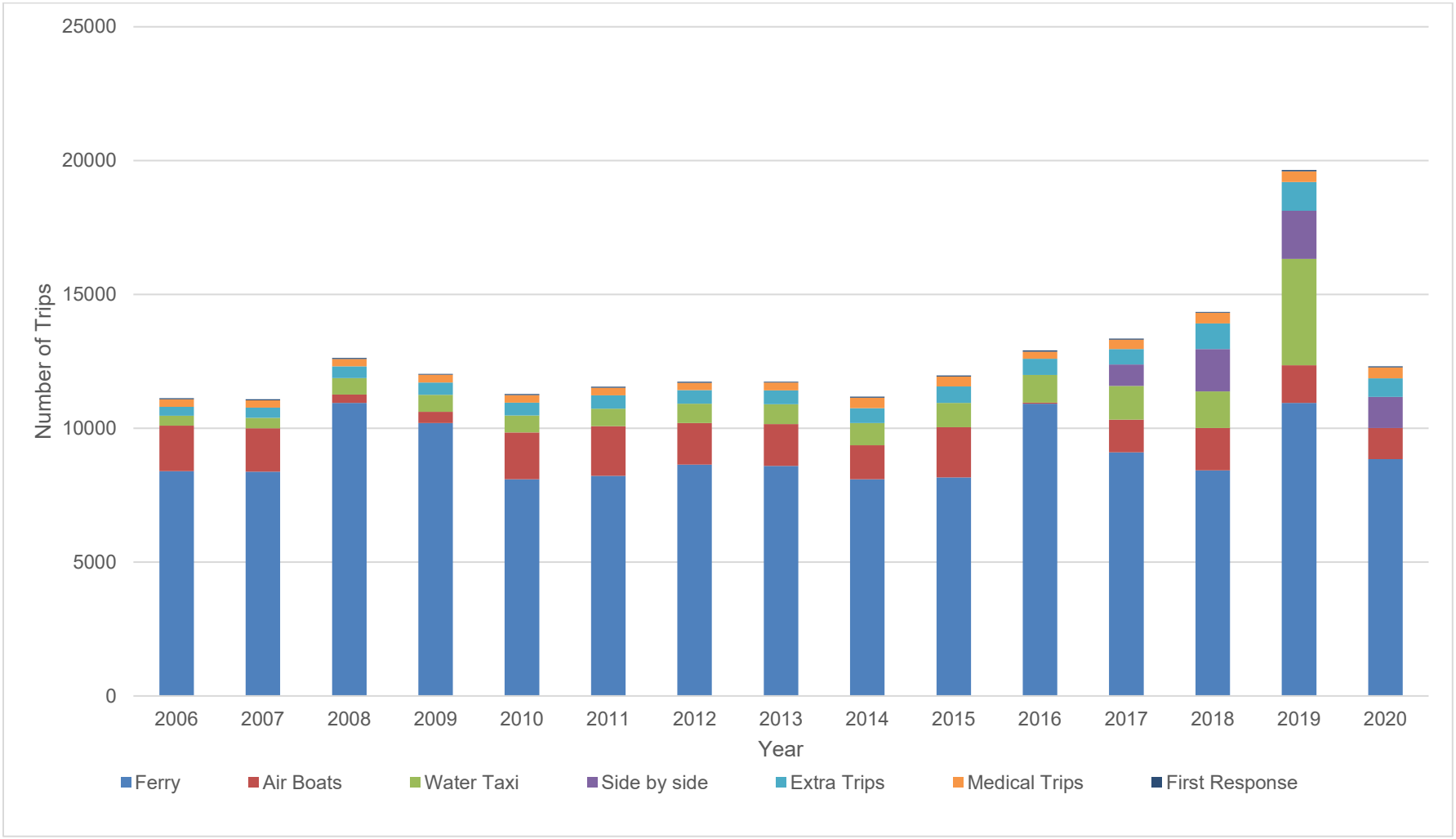


Figure 3-8 Transportation Trips from 2006 to 2020

3.7 Discussion of Vulnerable and Sensitive Populations

In general, HIAs seek to discuss the potential health impacts on vulnerable populations of society that may be disproportionately affected by programs, policies or projects. Invariably, children and the elderly are considered to be vulnerable populations with respect to numerous different types of environmental exposures. This is also true for many of the determinants of health that were evaluated in this HIA. In addition, pregnant women and individuals with chronic health conditions or pre-existing health issues are also considered to be vulnerable populations in this HIA. Vulnerable populations were included as part of the assessment and the potential for disproportionate impacts on these individuals was carefully considered in the classification of magnitude and adaptability. They were also considered when making additional recommendations. Each assessment provides details of the vulnerable population(s) considered in the effect characterization.

3.8 Gaps and Limitations

The National Household Survey (NHS) profile for Chippewas of Georgina Island First Nation from 2016 had a global non-response rate, which is an indicator of data quality, of 12.8% for the short-form Census questionnaire and 13.7% for the long-form Census questionnaire (Statistics Canada, 2017a). A lower number indicates a lower risk of non-response bias and inaccuracy. Since the global non-response rate is at 12.8% for the 2016 NHS profile, the data with regards to education level, employment and income may not be fully representative of GIFN.

4.0 ASSESSMENT

The assessment process in HIA involves: (1) developing a baseline community health profile (see Section 3.0 above), (2) assessing the likelihood of impacts, and (3) characterizing the health impacts. This Section first summarizes the baseline profile as it relates to each of the determinants of health (i.e., current conditions), and then provides the individual assessments and impact characterizations for each the issues identified in the scoping phase.

The HIA Team was able to rely on data and information collected as part of the engagement process for the HIA. The purpose of the assessment was to characterize potential health impacts, both positive and negative, due to current transportation options and their potential impact on the health of the GIFN community. The assessment of each of the health determinants is achieved by applying the methodology described in Section 2.1.4.

The list of determinants included in more detail in the assessment sections below, is as follows:

Table 4-1 List of Determinants of Health Assessed in the HIA

Determinant of Health	*Focus Area*
Climate change	➢Changing ice thickness over the years and impacts to transmission of community knowledge related to ice travel due to a changing climate
Safety and security	➢Accidents and injuries due to thin ice and unsafe travel conditions in the winter and deaths in the community due to unsafe travel conditions
Economic	➢Employment opportunities affected as a result of unpredictable travel conditions year round, especially during freeze-up and thaw seasons ➢Local economic growth, including lost revenue due to unpredictable tourism
Mental well-being	➢Perception of lack of physical and emotional safety, and increased stress due to unpredictable access to emergency health care services ➢In-person social interactions can be unpredictable due to unsafe travel conditions, leading to lack of social capital and cohesion
Access to services	➢Access to health, social, community and family services on the mainland is unpredictable ➢Access to education is jeopardized due to unpredictable and unsafe travel conditions to and from the mainland

4.1 Climate change

This section characterizes the potential health impacts due climate change on the GIFN community should they impact the availability and reliability of current transportation options used by the community. Climate change is a complex issue that has cascading impacts. As such, it is important to note that impacts not related to transportation issues faced by the community (i.e., general/regional changes occurring as a result of global climate change) are outside of the scope of this assessment. For this HIA, the main issue associated with climate change that has the potential to impact community health is ice formation and thickness on the Lake providing a means of transportation from Georgina Island to the mainland. A rapidly changing climate has also impacted the transmission of community and Elder knowledge to the next generation on transportation conditions.

Climate Change and Health

Climate change and population health are intrinsically intertwined. In general, climate change has increased the probability of extreme events across Canada including changes in wind patterns and increased temperatures associated with ice thickness and formation (Berry et al., 2014). Warming temperatures as a result of climate change are affecting communities that rely on predictable seasonal ice formation. Changes in the pattern of ice formation can affect transportation efforts that rely on ice stability to cross waterbodies (Derkson et al., 2019). Thinning ice has direct and indirect health impacts on those that utilize the ice for transportation. Direct impacts include a higher risk of accidents and injuries associated with unsafe transportation, while indirect impacts include a lack of access to employment and services, lack of access to healthcare, lack of mobility, and isolation, among others (Ford et al., 2008; Furgal & Séguin, 2006).

Current Conditions

During discussions with the GIFN community, including Chief and Council, the issue of ice formation was raised as a key concern. It was verbally communicated to the Intrinsik HIA Team that since the majority of the GIFN community lives on Georgina Island, they rely on boats and the Ferry to get to and from the mainland during the summer. In the winter months, various modes of personal transportation (e.g., skidoos, side by sides) and the Scoot are used to travel to and from the mainland. Based on the Community Health Survey, aside from the Ferry and Scoot, community members use private boats, personal cars or trucks, and the water taxi to travel to and from the Island.

As per the GIFN community and Chief and Council, the warmer temperatures have made travel to and from the mainland during winter more difficult and it is increasingly difficult to predict safe travel conditions. Reduced ice thickness makes it dangerous to travel using conventional methods and at times, community members have been advised not to travel via ice road to the mainland. As a specific example, pregnant women who may be due to deliver during periods of unstable ice formation (e.g., during the freeze-up and thawing seasons) are advised to remain on the mainland.

The observation of thinning ice on Lake Simcoe is supported by data collected over the past several years on increasing air temperatures, increasing surface water temperatures and decreasing duration of ice cover (Figure 4-1, Figure 4-2 and Figure 4-3) (MECP, 2020).

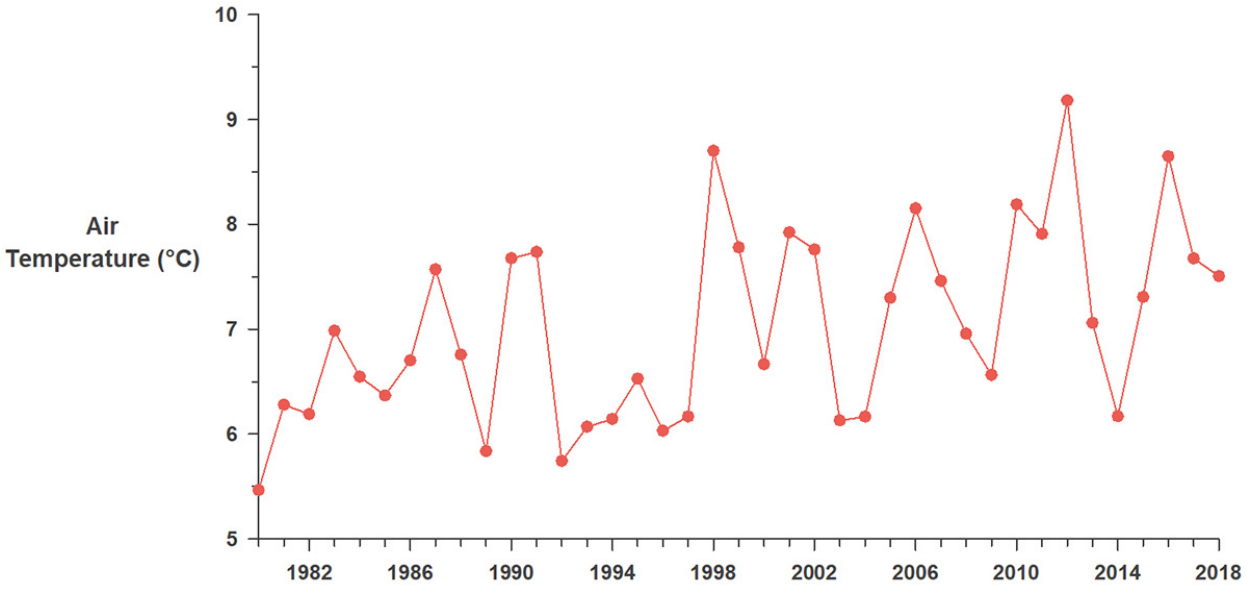


Figure 4-1 Average annual air temperature recorded at the Environment and Climate Change Canada weather station located at Shanty Bay on Lake Simcoe (MECP, 2020)

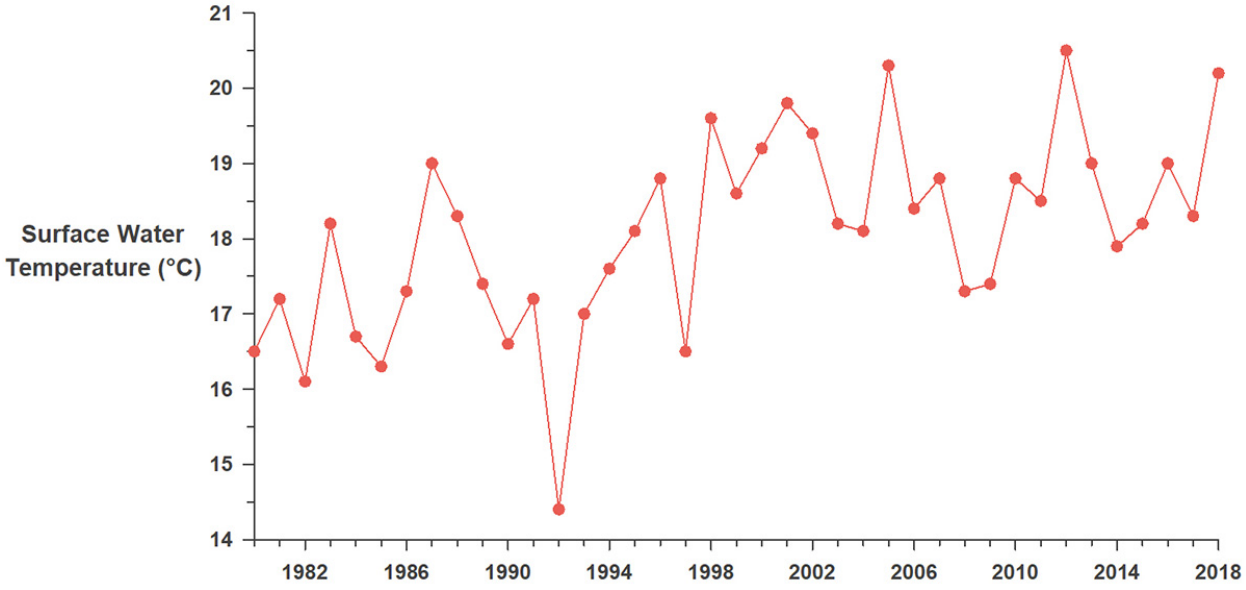


Figure 4-2 Average Lake water temperature at 1 m depth during ice-free periods (May to September) averages over all lake stations (MECP, 2020)

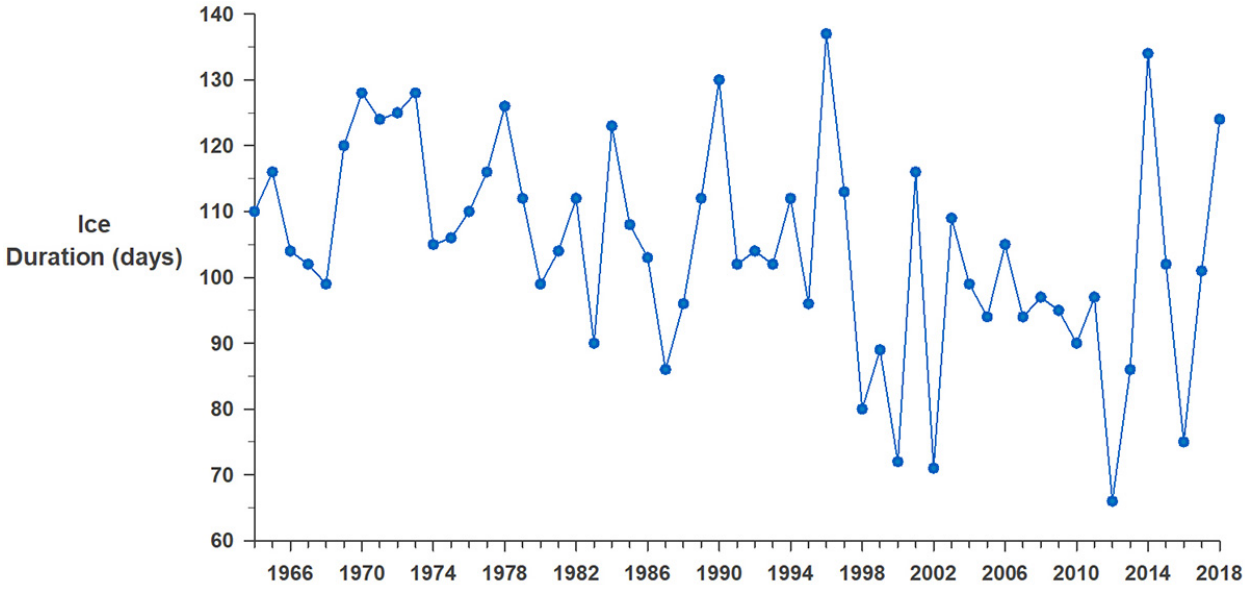


Figure 4-3 Change in the duration of ice cover on Lake Simcoe from 1964 to 2018 (MECP, 2020)

As a further assessment of available climate data, the dates for freeze up and thaw for Kempenfelt Bay were utilized to determine the yearly number of frozen days at Kempenfelt Bay since 1852 through to the spring thawing of March 2021. As mentioned earlier, the City of Barrie is located on Kempenfelt Bay which is a part of Lake Simcoe.

Over the years, the number of annual frozen days at Kempenfelt Bay show a decreasing trend. The highest number of frozen days recorded were in 1875 through to 1876 with 152 days of ice cover and the least number of frozen days were 59 days from 2020 into 2021. The graph below shows that the number of days of ice cover on Kempenfelt Bay is declining (Figure 4-4). The data utilized for Figure 4-4 was provided by the Lake Simcoe Region Conservation Authority to the GIFN Project Manager.

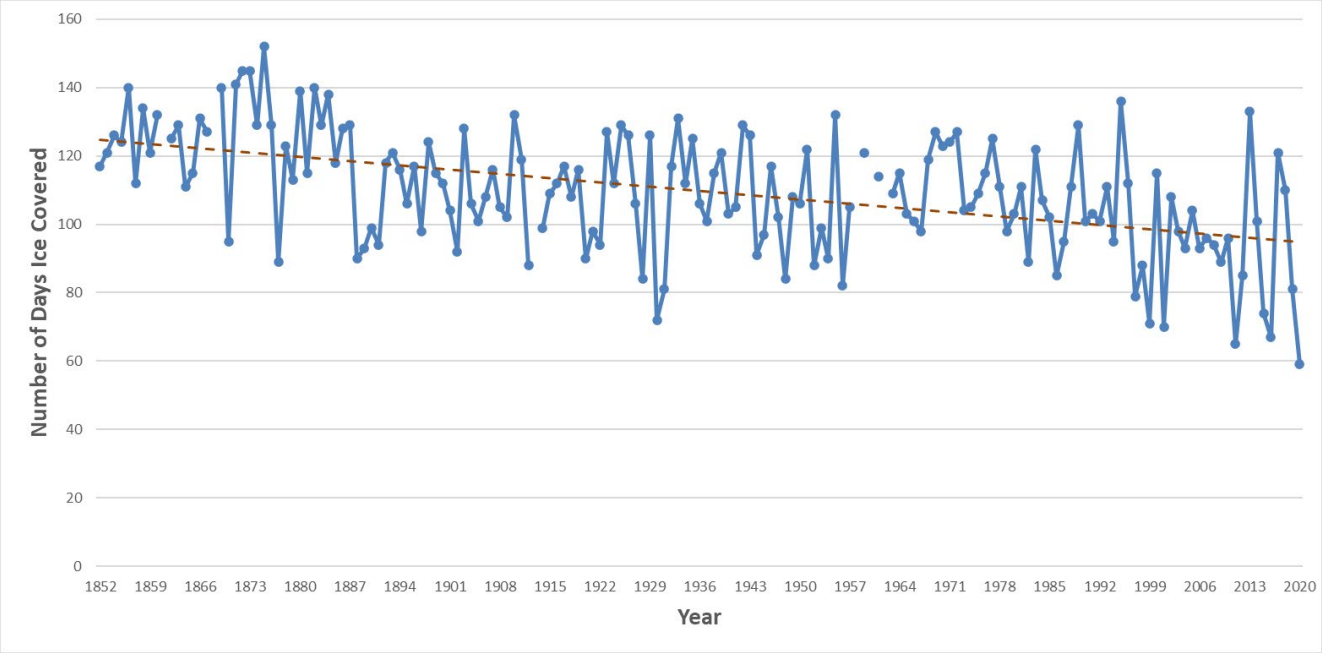


Figure 4-4 Decrease in the number of days of ice cover on Kempenfelt Bay

The LSRCA also provided the GIFN Project Manager with information from daily satellite photos. Full ice cover on Lake Simcoe from 2000 to 2020 was compiled and is presented in Figure 4-5 below using the daily satellite photos of Lake Simcoe from Moderate Resolution Imaging Spectroradiometer (MODIS, n.d.) and NASA Earth Observing System Data and Information System (EOSDIS) Worldview (NASA EOSDIS, n.d.) websites. Based on the satellite photos, in 2001-2002 and 2011-2012, the Lake was unfrozen throughout winter. Additionally, the trend noted in 2018 and 2020 was a freezing of the Lake for a few days, followed by a short thawing and then refreezing.

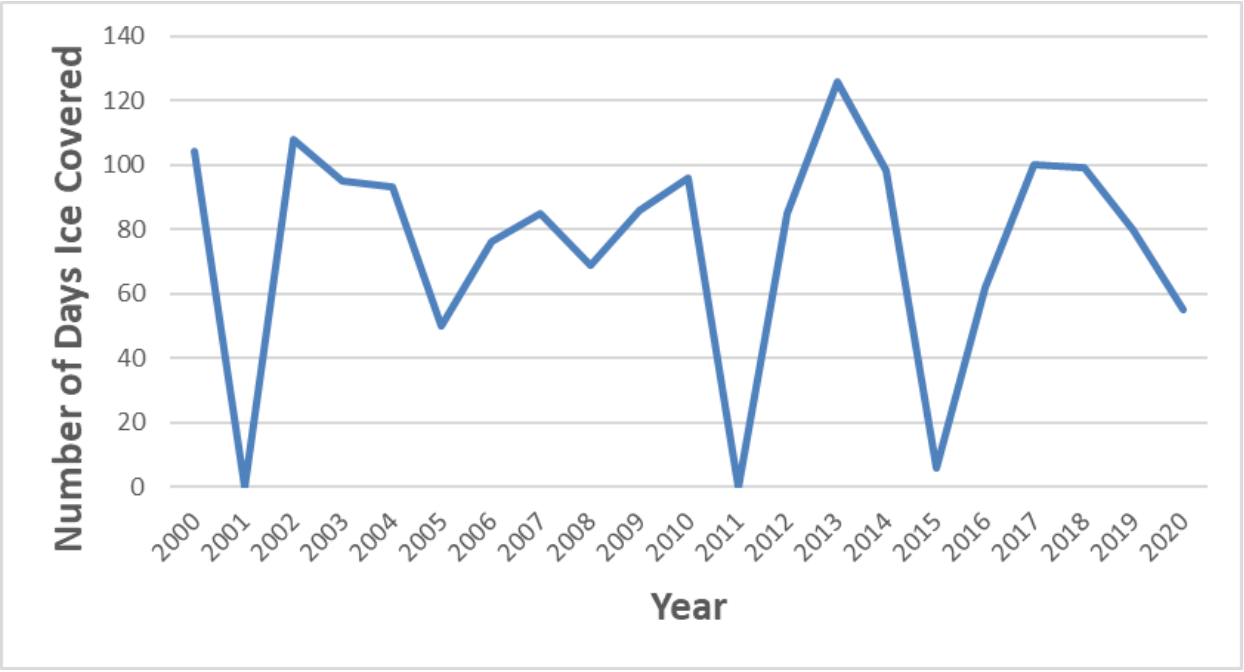


Figure 4-5 Number of days of full ice cover of Lake Simcoe from 2000 to 2020
(Information was compiled by the GIFN Project Manager from the daily satellite photos taken by MODIS, n.d. and NASA EOSDIS, n.d.)

Historically, the ice road was typically operational from December to April (i.e., five months). More recently, as a result of milder winters, the GIFN community typically only observes a maximum of three months of ice cover suitable for travel (Key Person Interview in August 2021). This community knowledge corresponds with the data presented in Figure 4-5 where the average number of days of ice cover for Lake Simcoe was approximately 75 days (or approximately 2.5 months) from 2000 to 2020. The data collected from the Ministry of the Environment, Conservation and Parks (MECP) also illustrates a shorter duration of ice cover. The ice road season, which used to be operational in December, now freezes in January (Key Person Interview in August 2021).

Based on the Minister of MECP's 10-year report on Lake Simcoe, total annual precipitation at the Environment and Climate Change Canada (ECCC) weather station located at Shanty Bay on Lake Simcoe has remained unchanged from 1980 to 2018 (MECP, 2020). However, community members have noticed an increase in precipitation during the winter months.

Through one of the Key Person Interviews, it was identified that the shoreline for the Island received southern exposure to the sun, resulting in the shoreline thawing quicker in the Spring compared to the middle of the lake and the landing areas on the mainland (Key Person Interview in August 2021). Although the Island ferry landing thaws quicker, the Ferry can only operate until the ice is reduced to a minimal level such that it can be broken by the Ferry going through it. Starting of the Ferry season is based on the judgement of those who have an in-depth understanding of the ice conditions and have experienced the ice conditions on Lake Simcoe over decades. Starting the Ferry season too soon can potentially damage the Ferry, if there is too much ice floating around in the Lake.

Impact Due to Current Transportation Options

Based on the trends presented above, there is ample evidence that climate change significantly impacts the GIFN community's transportation options.

Individuals who have lived and grown up on the Island have seen climate change impacting the transportation options for the community. The transportation manager for the Island identified that in his 55 years of experience he has noticed that "*the weather we are getting now [is] not as near as cold as when I was younger*." With milder winter temperatures, the ice conditions are significantly less safe to travel on compared to historical conditions when the ice road travel was more reliable, specifically for driving (Key Person Interview in August 2021). As such, the community now has an increased reliance on the Scoot as a means of getting to and from the mainland to access grocery stores, schools, work and all essential and non-essential services.

It is important to identify that during the Key Person interview and the Steering Committee meeting, the use of the airboat as a regular shuttle or a taxi rather than an emergency search and rescue vehicle (as it is meant to be) was discussed on numerous occasions. The increased usage of the Scoots results in increasingly significant amounts of resources being spent on the maintenance and repair of the airboats. Of the four Scoots, one or two are typically out of service (i.e., broken down) at any given time. Additionally, every three years a Scoot has to be replaced with a new one due to high utilization throughout the year resulting in increased wear and tear. The Scoot is vital for safe travel to and from the Island; however, community members consider riding on a Scoot a "brutal ride" (i.e., it is described as very uncomfortable) and only in those times when there is two to three inches of snow is the ride somewhat comfortable (Key Person Interview in August 2021). For seniors, individuals over 50, and those with mobility issues, getting on and off the Scoot is difficult, especially because one has to step over 3 to 4 feet of the side of the airboat to board making it difficult to get on and off. Based on the community survey results, several individuals avoid using the airboats due to the uncomfortable ride. Chief and council also noted that there are concerns about occupational health and safety for transportations workers due to weather and the pounding they take operating the Scoots, and it is becoming more difficult maintaining existing or hiring new staff to operate these vessels.

The Scoot is the safest way to get to and from the Island when the Ferry is out of season. Due to safety and liability concerns during the colder months, Chief and Council require older students in grades 6 through 12 to take the Scoot to school. For some students, this means having to wake up much earlier in the morning to make sure they reach the mainland in time for school. Further discussion on education is provided in Section 4.3 and Section 4.5 of this report. Children are particularly impacted by the transportation options as a lack of safe and reliable transportation can potentially restrict them from participating in extra-curricular activities and socializing with friends and family living off the Island.

The condition for crossing the Lake is considered to worsen every year, especially via the ice road (Key Person Interview in August 2021). The GIFN community, collaboratively with Ontario Centre for Climate Impacts and Adaptation Resources, has developed a Climate Change Adaptation Plan, which recommends adaptation measures to address current and future impacts of climate change (GIFN, 2015). The Climate Change Adaptation Plan was a three-year project that started in 2012.

Effect Characterization

This section of the HIA has been limited to climate change in context to community transportation. Based on the information available and the evidence from literature, the effects would be regional as climate change impacts are a regional and global phenomenon. The magnitude and likelihood are both high based on the data available. The effect characterization has been limited to assessing impacts of climate change on community transportation and the potential health consequences are negative due to the indirect and direct impacts discussed in this Section.

Table 4-2 Effect Characterization for Climate Change

	Affected Populations	Magnitude	Likelihood	Potential Health Consequence	Level of Confidence
Climate change	Regional	High	High	Negative	Medium

4.2 Safety and Security

This section characterizes the potential health impacts associated with safety and security on the GIFN community should they impact the availability and reliability of current transportation options used by the community.

Safety, Security and Health

The lack of safety and security impact individuals as well as the community as a whole. Safety is directly linked to the prevention of physical risks/injury and to the perception of safety. As such, a lack of safety and security can lead to a number of mental and physical health issues. The perception of safety is psychosocial. Those that feel their safety and security have been compromised, or they do not feel a sense of safety and/or security, are more likely to experience negative impacts on their health including stress, anxiety and/or depression. In instances when there is an absence of a sense of community safety, it can lead to chronic stress which, in turn, can accelerate aging (Community Safety, 2021). The lack of community safety can include violent acts in surrounding neighbourhoods and homes, as well as accidental injuries from a variety of activities including transportation-related injuries. An example of transportation related injuries is accidents and injuries due to travelling on thin ice, as well as unsafe travel conditions during hazardous weather.

Current Conditions

GIFN, being an Island community, have stressed the safety concerns associated with crossing the lake especially during the winter freeze-up, ice road and spring thawing seasons. The discussion for this section will focus on the safety conditions during three (3) distinct times of travel to and from the Island: the winter freeze-up season, spring thawing season, and the ice road season. The freeze-up and thawing seasons are reported to be one of the toughest times of the year for community members because the Ferry is not in operation and the ice road is not safe to travel on (GIFN, 2011). During the freeze-up and thaw seasons, the ice is not fully formed. The ice road season is the only time when community members can use the ice road, given the ice and weather conditions are appropriate. Without an operational ice road, the airboats are the only other transportation option available to get to and from the Island. Every spring for a period of three weeks to a month, the only option to get to and from the Island is via the airboats. During the HIA Steering Committee meeting, the month of March was specifically referred to as “Scoot season” as it is often the time of the year when Scoots are utilized as the only viable mode of transportation.

Furthermore, the Ferry is aging and is having more frequent and lengthy repair/maintenance requirements to keep it operational. This has led to significant concern as to the safety and security of this transportation method, as well as stress over the reliability and ongoing costs to the community.

Through Community Health Survey results, 78% of the respondents identified that the freeze-up and thaw seasons impact the number of crossings that typically would have been made due to safety concerns with the Scoot and side by sides. The main concerns identified with travelling during freeze-up and thaw seasons are associated with the safety concerns with the Scoot or side by sides, and the reliability of the Scoot. During the freeze-up and thaw seasons, the top three modes of travelling to and from the mainland by individuals living permanently on the Island were the side by sides (68%), personal car or truck (38%) and the Scoot (33%) as shown in Figure 4-6.

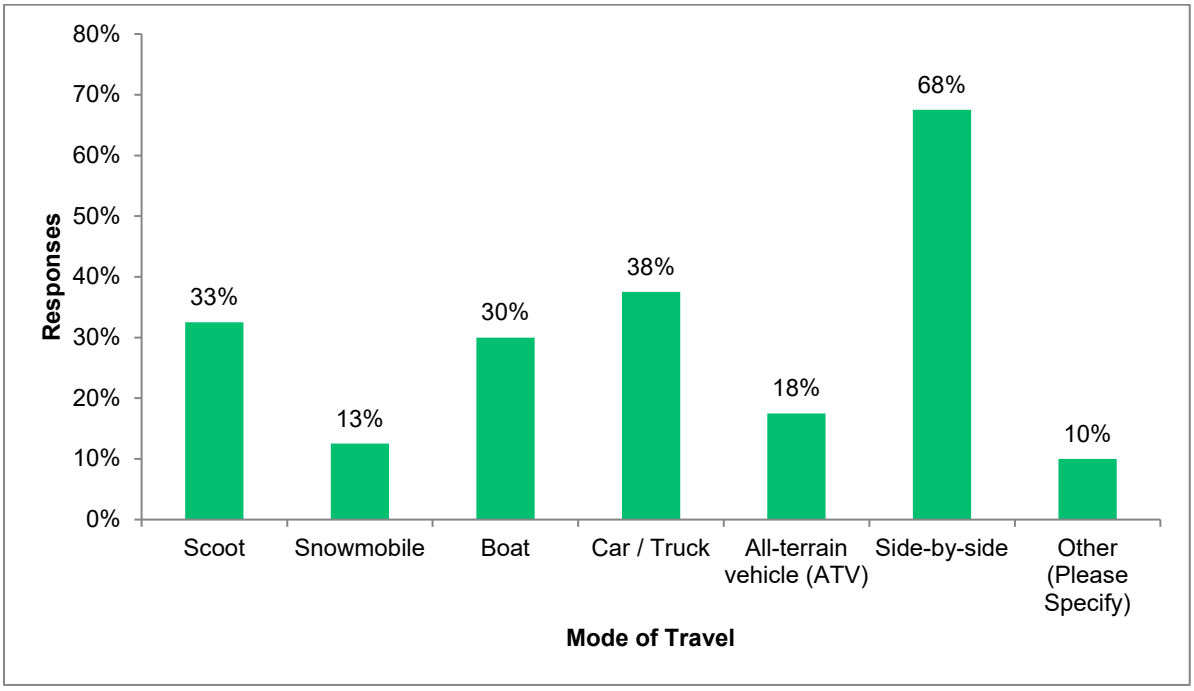


Figure 4-6 Survey results from respondents living permanently on the Island when asked "Generally speaking, what is your preferred method of crossing during the freeze up and thaw seasons? Please check all that apply."

During the ice road season, all respondents of the Community Health Survey living permanently and partly on the Island have reported that they use the ice road either multiple time a day (35%), once a day (26%), multiple times a week (19%) or once a week (21%), when it is operational as shown in Figure 4-7.

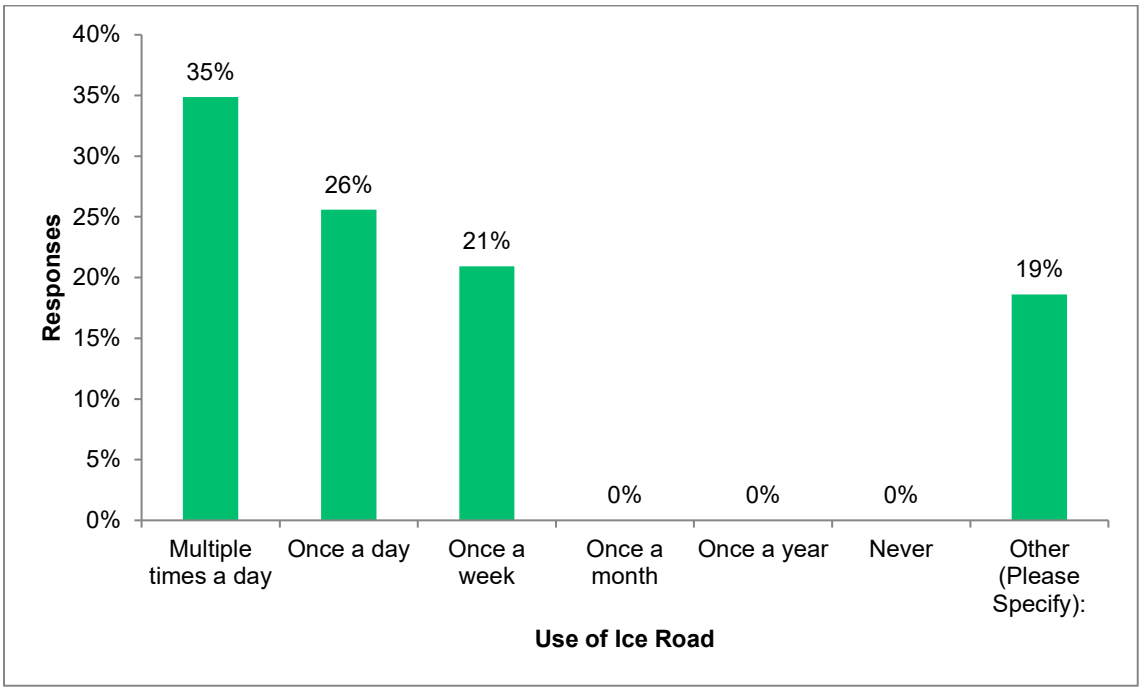


Figure 4-7 Survey results from respondents living permanently and part time on the Island when asked "How often do you use the ice road when it is operational?"

The ice conditions can rapidly change, and, through the Steering Committee meeting, it was highlighted that there is now more awareness about daily ice conditions due to social media. However, accidents still occur and have been reported by the community. Due to the unpredictability of the thickness of the ice road, at least two cars have been reported to fall through the ice in the last five years (Key Person Interview in August 2021). In Figure 4-8, the photo on the left shows a car that went through the ice, and the right photo shows a car being towed out of the lake.



Figure 4-8 Pictures of a car in the Lake (left) and a car being towed out of the lake (right) (Photographs provided courtesy of GIFN)

As reported by subject matter experts in the GIFN community, historically, the ice thickness on the ice road during winter was checked once or twice a week but due to a changing climate, it is now checked daily and sometimes even multiple times a day if conditions are deemed to be rapidly changing. Ice thickness is measured using an auger and takes approximately 1 to 1.5 hours to be measured. Although the ice thickness is now checked daily during the winter, the conditions can rapidly change, sometimes in a matter of minutes. Cracks in the ice are identified in places where they were not historically present before which means that three or four ice roads are often created (rather than just one) to account for places on the lake where the ice has cracked. To create ice roads, the area is first plowed. Snowbanks are then created by driving a snow blower across the ice road. The community has three to four different ice road landings on the Island which are regularly used to get on and off the ice. The landings on the Island are connected to two places on the mainland.

The thickness of ice on the ice road and lack of safety associated with cracks are intertwined factors. Historically, the thickness of ice on the ice road has been recorded to be approximately 35 inches (or 88 cm), but in 2020, the ice thickness was only approximately 18 inches (or 45 cm) (Key Person Interview in August 2021). Typically, to drive on the ice road in a pick-up truck, a minimum ice thickness of 12 inches (or 30 cm) is deemed to be safe.
When assessing ice road safety in relation to ice cracks, as per subject matter experts, if the distance of the crack is relatively small on an ice road with the ice thickness of 35 inches or

greater, the ice road is still considered safe for travel. In some instances, ice cracks can be several kilometers long with the ice getting progressively thinner, making the ice road dangerous and unsafe to travel on.

Impact Due to Current Transportation Options

The safety concerns with transportation to and from the Island have direct impacts to physical health and wellbeing as the unpredictable ice conditions could cause injury or death through accidents. The unpredictability of ice conditions amplifies the inherent hazard associated with travelling on the ice. The HIA has discussed the current and predicted ice conditions and the associated risks with travelling on the lake in the shoulder seasons (i.e., during winter freeze-up and spring thawing seasons) and in winter. Safe travel over the ice road is key consideration when assessing the overall safety and security of GIFN community members. Since the late 1800's, the GIFN community has a record of at least seventeen people who have passed away due to unsafe conditions (i.e., storms and poor ice conditions) while attempting to cross the Lake (GIFN, 2011).

Based on the ice conditions and environmental changes discussed in Section 4.1, data trends indicate that ice road conditions will continue to deteriorate in the future. As such, climate change has the potential to cause increasing number of accidents and injuries due to thin ice and unsafe travel conditions in the winter and shoulder seasons. In addition to physical risks (e.g., injury), travelling on unpredictable ice roads has monetary risks as well where individuals could have costs associated with damage to or lost of equipment, including personal vehicles (Ford et al., 2008).

Due to the inherent risks associated with ice road travel, some individuals on the Island try to wait for the Scoot or Ferry if they can, rather than travel by themselves on the ice road (Key Person Interview in August 2021).

As discussed in Section 4.1, climate change has impacted the quality of the ice road and also the duration of the ice road season. With the increased unpredictability of ice formation due to climate change, younger generations of GIFN now have limited knowledge associated with the ice road. Historical knowledge related to weather patterns and determining ice road safety is no longer necessarily accurate – daily checks of ice road safety are now required (Key Person Interview in August 2021). However, it should be noted that community members planning on travelling the ice road communicate with individuals with the knowledge of ice thickness and daily conditions on the Lake to determine if the ice road is suitable for travel. In addition, through Key Person Interviews, it was identified that the GIFN community also relies on social media to communicate conditions on the Lake as well as any associated safety concerns.

The Scoot is considered to be the safest option to travel to and from the Island when the Ferry is out of season (Key Person Interview in August 2021). Although the Scoot is a key mode of transportation for the GIFN community, airboats, in general, are designed for emergency situations (i.e., search and rescue). However, as mentioned in Section 4.1, the GIFN community uses the Scoot as a shuttle to regularly transport students, medical staff and community members to and from the Island. During the freeze-up and thaw seasons, respondents of the Community Health Survey have identified that travelling on the Scoot is uncomfortable and difficult, especially for community members with accessibility requirements and physical ailments such as back pain. Eighty-five percent of the respondents living permanently on the Island have identified that the freeze-up and thaw seasons impact the number of crossings they would typically make to and from the Island. Eighty-five percent of the respondents living

permanently on the Island have identified that the freeze-up and thaw seasons impact the number of crossings they would typically make to and from the Island. Respondents have:

- Expressed safety and reliability concerns with using the Scoot or side by sides during the freeze-up and thaw seasons;
- Changed their schedules and prepared for the weather in advance to avoid or minimize travel during this time of the yea; and,
- Identified the Scoot to be uncomfortable (i.e., too bumpy and difficult for those with health concerns like back problems).

In addition to ice conditions, wind is an important environmental factor when utilizing the airboat (Key Person Interview in August 2021). When there are strong winds, the airboat is no longer a safe and viable option. On several occasions during the winter, due to high winds, students attending school at the mainland are asked to leave school early to ensure they have a safe journey back to the Island. Concerns have been raised about occupational health and safety for transportations workers due to weather and the pounding they take operating the Scoots, and Chief and Council indicated it has become more difficult maintaining existing or hiring new staff to operate these vessels.

First responders travelling to and from the Island also face the inherent risks associated with travel during winter. Travel to the Island varies between the emergency services. Police officers use the Ferry, their police boats, and the ice road (when operational) to come to the Island (Key Person Interview in August 2021). Firefighters travel to the Island to respond to emergencies either on the Ferry or on their airboats (similar to the Scoot) and do not use the ice road. The Island does have a firetruck and pumper but when additional support is needed from firefighters from the mainland, firefighters from the mainland come to the Island as additional resources (without equipment or additional trucks) (Key Person Interview in August 2021). Community access to emergency services is discussed further in Section 4.5.

Effect Characterization

The effects of transportation options to and from the Island on safety and security of the community are felt throughout the GIFN community, among those who live on and off the Island. The magnitude of the potential impact on health is high. Due to the increased communication via social media regarding lake and ice conditions, the daily checks of ice thickness and role of the transportation department, the likelihood of an accident or injury occurring is medium. The lack of safety and security related to the current transportation options are anticipated to diminish health and well-being.

Table 4-3 Effect Characterization for Safety and Security

	Affected Populations	Magnitude	Likelihood	Potential Health Consequence	Level of Confidence
Safety and Security	Regional/ Proximate	High	Medium	Negative	Medium

4.3 Employment and Local Economic Growth

This section characterizes the potential health impacts associated with individual and community economic opportunities within GIFN that are potentially impacted by current transportation options available to the community.

Employment, Local Economic Growth and Health

Income and employment play a critical role in determining the overall health and well-being of individuals. In general, better health status is associated with higher income and social status whereas lower income and social status are associated with lower health status (Greenwood & de Leeuw, 2012). Education, income and employment/occupation are considered to be constituent indicators for socioeconomic status.

Indigenous peoples in Canada disproportionately experience socioeconomic inequalities compared to non-Indigenous peoples due to the rooted historical, political and social conditions which have influenced Indigenous communities over generations (Greenwood & de Leeuw, 2012; Public Health Agency of Canada, 2018). On average, Indigenous people in the Canadian labour force have significantly lower annual earnings compared to other Canadians (Reading & Wien, 2009) and are also less likely to be employed and participating in Canada's labour force. As a result of these long-standing inequities, Indigenous people in Canada experience high rates of unemployment, poor housing and low literacy rates, which further contribute to increased poverty and social exclusion. Put together, these factors lead to poor health outcomes within Indigenous populations throughout the country. Moreover, experiencing social exclusion can further deter individuals from pursuing education and employment opportunities.

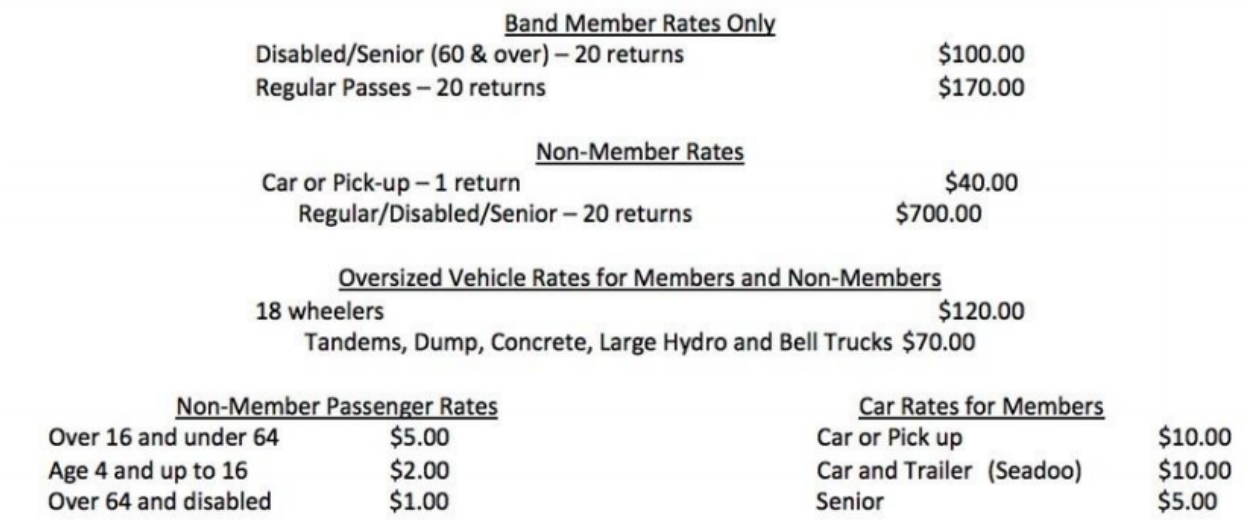
Poverty is a barrier to accessing critical resources that impact overall health and well-being (Reading & Wien, 2009). For instance, a lack of access to nutritious food can lead to higher rates of obesity and diabetes as well as poor cardiovascular and renal health. Poverty also impacts mental health by increasing psychosocial stress (e.g., anxiety, insecurity, feelings of hopelessness and low self-esteem) (Reading & Wien, 2009). An individual's poor mental health can affect their physical health due to higher risks of infection, high blood pressure, depression, suicide, and substance misuse and abuse. Impacts to mental health and well-being of GIFN are discussed in more detail below in Section 4.4.

Current Conditions

As indicated above, the three main indicators important to socioeconomic status are income, employment/occupation, and education. The current conditions associated with employment and impact are discussed below; access to education is discussed further in Section 4.5. As presented in the baseline community profile in Section 3.0, it is important to note that the demographics of GIFN were developed using the Statistics Canada 2016 Census data.

Employment and Income

Based on the 2016 Census data, approximately 60% of GIFN Members were employed and approximately 70% has a high school diploma or equivalency certificate (as seen in Table 3-4 in Section 3.0). The median total income for GIFN in 2015 was $26,368 versus an Ontario-wide median of $33,539 (Statistics Canada, 2017a). The average household income for GIFN was $44,160 compared to the average household income for Ontario $74,287. Being an Island community, community members have an additional cost associated with transportation to and from the Island. Figure 4-9 present the current fares associated with the Ferry. The fare for the Scoot is $5 per trip (Key Person Interview in August 2021).



Band Member Rates Only

Disabled/Senior (60 & over) – 20 returns	$100.00
Regular Passes – 20 returns	$170.00

Non-Member Rates

Car or Pick-up – 1 return	$40.00
Regular/Disabled/Senior – 20 returns	$700.00

Oversized Vehicle Rates for Members and Non-Members

18 wheelers	$120.00
Tandems, Dump, Concrete, Large Hydro and Bell Trucks	$70.00

Non-Member Passenger Rates

Over 16 and under 64	$5.00
Age 4 and up to 16	$2.00
Over 64 and disabled	$1.00

Car Rates for Members

Car or Pick up	$10.00
Car and Trailer (Seadoo)	$10.00
Senior	$5.00

Figure 4-9 2021 Fares associated with Aazaahwe Ferry

Education

The Island has an elementary school that goes up to grade 5. However, students after grade 5, in addition to community members who are seeking higher education, need to travel to the mainland. Access to education is discussed further in Section 4.5.

Local economic growth

At the community level, GIFN has several services and facilities which contribute to the economic revenue of the community and support its economic growth. The local economy is small (GIFN, 2011), with the greatest market interest in the tourism industry (CAI, 2019). Private entrepreneurs on the Island have craft stores, convenience stores, hiking trails, campgrounds, summer cabins and winter ice-fishing huts (GIFN, 2011). The Nanabush trails and campgrounds on the Island also provide opportunities for tourism for GIFN.

In 2016, the Island View Business Centre was developed which include businesses such as the Virginia Beach Marina, the Boondocks Eatery, Tobacco Trails Smoke Shop, Retail and Lotto, and the First Nation Lands Management Office and Holder Law Firm (GIFN, 2013). The Virginia Beach Marina is owned by the community and is intrinsically intertwined with the transportation options currently available to the community. The Virginia Beach Marina functions as the Ferry dock on the mainland.

Impact Due to Current Transportation Options

The current transportation options could have the potential to impact community members' employment status if they need to travel to the mainland. Almost half of the respondents of the Community Health Survey who live permanently on the Island have reported missing work or being late for work one to five times in a typical year due to a down Ferry (i.e., broken or in maintenance). In order to avoid missing or being late for work and appointments, community members living on the Island anticipate when the Ferry may be congested or when there could be potential delays and plan accordingly. To avoid missing work, community members travel to work earlier than they otherwise would have. It is important to note that the requirement to cross the Lake to get to the mainland is a routine part of GIFN Members' lives and many routinely modify their schedules to ensure they get to their destinations on the mainland. Respondents of the Community Health Survey identified that the scheduling of the Ferry impacts work schedules

where some Members have to leave work early because last Ferry is 9 pm. Based on the Community Health Survey, one community member that lives on the Island permanently reports having lost multiple jobs due to the uncertainty of the Ferry.

As discussed above, all GIFN Members pay a fare to use the Ferry and airboat. Although approximately 46% of the community members living permanently on the Island identified that the costs associated with the current transportation options do not pose a financial hardship, while 38% of the respondents indicated that the transportation options pose a financial hardship. Fifteen percent preferred not to answer. In addition to the fares that community members pay, some individuals also own two vehicles to keep on both sides (i.e., one on the mainland and one on the Island). Costs associated with the Ferry and Scoot have the potential to negatively impact the cost of living for those that may be disproportionately impacted (e.g., individuals with low-income).

Broadly looking at the community, the local economy for GIFN is limited by the access to and from the Island (CAI, 2019). Most of the current economy is focused on tourism and it is important to note that this season is limited to the summer when there is access to the Island via the Ferry. In the winter, most tourists will not travel the ice road to visit the Island. As such, there is limited growth for the local businesses on the Island during most of the year.

Based on discussions with community members through the engagement sessions, increased traffic to the Island during Ferry season was noted to be associated not only with tourists and friends of community members visiting the Island but also due to increased construction on the Island. Construction workers routinely use the Ferry to bring materials to the Island. Older homes and other important infrastructure are being updated along with new additions to the Island such as new homes, cottages and roads. Larger vehicles associated with the movement of materials and goods, such as lumber, gravel and cement trucks take up a lot of room on the Ferry (Key Person Interview in August 2021). Increased traffic associated with tourism, cottagers and constructions also lead to increased stress and impact mental well-being (discussed in Section 4.4). Based on the data provided by the GIFN Project Manager, Figure 4-10 illustrates the increase in the number of commercial vehicles (e.g., vehicles involved with construction such as trucks) utilizing the Ferry over the past 14 years.

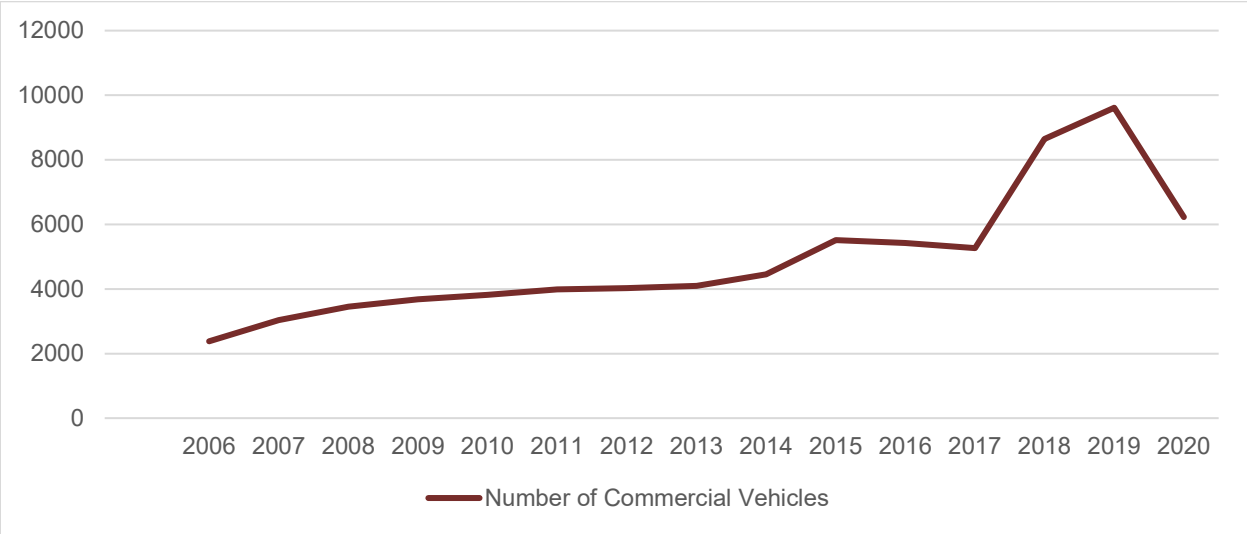


Figure 4-10 Number of Commercial Vehicles Using the Ferry

The Ferry is a vital transportation mode for those visiting, working and living on the Island. The HIA Steering Committee highlighted that the Ferry, after 25 years of use, is now an aging vessel. Chief and Council have increasingly been required to direct more and more resources towards the maintenance of the Ferry. Over the last few years, especially from 2018-2020, there has also been an increase in the costs associated with the repairs for the Ferry (Figure 4-8). Based on the "Chippewas of GIFN operating schedule of revenues and expenditures", the repairs and maintenance costs for the Ferry was $344,240 in 2015, whereas last year, the costs were $589,119. The increasing trend is anticipated to continue for the repairs of the Ferry. These are significant costs to the community. When the Ferry is inoperable due to maintenance and repairs, there are implications for the community, especially for individuals travelling to the mainland for work, with medical appointments and for students.

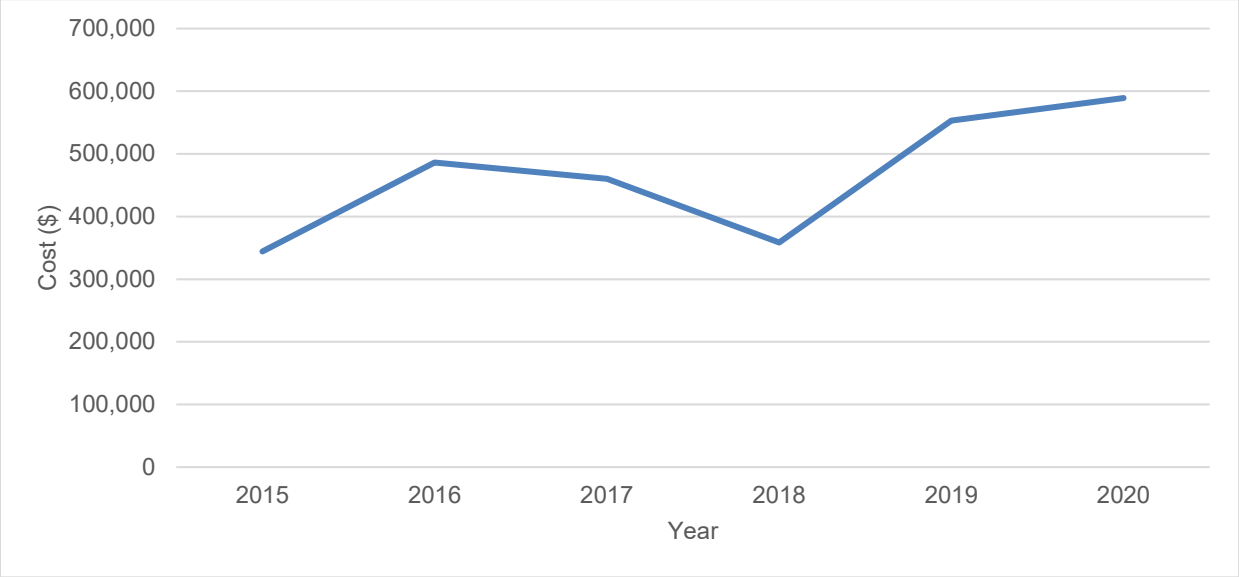


Figure 4-11 Costs associated with Ferry repairs and maintenance

Effect Characterization

Based on the current transportation options, the economic impacts are felt proximately. Visitors that may wish to explore the Island during the winter and shoulder seasons would be hesitant in using the ice road due to the unpredictability and safety concerns discussed in Sections 4.1 and 4.2. Given that the Island is located in a rapidly developing area and is in close proximity to the densely populated Greater Toronto Area, the probability of attracting visitors and tourists throughout the year for both summer and winter activities is high. As such, the uncertainty arising from the unpredictable transportation options potentially has a high likelihood of impact with a medium magnitude. Overall, the unpredictability and uncertainty around current transportation options potentially limits employment opportunities for individuals, as well as local economic growth of the community. This potentially results in negative health impacts. As the data and information used for this assessment have been sourced from various means, this effect characterization can be made with a high level of confidence.

Table 4-4 Effect Characterization for Economic

	Affected Populations	Magnitude	Likelihood	Potential Health Consequence	Level of Confidence
Economic	Proximate	Medium	High	Negative	High

4.4 Mental Well-Being and Health

This section characterizes the potential mental health impacts on the GIFN community as a result of the unpredictability of the current transportation options used by the community.

Mental Well-Being and Health

The WHO defines mental health as “a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community” (WHO, 2004). As such, it can be expected that mental health varies over an individual’s lifetime, and is a function of the many factors that can act as stressors. Transportation, and access to it, is a factor that connects the different strands of our day-to-day activities. Hence, lack of efficient, reliable or equitable transportation can lead to stress-related mental health impacts (reviewed in Cohen et al., 2014). Mental health issues, over time, can manifest as physical symptoms. Chronic stress and anxiety can lead to severe health outcomes such as depression and the increased possibility of self-harm. Although there is variation between communities, Indigenous populations in Canada disproportionately suffer from mental and physical health concerns (Nelson & Wilson, 2017). In addition to this disproportionate mental and physical health burden, climate change has emerged not only as an additional stressor, but also as a magnifier of existing physical and mental health burdens, adding a further layer of stress and anxiety. This magnifying impact of climate change is felt most acutely among those who have a heavier reliance on and a deeper connection to their natural environment.

As previously mentioned in Section 4.1, warming temperatures due to climate change are causing changes in the pattern of ice road formation. For those who rely on the seasonal ice formation, these climate change impacts negatively affect individuals’ mental health and well-being. Changes to the climate and the environmental are additional stresses in one’s personal life. Participants from an exploratory case study in Rigolet, Nunatsiavut, Canada revealed that the environmental and climate-change related stress was increasing levels of mental health impacts such as additional family stress, substance abuse, anxiety, depression, pre-and-post-traumatic stress, and suicidal ideation (Cunsolo Willox et al., 2013, see Figure 4-12).

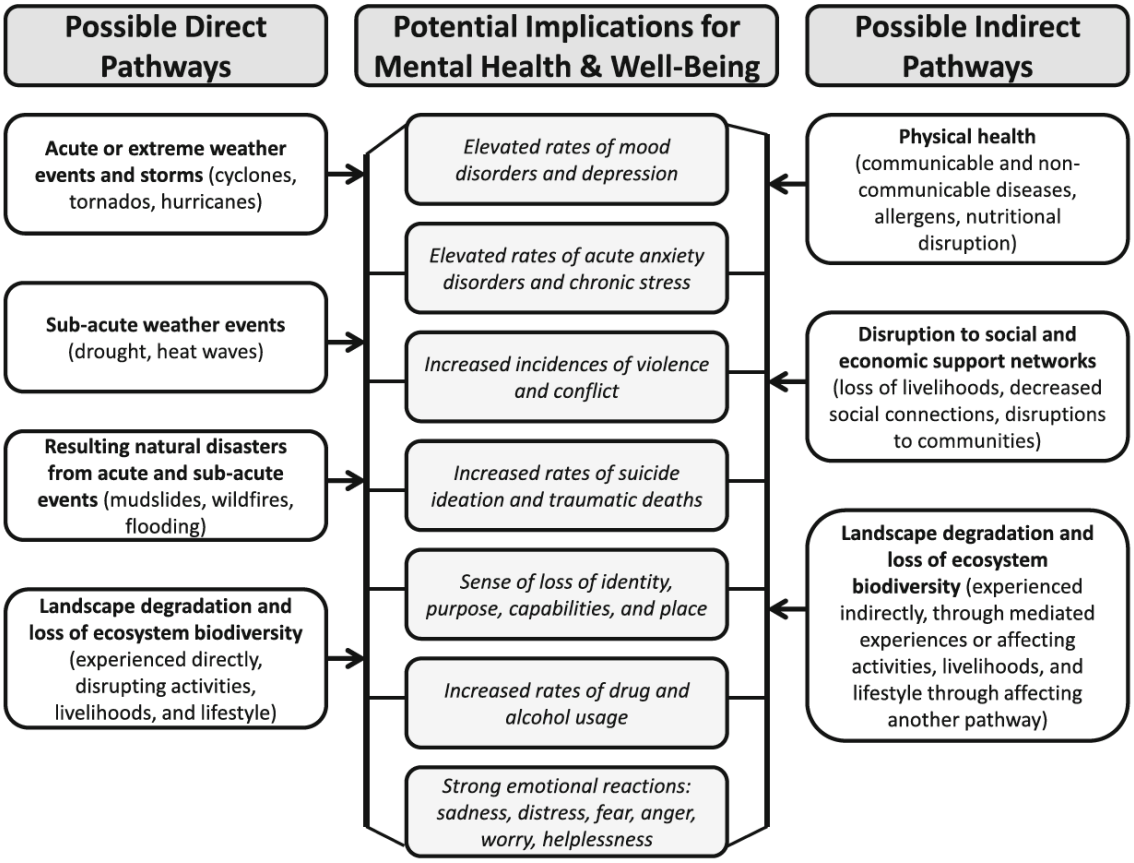


Figure 4-12 Possible direct and indirect impacts of climate change on mental health and well-being

(Source: Cunsolo Willox et al., 2013)

Current Conditions

The Community Health Survey included questions on health and access to healthcare services along with community health and well being. Based on the Community Health Survey, approximately two-thirds of GIFN community members (i.e., living on the Island and off the Island) had ranked their overall mental health as good or very good (Figure 4-13), and about half of the community members ranked their overall physical health as good or very good (Figure 4-14).

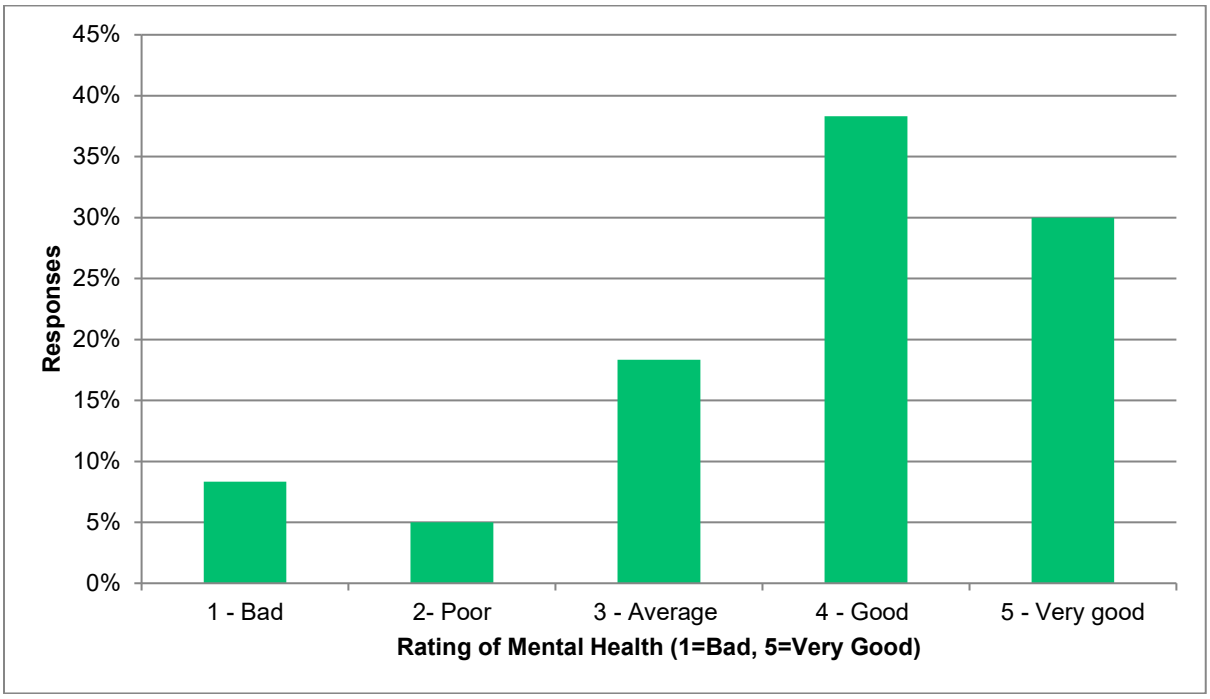


Figure 4-13 Survey results from all respondents when asked "On a Scale of 1 to 5, how would you rate your overall mental health?"

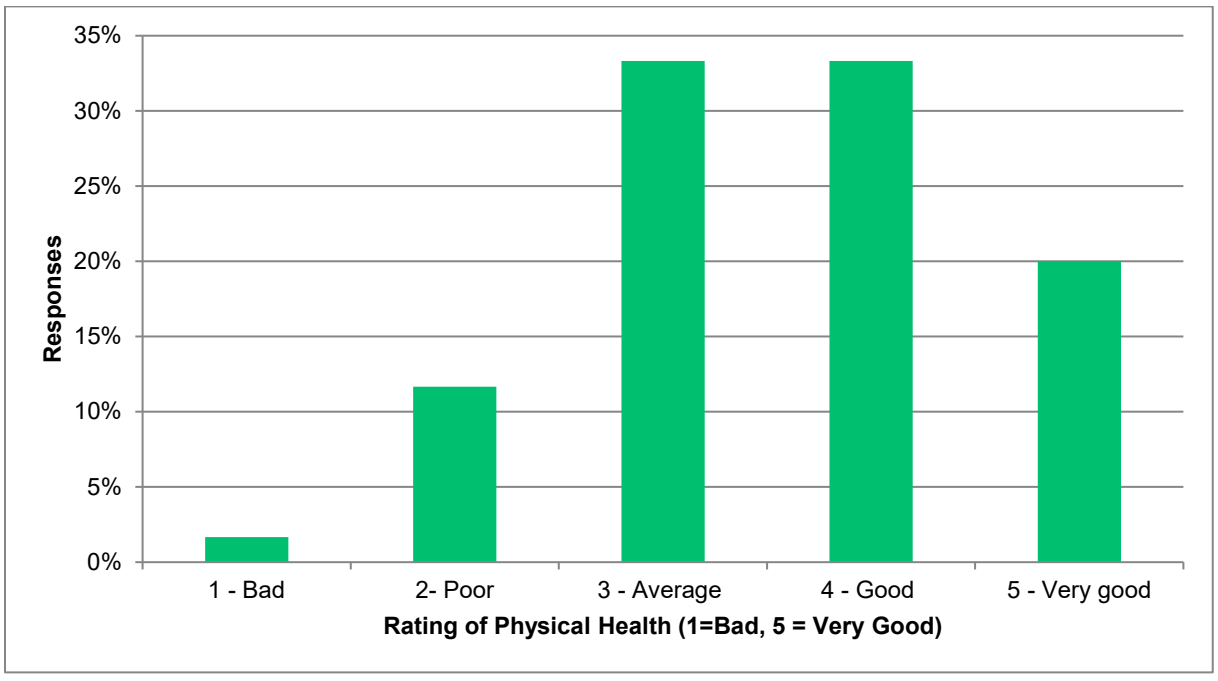


Figure 4-14 Survey results from all respondents when asked "On a scale of 1 to 5, how would you rate your overall physical health?"

Responses from the Community Health Survey have indicated that community members living on the Island have primary health concerns related to smoking/vaping and mental health issues (e.g., depression and anxiety).

When asked “what health care services offered on Georgina Island are you aware of?”, the majority of respondents living permanently on the Island indicated that they were aware of the health clinic on the Island with in-community access to the doctor and nurse who visited the community. However, a lower number of respondents living permanently on the Island (33%) were aware of the mental health care/therapy services available to them. Furthermore, more than 50% of the respondents identified that the community requires mental health care and counselling services. These results were shared with the HIA Steering Committee members, and it was identified that there have been interventions to help address the mental health concerns in the community. For instance, additional mental health services including more therapists and psychotherapy have been provided and will be continued for the community.

Although a Community Health Survey was conducted, a comprehensive community health profile was not available for GIFN. For instance, the details regarding current health conditions such as chronic illnesses, cancer data, mortality data, hospitalization data, birth outcomes, etc., were not available specific to the community as part of the Census data.

Impact Due to Current Transportation Options

It is important to acknowledge that effects of intergenerational trauma (Aguiar & Halseth, 2015) and colonialism undermine mental well-being of Indigenous peoples. This section focuses on how the current transportation options impact mental well-being of community members, especially those living permanently on the Island. The determinants of health scoped for this HIA are all interconnected, especially when it comes to mental health and well-being.

As discussed earlier, the current transportation options available for the GIFN community are aging (i.e., Ferry), which impacts the quality of life for community members. The transportation options can be unreliable due to break-downs of the Ferry and airboats and due to weather conditions (i.e., ice conditions, wind conditions), all of which have the potential to contribute to stress-related disorders and other mental health issues. Based on the data provided by the GIFN Project Manager, since 2006, the Ferry breaks down for approximately a total of two weeks over the course of each year, and approximately 10 trips are cancelled annually. Throughout the responses received from the Community Health Survey, community members identified the current transportation options as being stressful and a source of anxiety for them. Almost all respondents identified that the current transportation options impact their mental health and well-being because they need to plan their daily activities based on the Ferry schedule. There are GIFN Members living off the Island who identified that the unreliability of the current transportation options made it difficult for their families to live on the Island full time due to their work, school and extra-curricular activities on the mainland.

As discussed previously, there are additional stresses during the ice road season. The community has tragically lost Members over the years due to the lake conditions and many others have had accidents while travelling to the mainland or back to the Island. There are records of at least seventeen people who have passed away due to unsafe conditions since the 1800s (GIFN, 2011) of which twelve individuals were from the GIFN community. Travelling on the ice has inherent risks and with the community experiencing the loss of loved ones, it has made community members wary of travelling on the ice road. This mode of transportation is a source of anxiety for many living on the Island due to the safety concerns of crossing the Lake. Given the small nature of the GIFN community, these deaths have had significant impacts across the entire community and lasting effects.

Additionally, for a subset of the population living on the Island, the cumulative costs of transportation to and from the Island can lead to financial stress. A couple of respondents have

identified that coming to the Island should not be a financial burden for the community and those living on the Island. In the winter, there is a potential for additional costs associated with repairing or replacing vehicles that may be damaged or have fallen through thin ice.

During the Ferry season, especially in the summertime, GIFN Members (living both on and off the Island) have expressed their frustration with waiting long periods of time to get on the Ferry. The wait times for the Ferry are sometimes an hour or two due to the increased traffic associated with construction and visitors to the Island (i.e., family, friends, cottagers). The Ferry schedule is also a source of frustration for those visiting and living on the Island. On most days, the last Ferry back to the Island is 9pm. As this HIA was conducted during the Coronavirus (COVID-19) Pandemic, the Ferry schedule was modified to support the stay-at-home restrictions; the last Ferry everyday was 9pm from Virginia Beach.

As mentioned earlier, determinants of health are interconnected. Mental health can be negatively impacted by safety concerns related to travel, financial burden of transportation, and inconvenience related to accessing services on the mainland. The Community Health Survey asked questions pertaining to recreational activities on the mainland. Results of the survey indicated that more than half of the respondents living on the Island travel to the mainland for recreation activities such as golf, hockey, bingo nights, movie nights, baseball, karate, etc. These in-person social interactions can become unpredictable due to unsafe travel conditions, leading to reduced social capital and social cohesion, which can also impact metal well-being. From the Community Health Survey, 48% of respondents living permanently on the Island identified that they have missed recreational activities because of a broken-down Ferry one-to-five times in a typical year and 52% of the respondents reported being late to an appointment one-to-five times in a typical year. The current transportation options have been noted to impact community members' ability to access and participate in recreational activities; this is further discussed in Section 4.5.

Negative impacts to mental health and well-being include negative health outcomes, such as mental health disorders (e.g., depressive and anxiety disorders). It is important to note that feelings of anxiety and depression are at times early indicators of increased risk of mental and physical health concerns as they could be the initial stages of a serious mental health disorder. The mental well-being concerns identified from the Community Health Survey were further discussed with the Steering Committee members and it was identified that not only are mental illness and addiction key health concerns in the community, but the current transportation options are also additional stressors to pre-existing challenges community members face.

Effect Characterization

Based on the discussions provided above, the impacts from the current transportation options on mental well-being are felt by those living off and on the Island. The magnitude of impacts is medium, and the likelihood of the impacts is high as they are felt currently by many community members. Through discussions with the Steering Committee and Key Person Interviews, it became evident to the HIA Team that the current transportation options are a source of stress which add to pre-existing mental health concerns faced by some GIFN Members. As such, the potential health consequences of the current transportation options are identified to be negative. As the data and information used for this assessment have been sourced from various means (i.e., relied on the community health survey, the key person interviews, and the feedback from the HIA Steering Committee), this effect characterization can be made with a high level of confidence.

Table 4-5 Effect Characterization for Mental Well-Being					
	Affected Populations	**Magnitude**	**Likelihood**	**Potential Health Consequence**	**Level of Confidence**
Mental Well-Being	Regional/ Proximate	Medium	High	Negative	High

4.5 Access to Services

This section characterizes the health impacts of the current transportation options and the GIFN community's access to services.

Access to Services and Health

Transportation plays a huge role in improving quality of life through increased access to services that contribute to health and well-being. Transportation influences access to education, health services, healthy foods, education, employment opportunities, recreational resources and impacts social interactions all of which contribute to overall health and well-being. Isolated communities generally have fewer options of health services available compared to urban centers. This puts isolated communities (i.e., rural, remote, and northern communities in Canada) at a disadvantage because they likely need to travel greater distances to access the same level of health options that are readily available in heavily populated areas. Limited access to health services increases the likelihood of potential health problems left undiagnosed. Compounding the problem in places where health services are not readily available or are difficult to access, it is also often much more difficult to recruit additional health care workers due to relative isolation of these communities (NCCIH, 2019). Along with the time it takes to travel, the cost of transportation to and from appointments as well as the effects of leaving behind support systems all play a role in accessing services. These factors can lead to stress, anxiety, and even delayed recovery times (NCCIH, 2019). These barriers to accessing culturally appropriate and adequate health care are significant, ongoing, and have direct and indirect impacts on Indigenous people's health (NCCIH, 2019). It is important to note that for some, barriers can exist even if healthcare services are readily available, but culturally appropriate services are not available.

Access to community resources that promote healthy nutrition and physical activity such as recreational activities benefit overall physical and mental well-being of communities. Recreational activities such as swimming and golfing have direct health benefits and also indirect health benefits through social interaction.

Current Conditions

The community's current access to education, health services, recreational resources and social interactions are presented in this section.

The Niigaan Naabiwag Child Care Centre on the Island has a Kindergarten Early Learning Program. The Centre can take up 27 children from ages 0 to 6. Following the Early Learning Program, the Island provides education for children from senior kindergarten to grade 5 at Waabgon Gamig Elementary School. The school has a partnership with York Region District School Board (YRDSB) where the students can join sports teams, track and field events and elective days (GIFN, 2011) at Morning Glory Public School in Pefferlaw, Ontario (located on the mainland). Based on the Cultural Map completed in 2011, Waabgon Gamig teaches approximately 25 students from senior kindergarten to grade 5 every year and has 2

classrooms. Once students complete grade 5 at Waabgon Gamig, they attend school, starting from grade 6 through to higher education, on the mainland.

As previously discussed, several healthcare services are provided on the Island. Georgina Island Health Services offers general programs such as clinics associated with maintaining hypertension and diabetes, women's health, counselling services and prevention clinics. A full list of the programs and services offered are provided in Table 3-8. Based on the Community Health Survey, those living permanently on the Island rate their overall access to health services on the Island as average to good. However, these residents live on the Island have identified the inconvenience and frustrations of taking the Ferry and/or Scoot to access health services on the mainland, especially for specialist appointments. Additionally, during health emergencies, the community members living on the Island are brought to the mainland where an ambulance would then transport them to a hospital. The community does have a team of first responders on the Island in addition to a fire truck and hydrants to address potential fires on the Island (with the support of the Town of Georgina, if required).

The current transportation options impact access to various destinations which have effects on social and mental well-being (e.g., community and family interactions and recreational activities). As discussed in Section 4.4, barrier free access to social destinations such as visiting with family, friends and participating in recreational activities positively impact health outcomes. Seventy-two percent of the community members living on the Island report travelling to the mainland for recreational activities. The off Island activities include physical activities such as golf, hockey, baseball, karate, and dance, and social activities such as bingo nights, movie nights, art classes, and music classes.

Impact Due to Current Transportation Options

GIFN Members living permanently or part-time on the Island have to visit the mainland for many services and it is important to note that barriers to accessing services negatively impact physical and mental well-being.

The Community Health Survey asked what the top five reasons were for travel to the mainland in a typical week and the results are summarized in the table below (Table 4-6). Table 4-6 shows the variability by age group for the most frequent reasons to travel to the mainland.

Table 4-6 Top Five Reasons to Visit the Mainland for Community Members Living Permanently or Part of the Year on the Island (by Age Groups)

Ranking by percentage of selection	Under 25[a]		25-50[a]		Over 50[a]	
1	Groceries Getting gas Doctor / Dentist	100%	Groceries	100%	Groceries	95%
2	School/ Work /Meetings Shopping	50%	Getting gas	75%	Doctor / Dentist	90%
3	Not applicable	-	Doctor / Dentist	65%	Getting gas	80%
4	Not applicable	-	Banking needs	55%	Shopping	70%
5	Not applicable	-	Work / Meetings Shopping Sports / Recreational activities	35%	Banking needs	60%

Please note that there was a low survey response rate for community members under 25.
[a] The number of respondents which selected a listed reason is presented as a percentage.

The current infrastructure is an important consideration for accessing services such as healthcare (including emergency healthcare services), school, work, and recreational services on the mainland.

About half of the respondents (51%) living permanently on the Island reported in the Community Health Survey that they have missed a medical appointment 1 to 5 times in a typical year due to a down Ferry. Correspondingly, more than half the respondents (51%) living permanently on the Island have reported been late for a medical appointment because of a down Ferry at least between 1 to 5 times in a typical year.

For emergency health services, patients on the Island have to be transported to the mainland. Based on the Community Health Survey, a little more than half of the community members living on Island permanently, have not required emergency medical services (56%), and if they have, there were not delayed in receiving emergency medical care (15%). However, there were community members living permanently on the Island (15%) who identified that it took between 30 minutes to 1 hour for them to get from the Island to the mainland ambulance. Through Key Person Interviews, it was identified that there are several factors that determine the wait time for community members to reach the mainland to access emergency services, such as the location of the Ferry at the time of the emergency call and the nature of the call. As discussed in Section 4.1, in one instance, a pregnant woman had to stay in a hotel on the mainland to avoid riding the Scoot during the freeze-up season as per her doctor's advice; the doctor also believed she would not get to the hospital in time for the delivery if she was to stay on the Island.

In the event the Ferry is inoperable during emergency situations, Chief and Council have several additional back-up systems in place to ensure community members reach the ambulance on the mainland as soon as possible. Although the best way to transport patients in need of emergency services is by Ferry and the York Region Police boat, additional options to take patients to the mainland in emergency situations include the airboat, community push boat, a community member's boat which can hold a stretcher, and the Georgina Township fireboat. Based on an anecdote provided in the Community Health Survey, a pregnant woman in labour had called for 911 in order to get to the ambulance waiting on the mainland. On this occasion, a personal boat of one of the first responders was utilized to safely get the woman to the ambulance.

Based on the Community Health Survey, several respondents identified that although there is support in health services on the Island, some health problems need to be addressed promptly, leading to Members having to travel to the mainland (e.g., a month may be too long of a wait to address urgent health issues with a doctor). A majority of the Members living permanently on the Island go to mainland doctors (67%) and one-third of the Members (33%) visit the health clinic on the Island when they are ill. Based on the Community Health Survey results, overall access to healthcare services was rated as good or very good by 60% of the Members living permanently on the Island and as average by 27% of Members. Access to emergency health care was rated as generally good (38%) from those respondents living permanently on the Island (Figure 4-15). However, respondents of this question highlighted that access is limited due to the current transportation options.

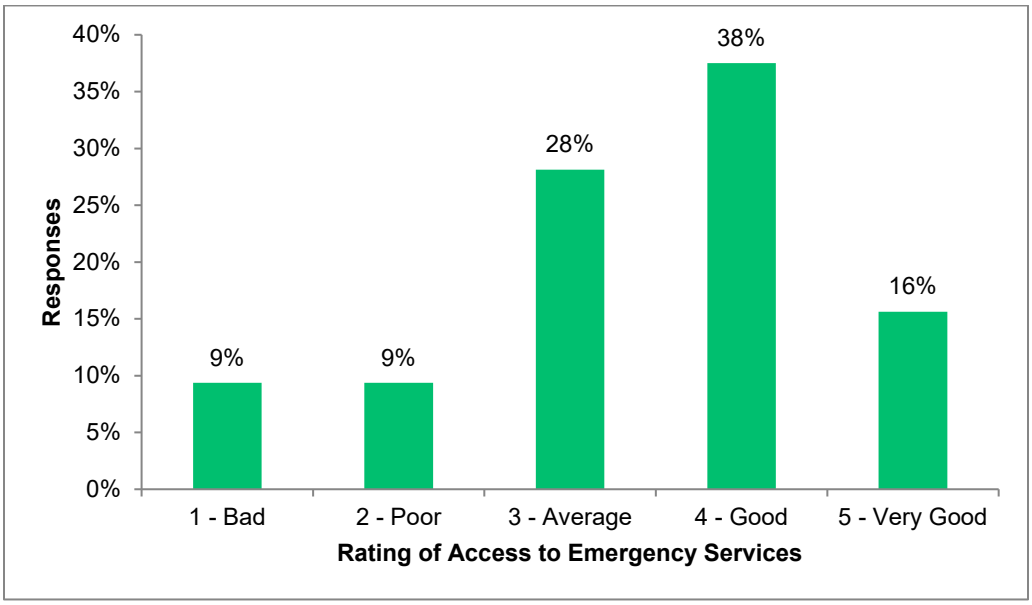


Figure 4-15 Survey results from respondents living permanently on the Island when asked "On a scale of 1 to 5, how would you rate your overall access to emergency healthcare services off the Island (emergency doctors, specialists, clinics, hospitals, etc.)?"

It is important to note that providing access to healthcare services on the Island has impacts to the distribution of financial resources within the community. For instance, the following table (Table 4-7) presents the costs associated with the health care providers travelling to the island using the Aazhaawe Ferry.

Table 4-7 Yearly Cost of the Georgina Island Aazhaawe Ferry for Health Services

Health Service	Number of Visits	Number of Ferry Trips per Year (round trip)	Yearly Cost ($10/trip)
Doctor	Monthly	12	$120
Nurse Practitioner	Weekly	50	$500
Masseuse	3 days per week	150	$1,500
Chiropodist	Once every 6 weeks	12	$120
Off-Reserve staff - 2	5 days per week each	500	$5,000
Counsellor	2 days per week	50	$500
Medical Transportation Trips (2 drivers)	Twice a day per driver (sometimes more)	500	$5,000
Total		**1,274**	**$12,740**

When the Ferry is operational, emergency vehicles (i.e., firefighters and police) utilize the Ferry. However, availability and access to emergency services is an important factor associated with the winter and spring thaw conditions. Ambulances and paramedics do not come onto the Island regardless of the time of the year (Key Person Interview in August 2021). Due to the time it takes to travel from the Island to the mainland via the airboat, an individual could potentially have a delay of up to 30 minutes in receiving medical care from first responders on the mainland. Additionally, during the freeze up and thaw seasons, additional precautions need to be taken. For instance, extra care needs to be taken as the patients would have to be transported on to the Scoot on the Island side, then transported off the Scoot and into the ambulance waiting on the mainland.

The current transportation options impact work and school for those living on the Island. Additionally, as discussed previously, students have to travel to the mainland to attend school from Grade 6 onwards. In the summer and when the Ferry is operational, students take the Ferry or the water taxi. During the winter freeze-up and spring thaw, students take the Scoot because it is considered the safest way to travel to and from the Island when the Ferry is not running. Respondents from the Community Health Survey identify the concerns with respect to their children having to attend school on mainland and, in some instances, board away from home on the mainland during the freeze and thaw seasons. Throughout discussions held during community engagement sessions and through survey results, it was stressed to the HIA Team on numerous occasions that the Scoot is not a comfortable ride. The ride on the Scoot is difficult for many people because it would carry passengers over ice and through open waters during the winter freeze-up and spring thaw seasons, respectively. Although there are a few community members that use their own transportation to reach the mainland for their appointments, work, and other activities, the vast majority of Members are dependant on the transportation provided by the Ferry and the Scoot, and are most likely to be impacted by the concerns associated with these modes of transportation.

Throughout informal conversations with community members and through survey results, it has been stressed on numerous occasions that the Scoot is not a comfortable ride. The ride on the Scoot is difficult for many people because it would carry passengers over ice and through open waters during the winter freeze-up and spring thaw seasons. Although there are a few community members that use their own transportation to reach the mainland for their appointments, work, and other activities, individuals that are dependant on the transportation provided by the Ferry and the Scoot are most likely to be impacted by the concerns associated with these modes of transportation.

In a year, there are 10 to 12 days where the community has no access to the mainland due to the weather conditions, or breakdowns of the airboats or Ferry (Personal communication with Key Persons, 2021). Over the years, there has been an increase in the frequency of breakdowns for the Ferry where it is out of operation for hours or a full day due to the age of the Ferry (Personal communication with Key Persons, 2021). More recently, the nature of the Ferry breakdowns are more extensive than before, which impact the time it takes to get it running again. For instance, the ramp for the Ferry had previously fallen off. However, as learned during one of the Key Person Interviews, the Transportation Department on the Island endeavours to limit the non-operational time of the Ferry. Generally, the maximum time the Ferry is inoperable at a time is 48 hours (Personal communication with Key Persons, 2021). Section 4.3 discusses expenses associated with repair and maintenance of the Ferry.

As discussed above, community members also routinely visit the mainland for recreational activities. The overall results of engagement conducted with the community show that current transportation options impact community members' ability to access recreational activities. One Community Health Survey respondent identified that she is unable to get her children to their hockey and skating lessons on time, so they stay on the mainland the night before. Many Members living on the Island have trouble planning activities off the Island due to the current schedule of the Ferry. The Ferry schedule has been highlighted throughout the engagement process as a limiting factor in accessing recreational activities. In the winter, the Scoot is operational until 7pm which makes it difficult to participate in sports and recreational activities, if the activities are held at a later time. The timing of the Ferry and Scoot can greatly impact Members' ability to engage in recreational activities and interact with others through these activities.

Through the Community Health Survey, community members expressed their thoughts on the ongoing congestion of the Ferry, especially in the summertime. GIFN Members have to access the mainland for many things, including groceries. It is upsetting for community members to wait an hour or sometimes two hours to get back to the Island because of the long line-up for the Ferry. There were several anecdotes shared through the survey and the Steering Committee meeting about how Members had their frozen food thawing out and melting before getting home due to the long waits. Given the aging and unreliable nature of the Ferry, the increasing impacts due to climate change and the lack of other reliable and safe transportation options, it is predicted that access to services will become increasingly more difficult for GIFN Members who need to travel to the mainland to access these services.

Through discussions with the Steering Committee and Chief and Council, it was conveyed that regardless of the weather condition or transportation limitations, community members tended to look out for one another. For instance, in the months where the airboat is the only viable transportation option, food for elders is collected by other community members or their families.

Effect Characterization

The impacts associated with access to services are mainly experienced by Members who live permanently on the Island. The magnitude of impact is medium-to-high, and the likelihood is high as the impacts are identified based on the current transportation options. Based on the responses received through the Community Health Survey, the potential health consequences are negative because community access to the mainland, which almost all Members need to travel to in order to access a myriad of services, has several limiting factors that are unlikely to improve. Together, these factors impact the overall access to services for community members. As the data and information used for this assessment have been sourced from various means (i.e., relied on the community health survey, the key person interviews, and the feedback from the HIA Steering Committee), this effect characterization can be made with a high level of confidence.

Table 4-8 Effect Characterization for Access to Services

	Affected Populations	Magnitude	Likelihood	Potential Health Consequence	Level of Confidence
Access to Services	Proximate	Medium - High	High	Negative	High

5.0 POSITIVES AND CHALLENGES OF THE CURRENT TRANSPORTATION OPTIONS

The following table (Table 5-1) highlights the current benefits of the Ferry and Scoot, and challenges faced by the community.

Table 5-1 Positives and Challenges Associated with the Current Transportation Options

Positives		Challenges	
Employment	• The current options have employed several members of the community	**Scheduling**	• Hard to plan social activities off Island due to scheduling of the Ferry especially for activities that are early or later than the Ferry schedule • Modifying work schedule to align with Ferry schedule • Students need to wake-up extra early to get to the mainland for school • Average wait time for the Ferry is 2 hours
Health Services	• The current options help facilitate access to health services focused to the community	**Overcapacity**	• Timing to get to and from the Island is really long (impacted by break downs and the fact that the Ferry is over capacity)
Fares	• The fares associated with the Ferry bring in a small amount of revenue for the community (however, they do not offset operational costs)	**Cost**	• Fares to travel back and forth impact subpopulation of individuals • Cost of fares can hinder community members ability to participate in recreation or social activities
The Aazhaawe Ferry	• The current Ferry allows for people to bring their vehicles to and from the Island; the Ferry can fit up to 18 cars	**Break downs**	• Significant financial burden to the community from maintenance and replacement of Ferry and the Scoots • Break-downs can be barriers to accessing services and impact those living permanently on the Island and those that rely on the Ferry and Scoot to get to and from the Island
Safety	• The Ferry and Scoot safely transport GIFN community members, visitors, and workers to and from the Island; however, GIFN Members consistently have stressed that the Scoot uncomfortable and is not preferred by many residents.	**Safety**	• Freeze-up and thawing seasons are inherently dangerous times to travel via any of the transportation modes available to the community • Access to emergency medical services off the Island is a challenge

However, through the Community Health Survey, community members often identified that the potential alternative to current transportation options to and from the Island, which could contribute to improving their overall health and wellbeing, was a bridge or a fixed link with the mainland. Respondents of the survey identified that an alternative such as a bridge may make it easier for GIFN Members to access the mainland while also having the potential for increased travel to and from the Island. Although a bridge may address safety concerns associated with ice formation and travel on the ice road, it could have the potential to indirectly impact safety

and security of the community. For instance, increased traffic via a bridge would increase the number of visitors to the Island and lead to potential safety concerns for the permanent residents. Based on responses provided on the Community Health Survey, as well as discussions during the Steering Committee meeting, Table 5-2 summarizes the advantages and disadvantages of a bridge connecting the Island and the mainland.

Table 5-2 Advantages and Disadvantages of a Bridge as Identified by Community Members

ADVANTAGES	DISADVANTAGES
• Safer travel, especially in freeze and thaw seasons • Less traffic • Less waiting times, more convenient • Increased freedom • Less financial burden (no longer paying for Ferry) • Improved economic development • Better access to and increased participation in recreational activities • More accessible	• More cottagers on the Island • Concern of a lack of police presence on the Island • Increased level of pollution due to more cars travelling to and from the Island • Potential risk to species and environment due to construction activities • High cost to build • Increases in construction and noise during construction of a bridge • Increased traffic on the Island and development on the island may impact lands that are culturally important • Safety concerns for community members due to more people coming to the Island

6.0 RECOMMENDATIONS

The assessment of potential health impacts in the HIA (Section 4.0) provided the foundation for the development of recommendations in order to maintain, protect and improve the community's health and well-being, as it relates to transportation options available to GIFN.

Throughout the survey, respondents identified that a change to the current transportation options is required to improve overall mental, physical, and emotional health. The current transportation option for the summer (i.e., the Ferry) is aging and increasingly becoming congested with overuse. For the thawing and freezing seasons, the airboats are continuously being utilized as a shuttle-service which increases their maintenance and contributes to their break-downs. In the winter, the ice road is increasingly becoming unpredictable as a result of climate change.

It is important to note that this HIA does not focus on alternatives to the current transportation options but rather discusses the health impacts due to current transportation options based on the current and future environmental conditions and makes recommendations to improve health outcomes.

Based on the engagement strategy implemented in the HIA and the assessment conducted, there are several recommendations which align with proposed actions already in place by Chief and Council. Mental health in the community has been identified as a concern by the Community Health Survey respondents. The community has mental health counselling services available on the Island and here is ongoing support from Chief and Council's for improvement in the mental health and wellness of community members. In some instances, community members were not aware of the services available to them, and it is recommended that continued communication of services related to mental health be advertised and discussed with community members.

As discussed earlier, the GIFN Climate Change Adaptation Plan was developed for the community in preparation for the risks associated with climate change. Based on this, Chief and Council have developed an action plan for the implementation of adaptive measures.

The following recommendations have been made based on assessment of health determinants in the HIA (Table 6-1):

Table 6-1 Recommendations based on Results of HIA		
No.	**Recommended Action**	**Health determinant to be addressed**
1	Review opportunities to further improve current transportation options by: • Considering changes to the Ferry and Scoot schedules; • Considering implementing a Members-only line; and, • Prioritizing lines for boarding of the Ferry and Scoot where priority goes to GIFN Members	• Economic • Mental well-being • Access to services
2	Consider alternatives to the current options which provide permanent and reliable access to services and resources on the mainland, such as a bridge or a fixed link with the mainland.	• Climate change • Safety and security • Economic • Mental well-being • Access to services
3	Continue providing support for mental well-being on the Island with further communication to notify Members regarding services available on the Island.	• Mental well-being
4	Proposed safety workshops for individuals crossing in fall/winter/spring	• Climate change • Mental well-being • Safety and security

5	Implementing the results of the GIFN Climate Change Adaptation Plan (GIFN, 2015) by Chief and Council. The Plan includes four themes:
	• Engage people
	  ○ E.g., developing communication plans for the community on various environmental conditions including ice and wind conditions on a regular basis
	• Reduce threats
	  ○ E.g., proposed amendments to the Transportation Manual for the sections related to ice roads maintenance and monitoring, including lands, high wind events, ice pile-up and maintenance of the Ferry and airboat
	• Enhance adaptive capacity
	  ○ E.g., monitor weather forecasts/conditions to prepare for extreme weather events
	• Improve knowledge
	  ○ E.g., develop programs to monitor wind conditions, ice during high wind events
		• Climate change
		• Mental well-being
		• Safety and security

7.0 LIMITATIONS AND UNCERTAINTIES

Overall, this HIA employs standard health impact approaches, guidance and best practices, where possible. It attempts to provide an unbiased analysis of the potential for the current transportation options to have effects on the health of the GIFN community. The intention of the HIA was to provide health-based evidence and assessment to inform the GIFN community and other stakeholders regarding the current transportation options. The following data gaps, limitations and uncertainties were noted as part of the HIA process:

- Given the small population of GIFN, it was difficult to find data specific to the community. Data for this HIA was mainly supplied by a diverse range of references provided by the GIFN Project Manager, GIFN website, input from GIFN Members on the HIA Steering Committee, input from the Key Person Interviews, discussions with Chief and Council as well as by primary and grey literature. While some information was available on the Chippewas of Georgina Island website, and some statistics were available through Statistics Canada, little additional information was publicly accessible.
- The demographic data retrieved from the Statistics Canada Census were from the 2016 Census reporting year. Since then, there have been changes to community demographics. It would be beneficial to have a Census focused for the community to better understand health status.
- This is not a comprehensive health assessment and, aside from the Community Health Survey, did not involve primary collection of data. As such, only the topics of most concern, as noted by Chief and Council and from the results of the online Community Health Survey were assessed. It is important to note that the scope of the HIA was discussed with the HIA Steering Committee.
- The HIA itself does not provide a quantitative assessment of the impacts to health, but rather uses the gathered data to qualitatively assess how the selected determinants of health are impacted due to the current transportation options and may continue to impact health outcomes.
- In some cases, evidence and data related to potential health impacts were collected from the primary and grey literature under scenarios that were not specific to First Nations. In these cases, inferences were made to extrapolate potential impacts to GIFN specifically, using local, regional and national data wherever possible. Where this was not possible, a discussion of the implications is provided in the relevant assessment sections.
- Generally, the response rate to the Community Health Survey was high, with a total of ninety-six (96) respondents. During the HIA Steering Committee, the importance of a diverse group of respondents was highlighted. There was a low response rate from Members under 25 years of age. Based on discussions with the Steering Committee, additional responses were sought out from individuals that were under 25 years of age.
- In some cases, in the absence of quantitative data, the current conditions and project impact were based, in part, on anecdotal information communicated by Chief and Council, and GIFN community members in the Community Health Survey and those members who were a part of the Steering Committee.

8.0 CONCLUSIONS

The purpose of this HIA was to evaluate the potential positive and negative impacts on the health and well-being of Members of the GIFN community that may result due to current transportation options available to them, based on current and future changes in environmental conditions. This HIA serves as a platform to enhance communication and address community concerns from the GIFN community. The table below (Table 8-1) provides a summary of the results for each of the five determinants of health assessed in the report.

Table 8-1 GIFN Transportation Options Health Impact Assessment – Summary of Results

Health Determinant	Affected Populations	Magnitude	Likelihood	Potential Health Consequence
Climate change	Regional	High	High	Negative
Safety and Security	Regional/ Proximate	High	Medium	Negative
Economic	Proximate	Medium	High	Negative
Mental Well-Being	Regional/Proximate	Medium	High	Negative
Access to Services	Proximate	Medium - High	High	Negative

Overall, the HIA concluded that:

- The current transportation option is aging (i.e., the Ferry);
- The Ferry runs for a longer duration every year and there have been increased costs associated with its repair and maintenance;
- The Ferry is over capacity and community members face long wait times;
- The Scoot is uncomfortable to ride but it is the safest mode of transporation during the freeze-up and thaw seasons;
- The Scoot is routinely replaced due to its overuse as a shuttle (really intended to be a search and rescue vehicle);
- The community members try to use the Scoot as little as possible as it is built mainly for search and rescue, and emergency purposes;
- There are concerns about occupational health and safety for transportations workers due to weather and the pounding they take operating the Scoots, and it is becoming more difficult maintaining existing or hiring new staff to operate these vessels;
- The ice road is used during favourable ice conditions. However, the duration of the ice road season is reducing, which means there is more community reliance on the Scoot; and,
- Improvements to the current transportation options can potentially be made by adding new infrastructure, replacing old infrastructure or considering other options such as a bridge to connect the Island and the mainland.

Community members, especially those living permanently on the Island, identified that improving the scheduling for the Ferry, constructing a bridge, and having a Members-only line would all be potential changes which can improve their overall health and well-being. It is recommended that these potential changes be considered for the future as they have the potential to greatly impact health and well-being.

The following figure (Figure 8-1) presents an illustration on how the current transportation options impact health of the GIFN community.

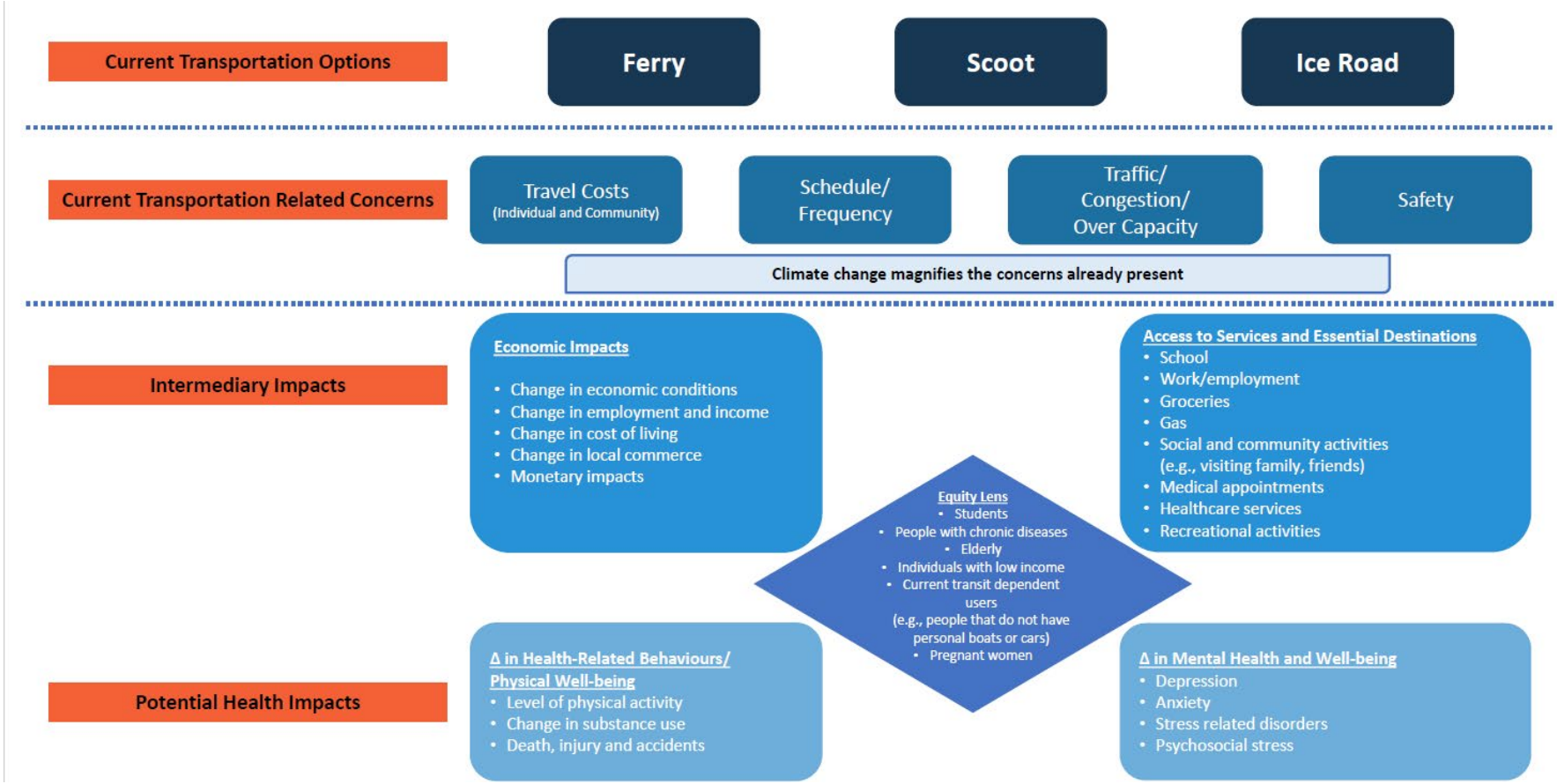


Figure 8-1 Project Summary – Illustration on Health Impacts due to Current Transportation Options

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APPENDIX A

SURVEY QUESTIONS

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HEALTH IMPACT ASSESSMENT (HIA) OF TRANSPORTATION OPTIONS TO AND FROM GEORGINA ISLAND

Community Health Survey

Thank you for taking the time to volunteer to participate in this **Community Health Survey** for the *Health Impact Assessment (HIA) of Transportation Options To and From Georgina Island* (hereafter called 'the HIA'). This HIA aims to understand the potential health impacts, both positive and negative, of transportation options (ice road, ferry, airboat, private boat, etc.) available to the Georgina Island First Nation (GIFN) community. The HIA would also like to understand how these health impacts are distributed within your community.

If you choose to answer a question, your answers will be confidential and anonymous and will only be used for the purposes of the HIA. Nothing you say will be linked directly to you. If you are willing to participate in this voluntary survey, it may take about 15-20 minutes of your time.

This survey also aims to capture the full picture of the current health conditions of your community, and the results will be used in the HIA study. Your answers will be extremely helpful to us. The results of this survey will tell us about the health conditions in your community now. We will then assess potential health impacts due to these current transportation options on your community.

The Chief and Council of the Chippewas of Georgina Island have retained our team at Intrinsik to support their desired research pertaining to the links between your transportation system and community health. Miigwetch, The Intrinsik Team.

A. DEMOGRAPHICS

1. Are you a Georgina Island First Nation (GIFN) member?

- ☐ Yes
- ☐ No, but I have marital, blood **or** legal ties to a registered GIFN member
- ☐ No, I am not a Member and do not have formal ties to a Member (NO FURTHER ANSWERS REQUIRED)

2. Do you live on Georgina Island year-round?

- ☐ Yes, my permanent residence is on the Island (GO TO QUESTION 4)
- ☐ No, but I live on the Island for part of the year
- ☐ No, I live off the Island, but I visit regularly (more than twice a year)
- ☐ No, I do not live on the Island nor do I visit regularly

3. What months of the year do you live on or visit Georgina Island? Check all that apply.

☐ January	☐ February	☐ March	☐ April
☐ May	☐ June	☐ July	☐ August
☐ September	☐ October	☐ November	☐ December

4. What age are you?

☐ Under 25 ☐ 25 – 50 ☐ Over 50 ☐ Prefer not to answer

5. Do you identify as…?

- ☐ Female
- ☐ Male
- ☐ Prefer not to answer
- ☐ Other (Please Specify):

6. **Including yourself, how many people live in your household?**
   - ☐ 1
   - ☐ 2
   - ☐ 3
   - ☐ 4
   - ☐ 5
   - ☐ 6
   - ☐ Greater than 6

7. **How many generations live in your household?**
   - ☐ 1
   - ☐ 2
   - ☐ 3
   - ☐ 4
   - ☐ 5

B. ACCESS TO TRANSPORTATION OPTIONS TO AND FROM GEORGINA ISLAND

8. **We acknowledge that GIFN community members need to visit the mainland for the services listed below. Please check the top five (5) reasons you travel to the mainland in a typical week.**
   - ☐ Shopping
   - ☐ Doctor / Dentist
   - ☐ See a counsellor / mental health services
   - ☐ Groceries
   - ☐ Sports / Recreational activities
   - ☐ Work / Meetings
   - ☐ School
   - ☐ Entertainment
   - ☐ Banking needs
   - ☐ Visiting relatives
   - ☐ Getting gas
   - ☐ Other (Please Specify):

9. **Generally speaking, how often do you use the return ferry service (there and back) when it is operational?**
   - ☐ Multiple times a day
   - ☐ Once a day
   - ☐ Once a week
   - ☐ Once a month
   - ☐ Once a year
   - ☐ Other (Please Specify):

10. **Does the freeze up and thaw seasons impact the number of crossings you typically make to the Island?**
    - ☐ Yes
    - ☐ No

Please explain your selection:

11. **Generally speaking, what is your preferred method of crossing during the freeze up and thaw seasons? Please check all that apply.**
    - ☐ Scoot
    - ☐ Snowmobile
    - ☐ Boat
    - ☐ Car / Truck
    - ☐ All-terrain vehicle (ATV)
    - ☐ Side-by-side

☐ Other (Please Specify):

12. **How often do you use the ice road when it is operational?**
    - ☐ Multiple times a day
    - ☐ Once a day
    - ☐ Once a week
    - ☐ Once a month
    - ☐ Once a year

☐ Never (Please Specify Why):

☐ Other (Please Specify):

13. **How often do you use the airboat (or "scoot") when it is operational?**
    - ☐ Multiple times a day
    - ☐ Once a day
    - ☐ Once a week
    - ☐ Once a month
    - ☐ Once a year

☐ Other (Please Specify):

14. **What personal vehicle do you use when you use the ice road for travelling purposes (not recreational use)? Please check all that apply.**
    - ☐ Snowmobile
    - ☐ Boat
    - ☐ Car / Truck
    - ☐ All-terrain vehicle (ATV)
    - ☐ Side-by-side
    - ☐ Other (Please Specify):

15. **Aside from the ferry and airboat / scoot, what are some <u>other</u> methods of transportation that you or members of your household have used to travel to and from Georgina Island?**
    - ☐ Private boat
    - ☐ Snowmobile
    - ☐ Car / truck
    - ☐ ATV
    - ☐ Side-by-side
    - ☐ Water taxi
    - ☐ Walk
    - ☐ We do not use any other modes of transportation
    - ☐ Other (Please Specify):

16. **In a typical year, how many times have you <u>missed</u> a medical appointment because of a down ferry?**
    - ☐ I have never missed a medical appointment because of a down ferry
    - ☐ 1 to 5 times
    - ☐ 6 to 10 times
    - ☐ 11 to 15 times
    - ☐ Greater than 15 times
    - ☐ I do not have to travel to the mainland for medical appointments
    - ☐ Other (Please Specify):

17. **In a typical year, how many times have you <u>been late</u> for a medical appointment because of a down ferry?**
    - ☐ I have never been late for a medical appointment because of a down ferry
    - ☐ 1 to 5 times
    - ☐ 6 to 10 times
    - ☐ 11 to 15 times
    - ☐ Greater than 15 times
    - ☐ I do not have to travel to the mainland for medical appointments
    - ☐ Other (Please Specify):

18. **In a medical emergency where you had to travel off the Island, have the current transportation options caused you delays in receiving emergency services?**
    - ☐ I have not needed emergency medical services off the Island
    - ☐ I have not been delayed in receiving emergency medical care
    - ☐ It took at least 30 minutes for me to get from the Island to the mainland ambulance
    - ☐ It took between half hour to 1 hour for me to get from the Island to the mainland ambulance
    - ☐ It took more than 1 hour for me to get from the Island to the mainland ambulance
    - ☐ Other (Please Specify):

19. **Which time of the year would be of the greatest concern for you accessing <u>emergency</u> healthcare services on the mainland?**
    - ☐ I have no concerns with accessing emergency services off the Island
    - ☐ I have concerns with accessing emergency services year round
    - ☐ Ferry operating season
    - ☐ Freeze up and thaw seasons

    Please explain your selection:

20. **Do the costs to use the ferry, airboat and other current transportation options pose a financial hardship for you?**
    - ☐ Yes
    - ☐ No
    - ☐ Prefer not to answer

21. **In a typical year, how many times have you <u>missed</u> work / meetings because of a down ferry?**
    - ☐ I have never missed work / meetings because of a down ferry
    - ☐ 1 to 5 times
    - ☐ 6 to 10 times
    - ☐ 11 to 15 times
    - ☐ Greater than 15 times
    - ☐ I do not have to travel to the mainland for work / meetings
    - ☐ Other (Please Specify):

22. **In a typical year, how many times have you <u>been late</u> for work / meetings because of a down ferry?**
    - ☐ I have never been late for work / meetings because of a down ferry
    - ☐ 1 to 5 times
    - ☐ 6 to 10 times
    - ☐ 11 to 15 times
    - ☐ Greater than 15 times
    - ☐ I do not have to travel to the mainland for work / meetings
    - ☐ Other (Please Specify):

23. In a typical year, how many times have you missed school because of a down ferry?

- ☐ I have never missed school because of a down ferry
- ☐ 1 to 5 times
- ☐ 6 to 10 times
- ☐ 11 to 15 times
- ☐ Greater than 15 times
- ☐ I do not have to travel to the mainland for school
- ☐ Other (Please Specify):

24. In a typical year, how many times have you been late for school because of a down ferry?

- ☐ I have never been late for school because of a down ferry
- ☐ 1 to 5 times
- ☐ 6 to 10 times
- ☐ 11 to 15 times
- ☐ Greater than 15 times
- ☐ I do not have to travel to the mainland for school
- ☐ Other (Please Specify):

25. In a typical year, how many times have you not been able to come back to the Island because of a down ferry on the same day of your visit to the mainland?

- ☐ 1 to 5 times
- ☐ 6 to 10 times
- ☐ 11 to 15 times
- ☐ Greater than 15 times
- ☐ I do not have any transportation issues going back and forth between the mainland and Georgina Island
- ☐ Other (Please Specify):

26. How have the uncertainties in the current transportation options to and from the Island impacted your physical, emotional, and mental health?

27. **What changes can be made to the current transportation options (i.e., ferry, scoot, etc.) for the Island to improve your overall mental, physical, and emotional health?**

28. **What other potential transportation option(s) to and from Georgina Island would improve your overall mental, physical, and emotional health?**

29. **From your answers to the previous question (Question 23), what do you see as the main advantages or disadvantages of the transportation option(s) to travel to and from Georgina Island?**

C. HEALTH AND ACCESS TO HEALTHCARE SERVICES

We would like to reiterate that all answers are confidential, and we are attempting to get to a cumulative number of responses pertaining to the overall health of the Island. In most cases, we have provided a "prefer not to answer" response option if you are not comfortable providing a response. However, participation in the following questions will support the research needed for this project, and as such any response you can provide would be greatly appreciated.

30. On a scale of 1 to 5, how would you rate your overall physical health? (1 = Bad, 5 = Very Good)

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Please explain your selection:

31. On a scale of 1 to 5, how would you rate your overall mental health? (1 = Bad, 5 = Very Good)?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Please explain your selection:

32. Which of the following health issues do you have? Check all that apply.

- ☐ Asthma
- ☐ Diabetes
- ☐ Obesity
- ☐ Heart Issues (heart and stroke)
- ☐ Mental health issues (such as depression, anxiety, etc.)
- ☐ Chronic health conditions (chronic pain, etc.)
- ☐ Cancer
- ☐ Arthritis
- ☐ Fetal Alcohol Syndrome Disorder and associated symptoms
- ☐ Skin issues (eczema, staph infections, etc.)
- ☐ Physical disability
- ☐ Smoking / vaping
- ☐ Drug and/or substance addictions
- ☐ Other, please specify: _____
- ☐ I have none of these health issues
- ☐ Prefer not to answer

33. What health care services offered <u>on Georgina Island</u> are you aware? Check all that apply.

- ☐ Doctor that comes into the community
- ☐ Nurse who comes into the community
- ☐ Diabetes support / Diabetes clinic
- ☐ Dietician / Nutrition support
- ☐ Health clinic on Georgina Island with in-community access to nurse
- ☐ Mental health care / Therapy
- ☐ Alcohol or drugs awareness program
- ☐ Traditional elder or healer in the community
- ☐ Women's Health Programs
- ☐ Children's Health Programs
- ☐ I don't get health care in my community; I go to the mainland to access health care
- ☐ Other (please specify) _____

34. On a scale of 1 to 5, how would you rate your overall access to the health services offered <u>on</u> the Island? (1 = Bad, 5 = Very Good)

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Please explain your selection:

35. Where do you go most often when you are sick?

- ☐ Health clinic on Georgina Island
- ☐ Doctor's office on the mainland
- ☐ Traditional elder or healer in the community
- ☐ Hospital on the mainland
- ☐ Urgent Care Center on the mainland
- ☐ Other (please specify): _____

36. What health care services do you think the GIFN community is in need of?

- ☐ Culturally appropriate healthcare (i.e., nurses and doctors that speak our native language, using our medicine to help us heal, etc.)
- ☐ Better integration of traditional healing methods into the community health care services
- ☐ Fulltime in-community doctors and nurses on Georgina Island
- ☐ Dental clinic on Georgina Island
- ☐ Palliative care
- ☐ Mental health care/counselling
- ☐ Long-term care
- ☐ Assisted living care
- ☐ Diabetes management clinic
- ☐ Women and child health care services
- ☐ Other (please specify) _____

37. On a scale of 1 to 5, how would you rate your <u>overall access to healthcare</u> (doctors, specialists, clinics, hospitals, etc.)? (1 = Bad, 5 = Very Good)

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

38. On a scale of 1 to 5, how would you rate your <u>overall access to emergency healthcare services</u> off the Island (emergency doctors, specialists, clinics, hospitals, etc.)? (1 = Bad, 5 = Very Good)

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Please explain your selection:

D. COMMUNITY HEALTH AND WELL-BEING

39. In the following list, what do you think are the five (5) most important factors for a "Healthy Community?" (Those factors which most improve the quality of life in a community.)

Check only five (5):

- ☐ Good place to raise children
- ☐ Low crime / safe neighbourhoods
- ☐ No child abuse
- ☐ Good schools and access to them
- ☐ Access to health care (e.g., family doctor)
- ☐ Access to parks and recreation
- ☐ Having a clean environment
- ☐ Access to clean and affordable housing
- ☐ Arts and cultural events
- ☐ Strong social ties across the community
- ☐ Other_____
- ☐ Intergenerational environmental and cultural knowledge
- ☐ Good jobs and healthy economy
- ☐ Supportive family life
- ☐ Healthy behaviors and lifestyles
- ☐ Low adult death and disease rates
- ☐ Low infant death rates
- ☐ Spiritual and Religious values
- ☐ Practicing and teaching traditional culture
- ☐ Good leadership and governance
- ☐ Other_____
- ☐ Other_____

40. In the following list, what do you think are the three (3) most concerning "health problems" in your community? (Those problems which have the greatest impact on overall community health.)

Check only three (3):

- ☐ Aging problems (e.g., arthritis, hearing/vision loss, etc.)
- ☐ Cancers
- ☐ Child abuse / neglect
- ☐ Dental problems
- ☐ Diabetes
- ☐ Domestic Violence
- ☐ Firearm-related injuries
- ☐ Other_____
- ☐ Heart disease and stroke
- ☐ High blood pressure
- ☐ HIV / AIDS
- ☐ Homicide
- ☐ Infant Death
- ☐ Infectious Diseases (e.g., hepatitis, TB, etc.)
- ☐ Mental health problems
- ☐ Other_____
- ☐ Rape / sexual assault
- ☐ Respiratory / lung disease
- ☐ Sexually Transmitted Diseases (STDs)
- ☐ Suicide
- ☐ Teenage pregnancy
- ☐ Motor vehicle crash injuries
- ☐ Other_____
- ☐ Other_____

41. **Do you believe the community faces a challenge with drug addiction and/or substance abuse?**

- ☐ Yes, to both drug addiction and substance abuse
- ☐ Yes, only with drug addiction
- ☐ Yes, only with substance abuse
- ☐ No, I do not believe the community faces a challenge with drug addiction and substance abuse
- ☐ Prefer not to answer

42. **How would you rate the overall physical health condition of your community?**

- ☐ Very unhealthy
- ☐ Unhealthy
- ☐ Somewhat healthy
- ☐ Healthy
- ☐ Very healthy

Please explain your selection:

43. **How would you rate the overall mental health condition of your community?**

- ☐ Very unhealthy
- ☐ Unhealthy
- ☐ Somewhat healthy
- ☐ Healthy
- ☐ Very healthy

Please explain your selection:

44. **How would you rate the overall cultural and spiritual health condition of your community?**

- ☐ Very unhealthy
- ☐ Unhealthy
- ☐ Somewhat healthy
- ☐ Healthy
- ☐ Very healthy

Please explain your selection:

E. RECREATIONAL ACTIVITIES

45. Do you travel to the mainland for recreational activities? Recreational activities are activities that you do for fun. Some examples of recreational activities are joining sports teams, taking music or art lessons, or joining programmed activities.

- ☐ No, I do not travel to the mainland for recreational activities (GO TO QUESTION 42)
- ☐ Yes, I travel to the mainland for recreational activities

46. Which recreational activities do you travel to the mainland for? Check all that apply.

☐ Art	☐ Golf	☐ Lacrosse	☐ Skating
☐ Baseball	☐ Gymnastics	☐ Music	☐ Soccer
☐ Dance	☐ Hockey	☐ Programmed activities	☐ Swimming

☐ Other(s) (please specify):

47. In a typical year, how many times have you <u>missed</u> recreational activities because of a down ferry?

- ☐ I have never missed recreational activities because of a down ferry
- ☐ 1 to 5 times
- ☐ 6 to 10 times
- ☐ 11 to 15 times
- ☐ Greater than 15 times
- ☐ I do not have any transportation issues going back and forth between the mainland and Georgina Island
- ☐ Other (Please Specify):

48. In a typical year, how many times have you <u>been late</u> for recreational activities because of a down ferry?

- ☐ I have never been late for recreational activities because of a down ferry
- ☐ 1 to 5 times
- ☐ 6 to 10 times
- ☐ 11 to 15 times
- ☐ Greater than 15 times
- ☐ I do not have any transportation issues going back and forth between the mainland and Georgina Island
- ☐ Other (Please Specify):

49. What outdoor activities do you do? Check all that apply.

☐ Walking	☐ Jogging/Running	☐ Harvesting	☐ Hunting
☐ Gardening	☐ Boating/Canoeing	☐ Skating	☐ Fishing
☐ Sports	☐ Snowmobiling	☐ Swimming	☐ Snowshoeing

☐ Other (please specify):

50. Please list the ways (if any) that the current Island transportation affects your participation in recreational activities:

Survey Complete!

As with any survey that collects information pertaining to personal health, Georgina Island First Nation will not be collecting names. Once you have completed and submitted your survey, please email Rachel Big Canoe @ Rachel.bigcanoe@georginaisland.com to be entered into a draw to win great prizes!

Thanks for participating in this survey. This information will document issues potentially impacting your health as a result of our community transportation system.

Chi-Miigwetch,
The Intrinsik Team

APPENDIX B

SURVEY RESULTS

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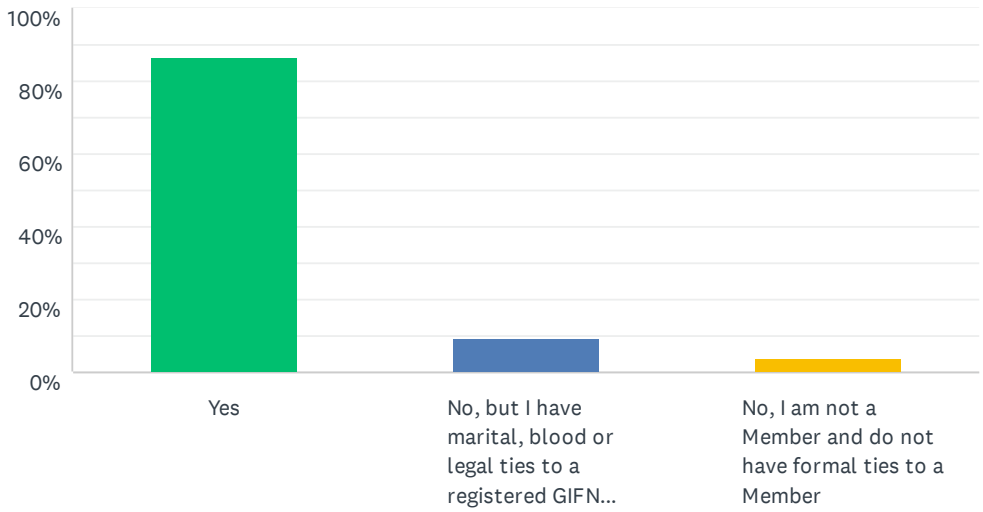
Results from all 96 Respondants

Q1 Are you a Georgina Island First Nation (GIFN) member?

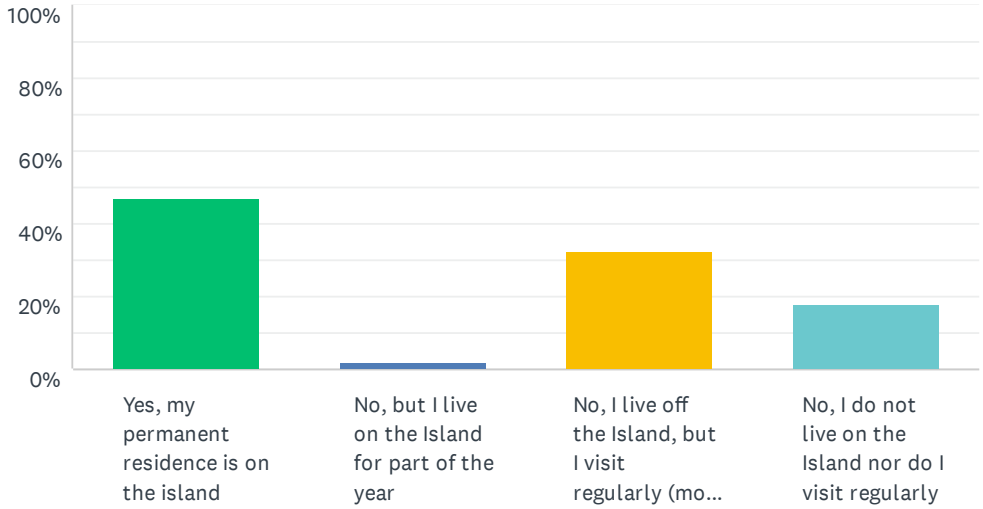
Answered: 96 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	86.46%	83
No, but I have marital, blood or legal ties to a registered GIFN member	9.38%	9
No, I am not a Member and do not have formal ties to a Member	4.17%	4
TOTAL		96

Q2 Do you live on Georgina Island year-round ?

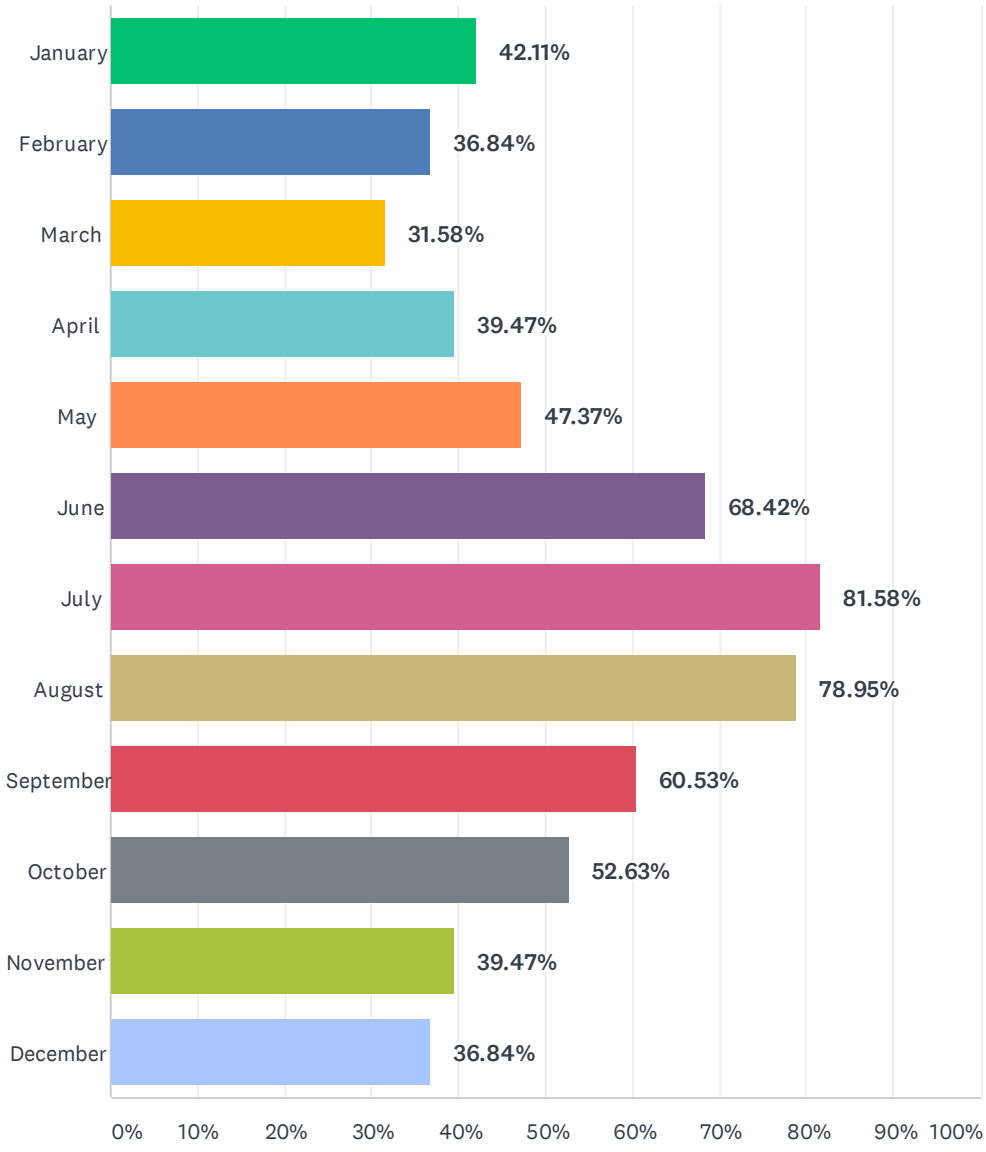
Answered: 89 Skipped: 7



ANSWER CHOICES	RESPONSES	
Yes, my permanent residence is on the island	47.19%	42
No, but I live on the Island for part of the year	2.25%	2
No, I live off the Island, but I visit regularly (more than twice a year)	32.58%	29
No, I do not live on the Island nor do I visit regularly	17.98%	16
TOTAL		89

Q3 What months of the year do you live on or visit Georgina Island? Check all that apply.

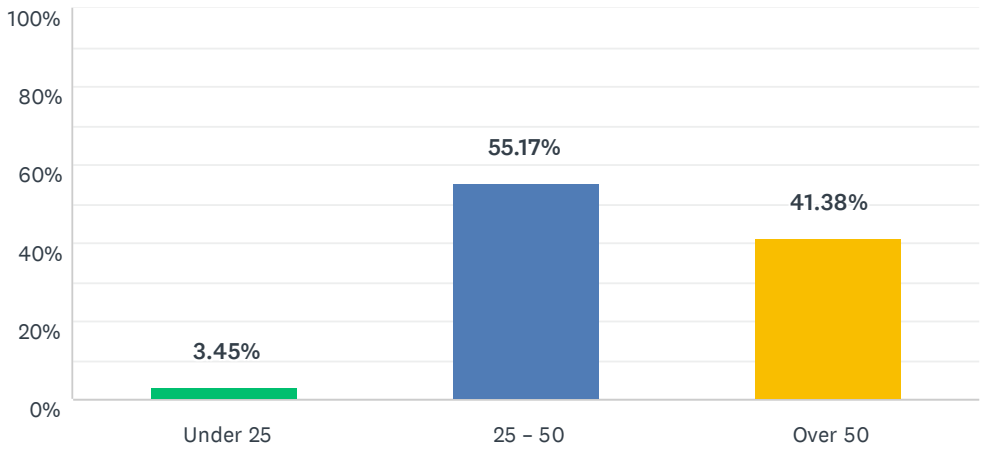
Answered: 38 Skipped: 58



ANSWER CHOICES	RESPONSES	
January	42.11%	16
February	36.84%	14
March	31.58%	12
April	39.47%	15
May	47.37%	18
June	68.42%	26
July	81.58%	31
August	78.95%	30
September	60.53%	23
October	52.63%	20
November	39.47%	15
December	36.84%	14
Total Respondents: 38		

Q4 What age are you?

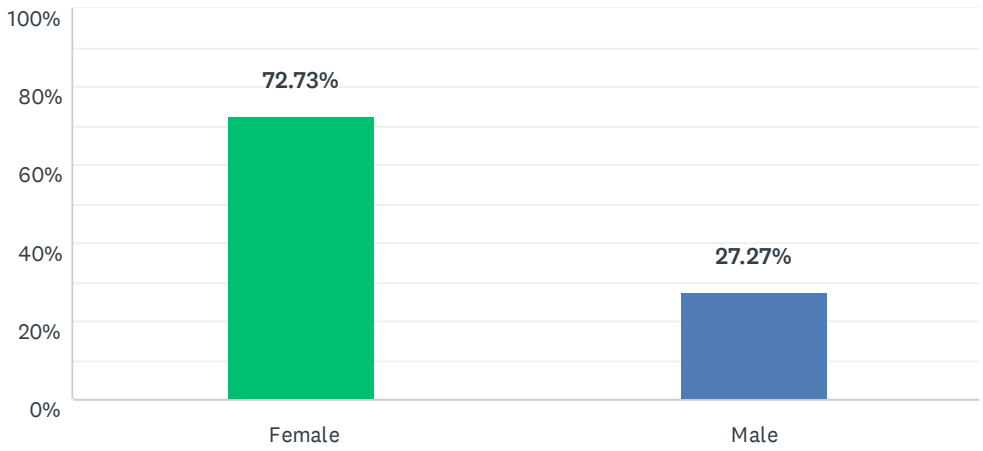
Answered: 88 Skipped: 8



ANSWER CHOICES	RESPONSES	
Under 25	3.45%	3
25 – 50	55.17%	48
Over 50	41.38%	36
TOTAL		87

Q5 Do you identify as…?

Answered: 88 Skipped: 8

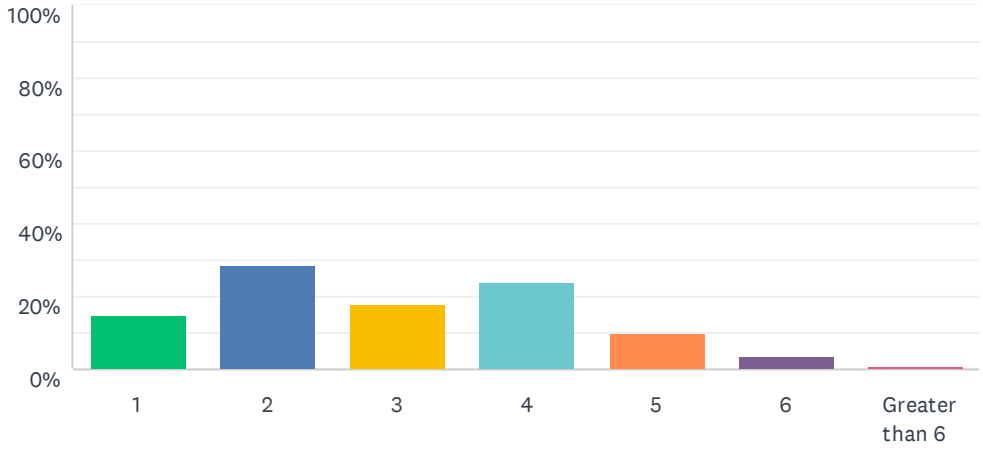


ANSWER CHOICES	RESPONSES	
Female	72.73%	64
Male	27.27%	24
TOTAL		88

#	OTHER (PLEASE SPECIFY):	DATE
	There are no responses.	

Q6 Including yourself, how many people live in your household?

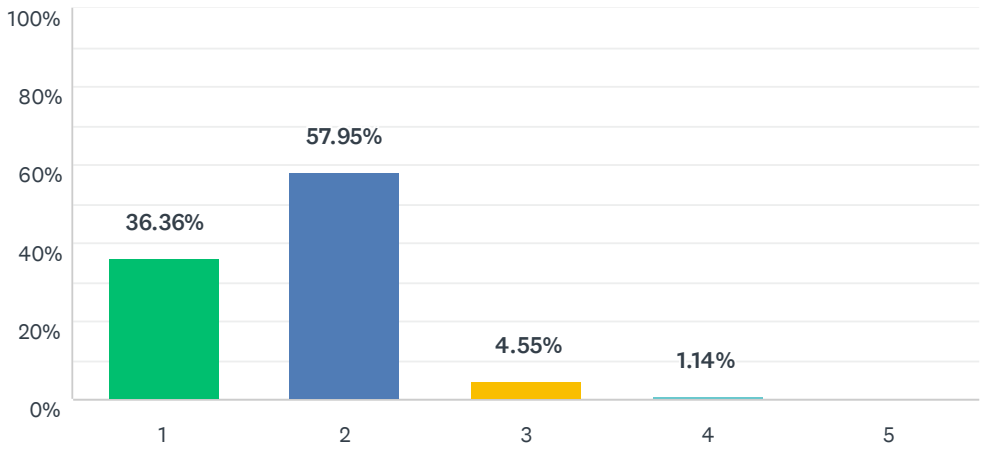
Answered: 88 Skipped: 8



ANSWER CHOICES	RESPONSES	
1	14.77%	13
2	28.41%	25
3	18.18%	16
4	23.86%	21
5	10.23%	9
6	3.41%	3
Greater than 6	1.14%	1
TOTAL		88

Q7 How many generations live in your household?

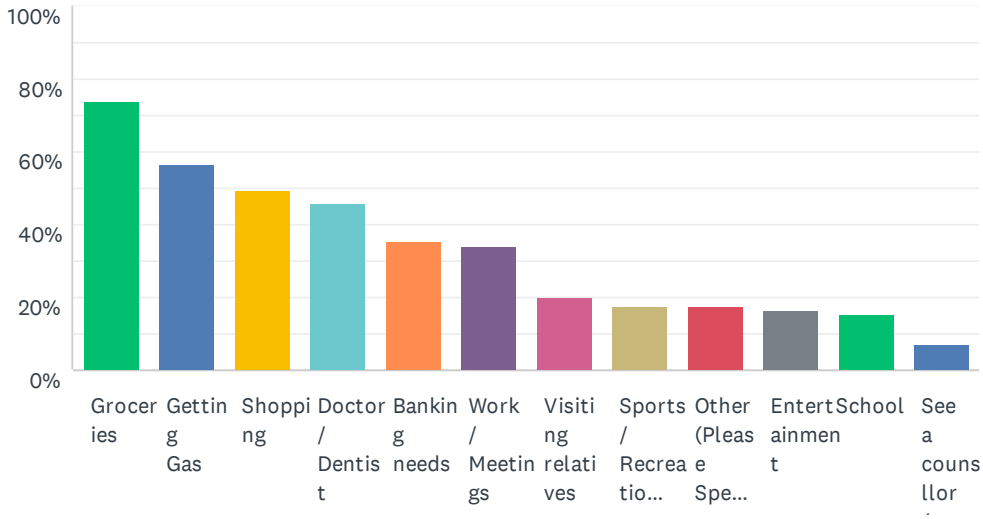
Answered: 88 Skipped: 8



ANSWER CHOICES	RESPONSES	
1	36.36%	32
2	57.95%	51
3	4.55%	4
4	1.14%	1
5	0.00%	0
TOTAL		88

Q8 We acknowledge that GIFN community members need to visit the mainland for the services listed below. Please check the top five (5) reasons you travel to the mainland in a typical week.

Answered: 85 Skipped: 11



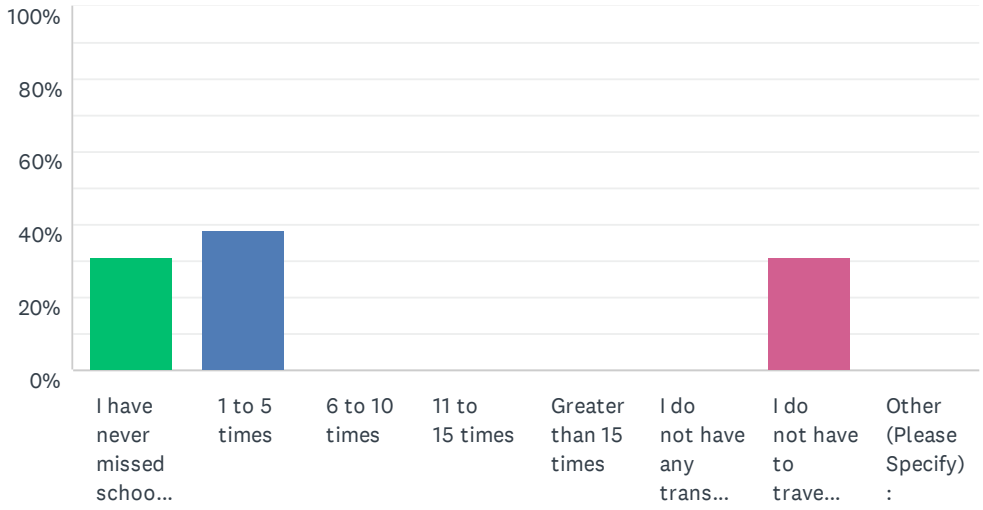
ANSWER CHOICES	RESPONSES	
Groceries	74.12%	63
Getting Gas	56.47%	48
Shopping	49.41%	42
Doctor / Dentist	45.88%	39
Banking needs	35.29%	30
Work / Meetings	34.12%	29
Visiting relatives	20.00%	17
Sports / Recreational activities	17.65%	15
Other (Please Specify):	17.65%	15
Entertainment	16.47%	14
School	15.29%	13
See a counsellor / mental health services	7.06%	6
Total Respondents: 85		

#	OTHER (PLEASE SPECIFY):	DATE
1	I do not live on the island	5/26/2021 5:34 PM
2	na	5/26/2021 10:57 AM
3	Elders shopping	5/25/2021 2:50 PM
4	I live on mainland	5/25/2021 11:36 AM

5	I work on the island, live on the mainland. Not applicable	5/25/2021 10:56 AM
6	It's more of the opposite for me as I need regular access TO the First Nation so that I can attend work & meetings, drop my daughter off at daycare, utilize services and be a part of the culture in the community for myself and my children's wellbeing.	5/25/2021 10:14 AM
7	Live on the main land	5/21/2021 6:59 PM
8	Don’t live on island only visit	5/20/2021 10:44 PM
9	n/a	5/20/2021 10:40 PM
10	Not applicable	5/20/2021 8:36 PM
11	Work on the island. Entire family lives on the island. I live off the island.	5/20/2021 4:43 PM
12	I haven't built yet	5/20/2021 4:31 PM
13	Don’t live on island	5/20/2021 3:34 PM
14	See my son	5/20/2021 3:11 PM
15	May people I used to visit on the island have passed away, I plan to go again in the future	5/20/2021 3:09 PM

Q9 In a typical year, how many times have you missed school because of a down ferry?

Answered: 13 Skipped: 83

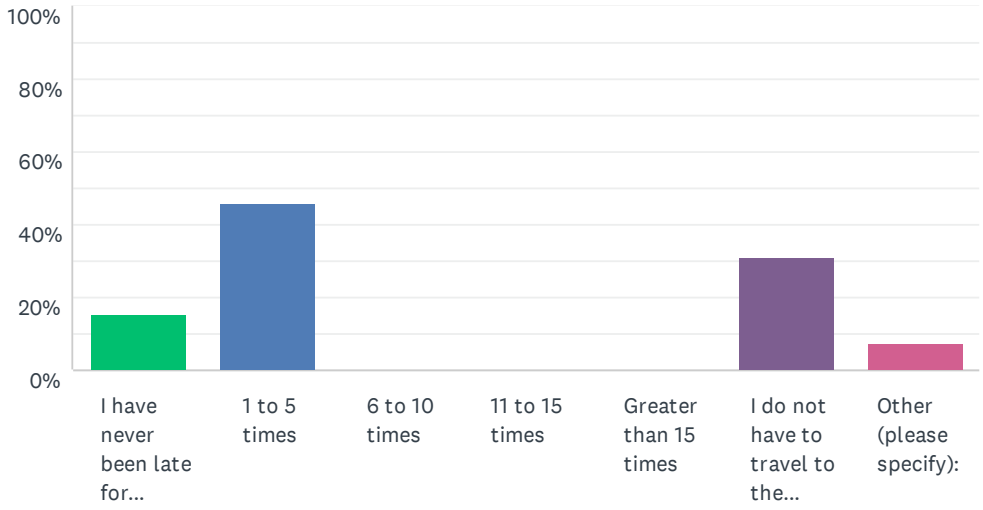


ANSWER CHOICES	RESPONSES	
I have never missed school because of a down ferry	30.77%	4
1 to 5 times	38.46%	5
6 to 10 times	0.00%	0
11 to 15 times	0.00%	0
Greater than 15 times	0.00%	0
I do not have any transportation issues going back and forth between the mainland and Georgina Island	0.00%	0
I do not have to travel to the mainland for school	30.77%	4
Other (Please Specify):	0.00%	0
TOTAL		13

#	OTHER (PLEASE SPECIFY):	DATE
	There are no responses.	

Q10 In a typical year, how many times have you been late for school because of a down ferry?

Answered: 13 Skipped: 83

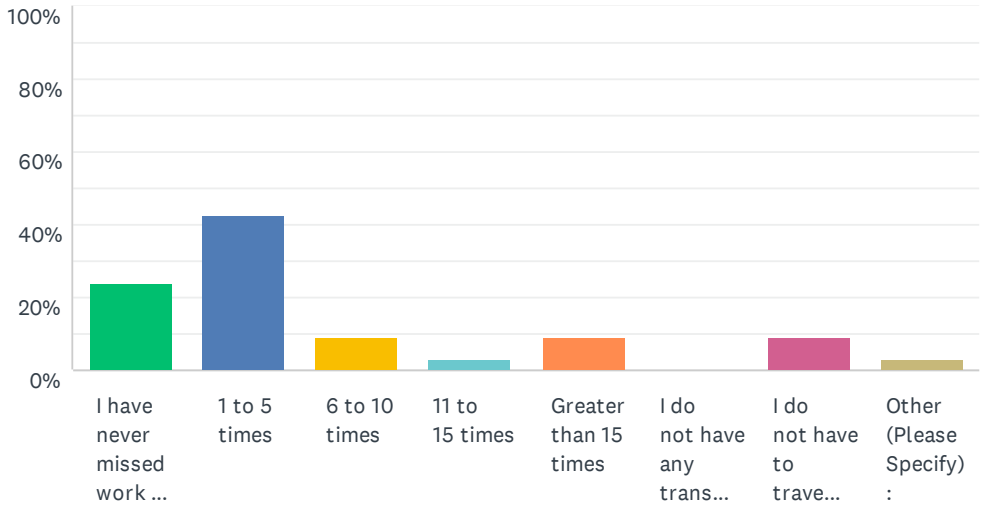


ANSWER CHOICES	RESPONSES	
I have never been late for school because of a down ferry	15.38%	2
1 to 5 times	46.15%	6
6 to 10 times	0.00%	0
11 to 15 times	0.00%	0
Greater than 15 times	0.00%	0
I do not have to travel to the mainland for school	30.77%	4
Other (please specify):	7.69%	1
TOTAL		13

#	OTHER (PLEASE SPECIFY):	DATE
1	Online atm	5/25/2021 1:12 PM

Q11 In a typical year, how many times have you missed work / meetings because of a down ferry?

Answered: 33 Skipped: 63

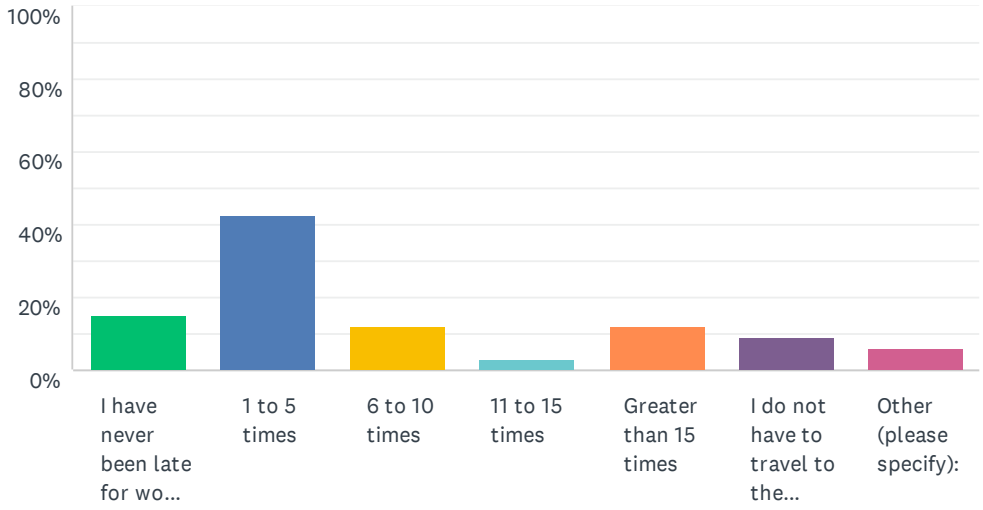


ANSWER CHOICES	RESPONSES	
I have never missed work / meetings because of a down ferry	24.24%	8
1 to 5 times	42.42%	14
6 to 10 times	9.09%	3
11 to 15 times	3.03%	1
Greater than 15 times	9.09%	3
I do not have any transportation issues going back and forth between the mainland and Georgina Island	0.00%	0
I do not have to travel to the mainland for work / meetings	9.09%	3
Other (Please Specify):	3.03%	1
TOTAL		33

#	OTHER (PLEASE SPECIFY):	DATE
1	N/a	5/25/2021 9:48 AM

Q12 In a typical year, how many times have you been late for work / meetings because of a down ferry?

Answered: 33 Skipped: 63

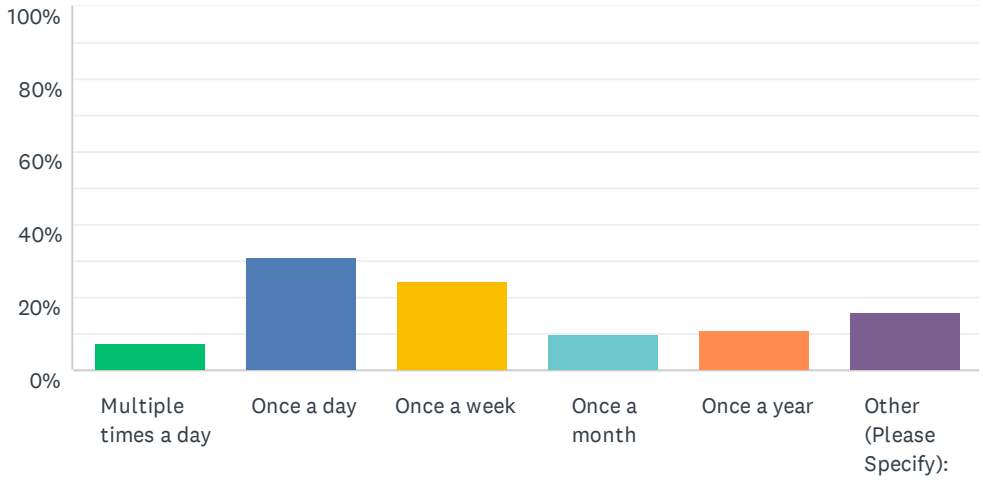


ANSWER CHOICES	RESPONSES	
I have never been late for work / meetings because of a down ferry	15.15%	5
1 to 5 times	42.42%	14
6 to 10 times	12.12%	4
11 to 15 times	3.03%	1
Greater than 15 times	12.12%	4
I do not have to travel to the mainland for work / meetings	9.09%	3
Other (please specify):	6.06%	2
TOTAL		33

#	OTHER (PLEASE SPECIFY):	DATE
1	have own transportation to ensure I am not late	5/25/2021 11:28 AM
2	N/a	5/25/2021 9:48 AM

Q13 Generally speaking, how often do you use the return ferry service (there and back) when it is operational?

Answered: 81 Skipped: 15

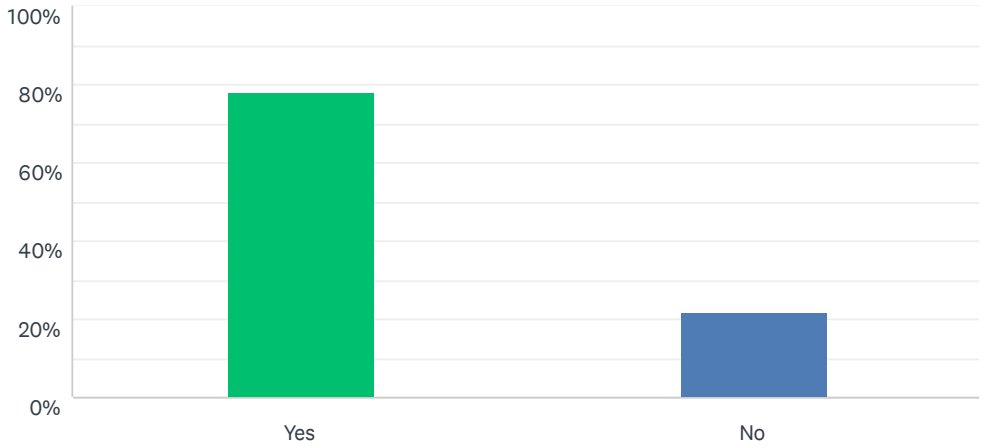


ANSWER CHOICES	RESPONSES	
Multiple times a day	7.41%	6
Once a day	30.86%	25
Once a week	24.69%	20
Once a month	9.88%	8
Once a year	11.11%	9
Other (Please Specify):	16.05%	13
TOTAL		81

#	OTHER (PLEASE SPECIFY):	DATE
1	2-3 week	6/14/2021 1:59 PM
2	2 -3 times per week	5/28/2021 3:44 PM
3	2-3 times weekly	5/26/2021 11:04 AM
4	na	5/26/2021 10:58 AM
5	Approximately twice a week	5/25/2021 7:56 PM
6	Late fall early spring	5/25/2021 10:02 AM
7	N/a	5/25/2021 9:49 AM
8	at least 2 times per week sometimes 3	5/25/2021 9:38 AM
9	Twice weekly	5/21/2021 8:20 PM
10	As needed.	5/20/2021 9:40 PM
11	2x week	5/20/2021 6:24 PM
12	None	5/20/2021 3:35 PM
13	Have not been there for about 10 years	5/20/2021 3:11 PM

Q14 Does the freeze up and thaw seasons impact the number of crossings you typically make to the Island?

Answered: 78 Skipped: 18



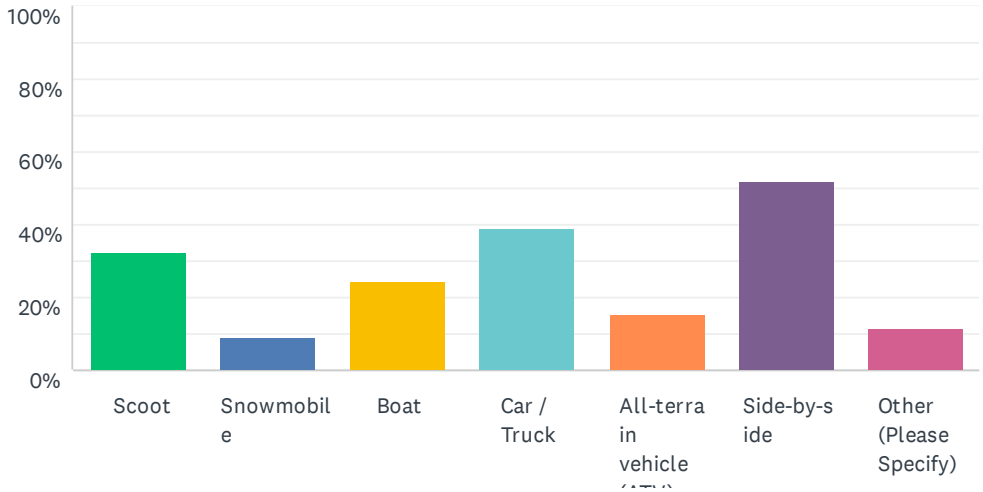
ANSWER CHOICES	RESPONSES	
Yes	78.21%	61
No	21.79%	17
TOTAL		78

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	Do not like the scoot and too bumpy	6/11/2021 2:29 PM
2	Unreliable/unsafe Transportation as well as emotionally, mentally and physically exhausting	5/28/2021 3:44 PM
3	Can't get across because of transportation, safety or weather issues	5/27/2021 11:42 AM
4	It can be dangerous to go over depending on weather conditions with the air boat or side by sides.	5/27/2021 9:59 AM
5	na	5/26/2021 10:58 AM
6	I try not to go as much due to safety issues with crossing the lake and ice.	5/25/2021 3:24 PM
7	Don’t like to cross on the ice, or ride in scoot	5/25/2021 11:38 AM
8	I work on the island, unless there’s crazy weather, I’m always at work	5/25/2021 10:57 AM
9	I prepare in advance so I don't have to travel to the mainland during freeze up or thaw. I try to avoid riding in the scoot as much as possible.	5/25/2021 10:37 AM
10	I'll work remote when possible	5/25/2021 10:35 AM
11	I don’t drive on the ice	5/25/2021 10:16 AM
12	Depending on timing of year it could impact work/student travel which could impact my ability to work as childcare options may be limited that day simply due to lack of access.	5/25/2021 10:15 AM
13	N/a	5/25/2021 9:49 AM
14	safety	5/25/2021 9:38 AM
15	Scared of driving on the ice. Gives me anxiety.	5/24/2021 10:07 PM
16	Try not to use scoot	5/21/2021 8:20 PM

17	I go over more when the ice road is good	5/21/2021 11:27 AM
18	I hate riding on the scoot I feel unsafe and driving on the ice rd is unpredictable as it depends on the weather for safe ice conditions	5/21/2021 10:51 AM
19	I work on the mainland	5/21/2021 8:56 AM
20	I dread traveling across during freeze up and thaw seasons because it's always SO busy with other members doing their errands. Its mentally draining to have to do grocery shops when everyone else is too. And wondering how long until you get home or how much room you'll take up. The commute itself is nerve wrecking, due to weather conditions, condition of the lake, specific drivers and their ways of driving, all in all its a difficult time especially if you have other health concerns (ache body, bad back, early pregnancy etc)	5/21/2021 8:35 AM
21	More like from the island because when having to do groceries it is harder to lug a bigger shopping on to scoot and there is a lot of waiting to get back home. So I will wait till it is safe enough to side by side just to avoid scoot travel.	5/21/2021 8:27 AM
22	Unable to cross as often as I would like , either due to weather or lack of transportation options	5/20/2021 10:47 PM
23	It’s difficult to travel during these times	5/20/2021 9:40 PM
24	Visiting island in warmer Months	5/20/2021 8:36 PM
25	I work on mainland. I have kept a room on the mainland. When ferry not running I stay on the mainland	5/20/2021 6:24 PM
26	Unsafe crossing.	5/20/2021 6:20 PM
27	Safety issues	5/20/2021 5:34 PM
28	I don’t travel at those times of the year.	5/20/2021 5:32 PM
29	I do not travel to the island when it’s not safe	5/20/2021 5:00 PM
30	I avoid crossing as much as I can. I hate the scoot Amd dislike the side by sides. I prefer to wait until I can drive myself.	5/20/2021 4:48 PM
31	The scoot is too hard on the body bumpy	5/20/2021 4:33 PM
32	I know worry a lot in those seasons about safety	5/20/2021 3:52 PM
33	I don't cross during that time unless it is safe to drive on the ice.	5/20/2021 3:43 PM
34	I avoid crossing ice road if possible	5/20/2021 3:32 PM
35	I wait until it is safe to cross	5/20/2021 3:31 PM
36	Yea safety reasons	5/20/2021 3:15 PM
37	Bad crossing unsafe ice conditions	5/20/2021 3:14 PM
38	Yea cause don't have any type of vehicle	5/20/2021 3:13 PM
39	I know that the ice is not that good anymore	5/20/2021 3:11 PM
40	It could be unsafe to cross	5/20/2021 3:08 PM

Q15 Generally speaking, what is your preferred method of crossing during the freeze up and thaw seasons? Please check all that apply.

Answered: 77 Skipped: 19

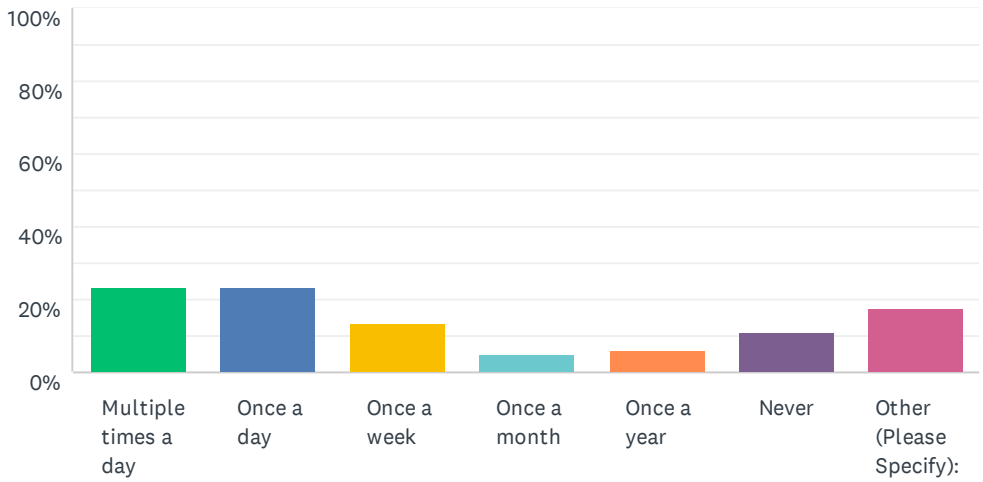


ANSWER CHOICES	RESPONSES	
Scoot	32.47%	25
Snowmobile	9.09%	7
Boat	24.68%	19
Car / Truck	38.96%	30
All-terrain vehicle (ATV)	15.58%	12
Side-by-side	51.95%	40
Other (Please Specify)	11.69%	9
Total Respondents: 77		

#	OTHER (PLEASE SPECIFY)	DATE
1	na	5/26/2021 10:58 AM
2	Car when it is absolutely safe to do so.	5/25/2021 3:24 PM
3	N/a	5/25/2021 9:57 AM
4	none I stay home , during the freeze up and thaw all you can use are the scoots and it is ruff and when wind s are strong it is unsafe to drive them	5/21/2021 10:51 AM
5	Do not cross	5/20/2021 10:40 PM
6	Ice conditions allowing	5/20/2021 6:24 PM
7	Have been staying on the Island during these times until travel is safe for vehicles, scoot is uncomfortable and can be scary depending on who is driving	5/20/2021 5:34 PM
8	N/A	5/20/2021 3:35 PM
9	We don't travel in the winter to the island	5/20/2021 3:11 PM

Q16 How often do you use the ice road when it is operational?

Answered: 81 Skipped: 15



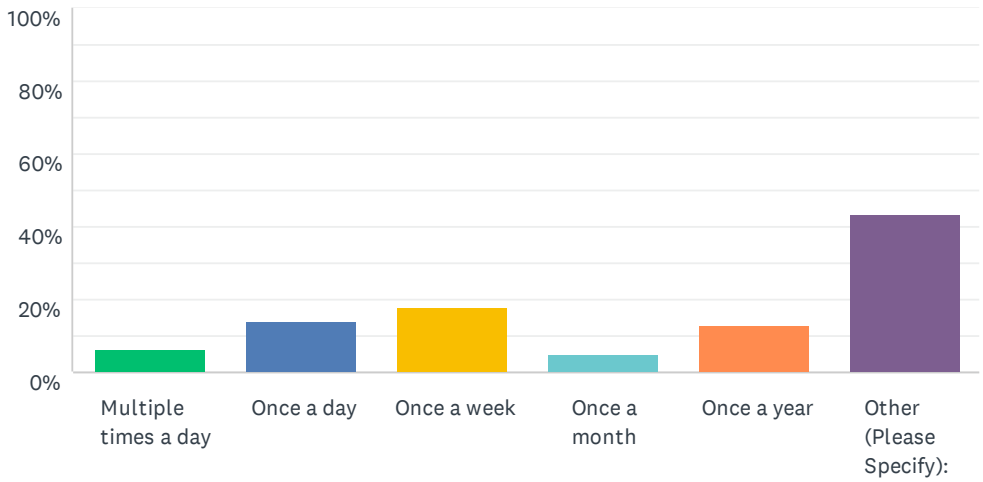
ANSWER CHOICES	RESPONSES	
Multiple times a day	23.46%	19
Once a day	23.46%	19
Once a week	13.58%	11
Once a month	4.94%	4
Once a year	6.17%	5
Never	11.11%	9
Other (Please Specify):	17.28%	14
TOTAL		81

#	OTHER (PLEASE SPECIFY):	DATE
1	couple times a week	6/14/2021 2:14 PM
2	multiple times a week	6/14/2021 1:59 PM
3	na	6/14/2021 1:51 PM
4	2-3 times weekly	5/26/2021 11:04 AM
5	na	5/26/2021 10:58 AM
6	Several times a week - I often drive my children across to meet the school bus so they don't have to ride the scoot each morning if the ice road is good.	5/25/2021 10:37 AM
7	Don’t	5/25/2021 9:57 AM
8	N/a	5/25/2021 9:49 AM
9	I try not to use when I'm island visiting family.	5/24/2021 10:07 PM
10	Twice weekly	5/21/2021 8:20 PM
11	When it is safe, a few times a week. I will shop in bulk to stock up to prepare for thaw., to lessen the need to travel by scoot.	5/21/2021 8:35 AM

12	It depends on how thick the ice is and appointments that have to been attended. Some weeks once but some weeks 2 times.	5/21/2021 8:27 AM
13	Couple times a week sometime more	5/20/2021 10:47 PM
14	Couple times a year	5/20/2021 10:40 PM

Q17 How often do you use the airboat (or "scoot") when it is operational?

Answered: 78 Skipped: 18



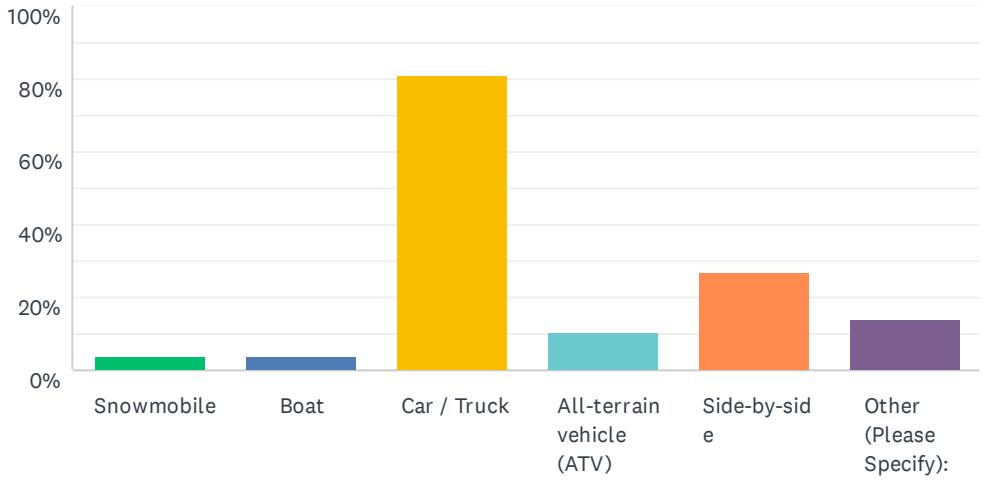
ANSWER CHOICES	RESPONSES	
Multiple times a day	6.41%	5
Once a day	14.10%	11
Once a week	17.95%	14
Once a month	5.13%	4
Once a year	12.82%	10
Other (Please Specify):	43.59%	34
TOTAL		78

#	OTHER (PLEASE SPECIFY):	DATE
1	I try to avoid the scoot, once every couple years	8/9/2021 10:49 AM
2	twice weekend	6/14/2021 2:02 PM
3	-	6/14/2021 1:52 PM
4	a couple times a month	5/28/2021 3:46 PM
5	na	5/26/2021 10:58 AM
6	Live on mainland, wait till ice is good to travel over	5/25/2021 11:39 AM
7	Try not to use it at all if possible	5/25/2021 11:31 AM
8	as little as possible	5/25/2021 10:36 AM
9	Never	5/25/2021 10:23 AM
10	Rarely, that vessel is really for emergency use only, it should be restricted to be only available for those members and their children living on the island full year round. If I can avoid taking the scoot in order to make space available for community residents that's what I would prefer to do.	5/25/2021 10:19 AM
11	I'm a driver	5/25/2021 10:03 AM
12	N/a	5/25/2021 9:58 AM

13	N/a	5/25/2021 9:49 AM
14	I generally take my holidays so I don't have to use the scoot.	5/25/2021 9:36 AM
15	Not often...very scared of ice...	5/24/2021 10:09 PM
16	Haven't used it	5/23/2021 1:12 PM
17	Rarely use if usually don't	5/21/2021 12:43 PM
18	only if I have to	5/21/2021 10:58 AM
19	Maybe once a week or every few weeks. I don't enjoy the scoot but use it when I have to.	5/21/2021 8:44 AM
20	As little as possible. I think in the last 2-3 years I have been on it a total of 6 times.	5/21/2021 8:29 AM
21	Never	5/21/2021 7:49 AM
22	n/a	5/20/2021 10:41 PM
23	Try not to ride airboat. Loud and very rough riding Getting in and out is a real treat too.	5/20/2021 9:31 PM
24	Never	5/20/2021 8:37 PM
25	Couple times per week	5/20/2021 7:47 PM
26	Only use if it’s emergency	5/20/2021 6:25 PM
27	2-3 times a month	5/20/2021 5:35 PM
28	Never.	5/20/2021 5:34 PM
29	haven't used it yet	5/20/2021 4:33 PM
30	not unless I have to	5/20/2021 3:44 PM
31	Never	5/20/2021 3:36 PM
32	I have never used it	5/20/2021 3:33 PM
33	The least I can	5/20/2021 3:14 PM
34	We always used the boat	5/20/2021 3:12 PM

Q18 What personal vehicle do you use when you use the ice road for travelling purposes (not recreational use)? Please check all that apply.

Answered: 78 Skipped: 18

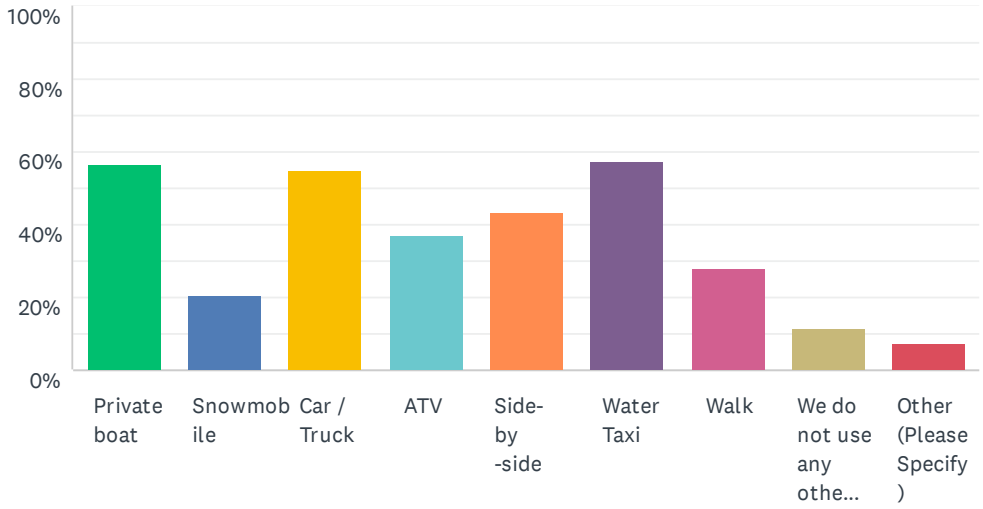


ANSWER CHOICES	RESPONSES	
Snowmobile	3.85%	3
Boat	3.85%	3
Car / Truck	80.77%	63
All-terrain vehicle (ATV)	10.26%	8
Side-by-side	26.92%	21
Other (Please Specify):	14.10%	11
Total Respondents: 78		

#	OTHER (PLEASE SPECIFY):	DATE
1	taxi	6/11/2021 2:35 PM
2	na	5/26/2021 10:58 AM
3	None	5/25/2021 10:23 AM
4	N/a	5/25/2021 9:58 AM
5	N/a	5/25/2021 9:49 AM
6	Passenger	5/24/2021 10:09 PM
7	Or a small light vehicle when it is safe.	5/21/2021 8:44 AM
8	Never	5/20/2021 8:37 PM
9	None	5/20/2021 3:36 PM
10	Don't have one	5/20/2021 3:14 PM
11	Never go over in the winter	5/20/2021 3:12 PM

Q19 Aside from the ferry and airboat / scoot, what are some other ways of transportation that you or members of your household have used to travel to and from Georgina Island?

Answered: 78 Skipped: 18

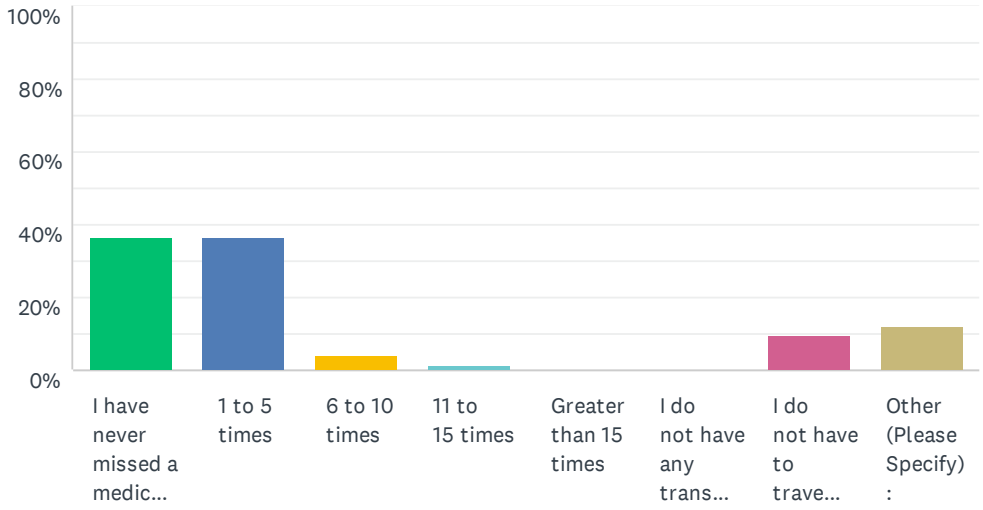


ANSWER CHOICES	RESPONSES	
Private boat	56.41%	44
Snowmobile	20.51%	16
Car / Truck	55.13%	43
ATV	37.18%	29
Side-by-side	43.59%	34
Water Taxi	57.69%	45
Walk	28.21%	22
We do not use any other modes of transportation	11.54%	9
Other (Please Specify)	7.69%	6
Total Respondents: 78		

#	OTHER (PLEASE SPECIFY)	DATE
1	Jet ski	5/27/2021 11:43 AM
2	na	5/26/2021 10:58 AM
3	N/a	5/25/2021 9:49 AM
4	When nothing is operational you will do about anything to get over.	5/20/2021 9:31 PM
5	Personal vehicle ferry	5/20/2021 8:37 PM
6	none	5/20/2021 3:12 PM

Q20 In a typical year, how many times have you missed a medical appointment because of a down ferry?

Answered: 74 Skipped: 22

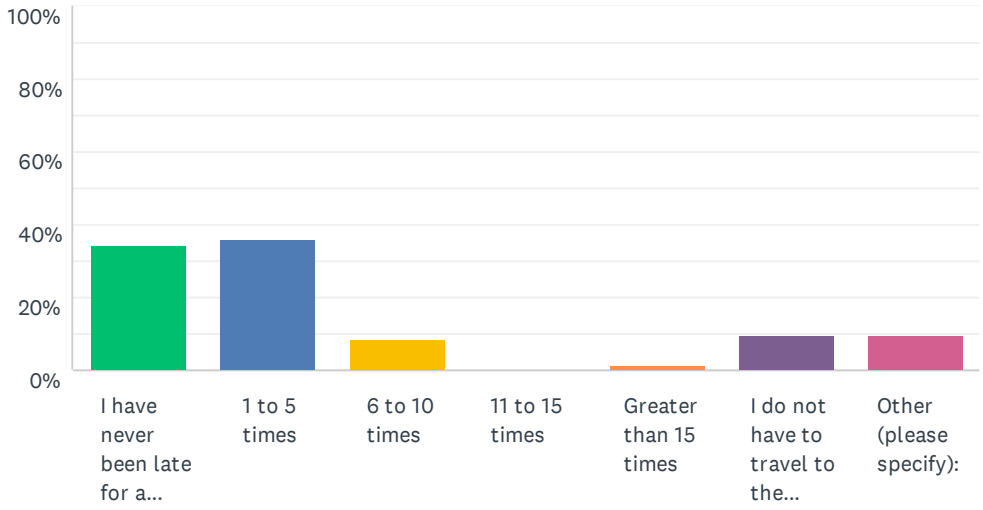


ANSWER CHOICES	RESPONSES	
I have never missed a medical appointment because of a down ferry	36.49%	27
1 to 5 times	36.49%	27
6 to 10 times	4.05%	3
11 to 15 times	1.35%	1
Greater than 15 times	0.00%	0
I do not have any transportation issues going back and forth between the mainland and Georgina Island	0.00%	0
I do not have to travel to the mainland for medical appointments	9.46%	7
Other (Please Specify):	12.16%	9
TOTAL		74

#	OTHER (PLEASE SPECIFY):	DATE
1	na	5/26/2021 10:59 AM
2	N/A	5/25/2021 10:24 AM
3	Use my own transportation	5/25/2021 10:10 AM
4	N/a	5/25/2021 9:59 AM
5	N/a	5/25/2021 9:50 AM
6	Dont live on island	5/23/2021 1:15 PM
7	I have been pretty lucky and can say that I have never missed an appointment	5/21/2021 8:31 AM
8	Don’t live on island so don’t need to cross for medical appts	5/20/2021 10:55 PM
9	Not applicable because live off reserve	5/20/2021 8:38 PM

Q21 In a typical year, how many times have you been late for a medical appointment because of a down ferry?

Answered: 72 Skipped: 24

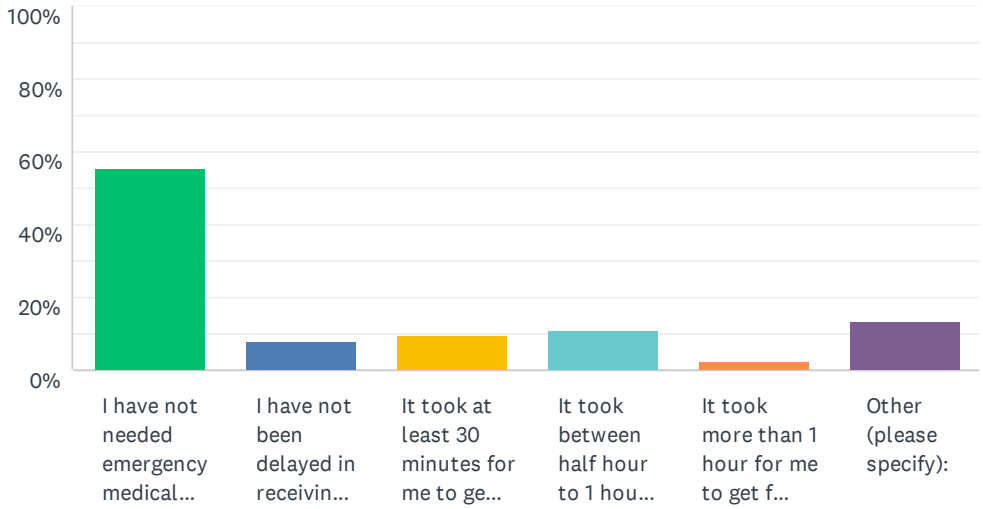


ANSWER CHOICES	RESPONSES	
I have never been late for a medical appointment because of a down ferry	34.72%	25
1 to 5 times	36.11%	26
6 to 10 times	8.33%	6
11 to 15 times	0.00%	0
Greater than 15 times	1.39%	1
I do not have to travel to the mainland for medical appointments	9.72%	7
Other (please specify):	9.72%	7
TOTAL		72

#	OTHER (PLEASE SPECIFY):	DATE
1	na	5/26/2021 10:59 AM
2	N/A	5/25/2021 10:24 AM
3	N/a	5/25/2021 9:59 AM
4	N/a	5/25/2021 9:50 AM
5	I do not live on Island	5/23/2021 1:15 PM
6	Don’t live on island	5/20/2021 10:55 PM
7	N/a	5/20/2021 8:38 PM

Q22 In a medical emergency where you had to travel off the Island, have the current transportation options caused you delays in receiving emergency services?

Answered: 74 Skipped: 22



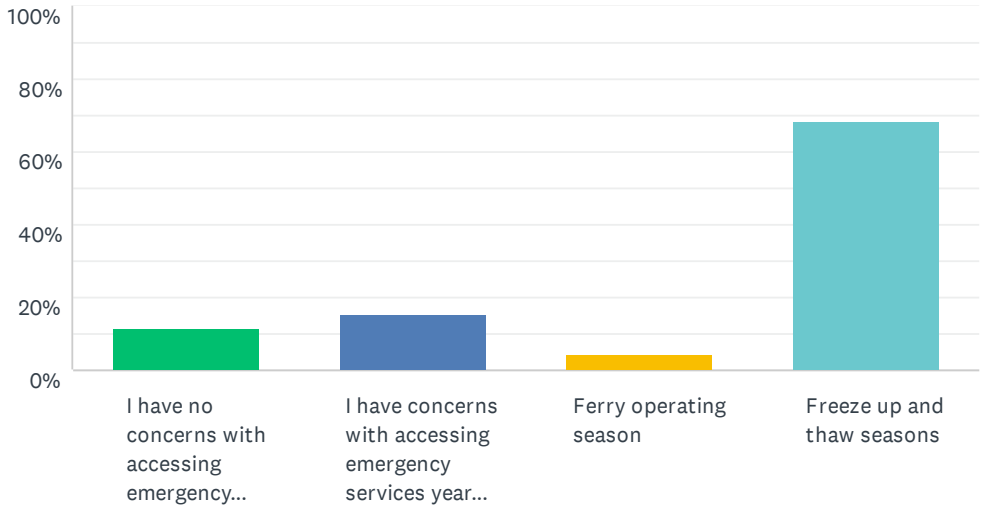
ANSWER CHOICES	RESPONSES	
I have not needed emergency medical services off the Island	55.41%	41
I have not been delayed in receiving emergency medical care	8.11%	6
It took at least 30 minutes for me to get from the Island to the mainland ambulance	9.46%	7
It took between half hour to 1 hour for me to get from the Island to the mainland ambulance	10.81%	8
It took more than 1 hour for me to get from the Island to the mainland ambulance	2.70%	2
Other (please specify):	13.51%	10
TOTAL		74

#	OTHER (PLEASE SPECIFY):	DATE
1	na	5/26/2021 10:59 AM
2	Sometimes due to boat or scoot I am late or have missed medical appointments.	5/25/2021 3:27 PM
3	When I was expecting a baby during freeze-up, I had to stay in a hotel in the city because the doctors did not want me to have to ride the scoot and they didn't think I would get to the hospital in time.	5/25/2021 10:44 AM
4	N/A	5/25/2021 10:24 AM
5	N/a	5/25/2021 9:59 AM
6	N/a	5/25/2021 9:50 AM
7	Yes. When I was in labor, no boat driver showed up to get myself over, even when 911 was called. Myself and the first response guys waited. But luckily ended up using one of the response guys personal boat to get me over to the ambulance waiting on the mainland.	5/21/2021 8:52 AM
8	Don’t live on island	5/20/2021 10:55 PM
9	N/a	5/20/2021 8:38 PM

10	We should have good emergency assistance for the island	5/20/2021 3:13 PM

Q23 Which time of the year would be of the greatest concern for you accessing emergency healthcare services on the mainland?

Answered: 70 Skipped: 26



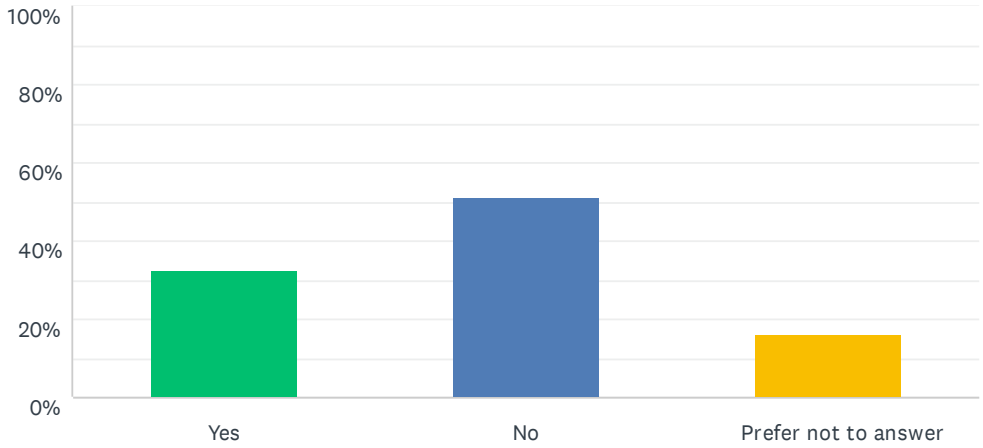
ANSWER CHOICES	RESPONSES	
I have no concerns with accessing emergency services off the Island	11.43%	8
I have concerns with accessing emergency services year round	15.71%	11
Ferry operating season	4.29%	3
Freeze up and thaw seasons	68.57%	48
TOTAL		70

#	PLEASE EXPLAIN YOUR SELECTION	DATE
1	When I had my son I chose to live in Orillia as I didn't want to take my newborn baby on airboat in case we had to go to doctors for his care	6/14/2021 2:15 PM
2	If the ferry is on the other side/mainland	6/14/2021 1:53 PM
3	While accessing emergency services is always of concern when on the island, freeze up and thaw seasons are particularly concerning due to means of travel, weather, ice conditions	5/27/2021 11:47 AM
4	na	5/26/2021 10:59 AM
5	Freeze up and thaw are when it is most difficult to cross. At other times of the year we would be able to use our boats or the ice road to access medical care for minor emergencies. However, if it was a serious medical emergency, the extra travel time associated with getting across on the ferry could be the difference between life and death.	5/25/2021 10:44 AM
6	SUMMER - there has been an incredible increase in the number of cottagers and vehicles travelling across year after year. Lines waiting for hours on the island or mainland side. It's often hectic, confusing, many do not know, nor respect the rules at the ferry so it scares me to bring myself or my children across especially during the summer months knowing it is an absolute zoo each weekend (and honestly almost every week day now as well) and could seriously impact my family's ability to access acute care as a result of the almost constant congestion on the boat.	5/25/2021 10:24 AM
7	N/a	5/25/2021 9:50 AM
8	when the ferry is operating it could be on the main land and you need the get over right away it	5/21/2021 11:14 AM

	has to come to the island than take you back over about a 30 min. wait. in freeze up and thaw seasons you can.t get a stretcher in the scoots it is also s very ruff ride over	
9	Once the ferry is shut down for the night, its hard to get to the hospital and back home, especially when it's through the middle of the night or one trip left til it's done. Travel isn't always guaranteed, and/or a hotel or place to sleep isn't either guaranteed. The choice to stay home (within some reason of course) until the first boat is almost the best choice for those reasons. But an extremely difficult decision - especially if it's a younger one with the emergency.	5/21/2021 8:52 AM
10	n/a	5/20/2021 10:42 PM
11	Year round is a concern to get emergency healthcare. If boat is on other side when emergency occurs you can count on over an hour to get over. Freeze up breakup is very concerning especially in an emergency that trip Ali e could finish anyone off. As for the winter road it’s a nightmare too. Pressure cracks appear anywhere without warning.	5/20/2021 9:37 PM
12	The lake is unpredictable	5/20/2021 4:37 PM
13	difficult crossing	5/20/2021 3:45 PM
14	Dangerous conditions	5/20/2021 3:10 PM

Q24 Do the costs to use the ferry, airboat and other current transportation options pose a financial hardship for you?

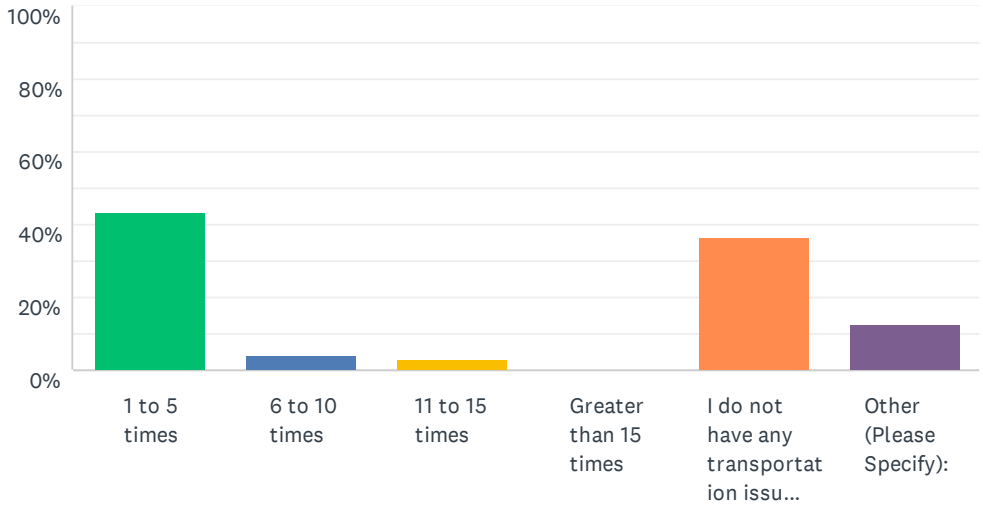
Answered: 74 Skipped: 22



ANSWER CHOICES	RESPONSES	
Yes	32.43%	24
No	51.35%	38
Prefer not to answer	16.22%	12
TOTAL		74

Q25 In a typical year, how many times have you not been able to come back to the Island because of a down ferry on the same day of your visit to the mainland?

Answered: 71 Skipped: 25



ANSWER CHOICES	RESPONSES	
1 to 5 times	43.66%	31
6 to 10 times	4.23%	3
11 to 15 times	2.82%	2
Greater than 15 times	0.00%	0
I do not have any transportation issues going back and forth between the mainland and Georgina Island	36.62%	26
Other (Please Specify):	12.68%	9
TOTAL		71

#	OTHER (PLEASE SPECIFY):	DATE
1	na	6/11/2021 2:36 PM
2	0	5/26/2021 11:08 AM
3	na	5/26/2021 10:59 AM
4	live on mainland. haven't gotten stuck on rez, as i leave on the 330 and there are plenty of trips after	5/25/2021 11:00 AM
5	N/a	5/25/2021 10:00 AM
6	N/a	5/25/2021 9:50 AM
7	Dont live on island	5/20/2021 10:58 PM
8	Can't remember	5/20/2021 3:18 PM
9	We do not travel there	5/20/2021 3:16 PM

Q26 How have the uncertainties in the current transportation options to and from the island impacted your physical, emotional, and mental health?

Answered: 71 Skipped: 25

#	RESPONSES	DATE
1	i can't hangout with my friends as much so i'm distressed	8/10/2021 1:52 PM
2	Having to wait for the ferry just to miss it due to overflow can be very frustrating	8/9/2021 10:51 AM
3	If the boat breaks down I am unable to see a doctor or have the NP not being able to come to the Island	6/14/2021 2:16 PM
4	NA	6/14/2021 2:02 PM
5	The waiting. missing ferry or scoot, not able to get on	6/14/2021 1:53 PM
6	na	6/11/2021 2:36 PM
7	na	6/11/2021 2:31 PM
8	Always feeling like you have to rush. Have been pulled over by the cops on a couple of occasions because of this. Not being able to get on the boat is stressful and has led to arguments and family conflicts as well as conflicts with others. Waiting in line sitting in your car as well as riding on the scoot is hard on your body physically	5/28/2021 3:51 PM
9	It can be anxiety and anger inducing and causes rush situations which can put health and safety in jeopardy	5/27/2021 11:48 AM
10	Concerns with my children having to attend school on mainland and board away from home during the freeze and thaw seasons.	5/27/2021 10:03 AM
11	frustration with getting home due to over-capacity	5/26/2021 11:08 AM
12	na	5/26/2021 10:59 AM
13	Mentally waiting for the boat ! Physically loading and unloading groceries on the scoot or side by side! Emotionally having to wait for the boat usually you wait an hour to leave the island and coming home on. Weekends waiting almost 2 hrs	5/25/2021 9:43 PM
14	They haven't	5/25/2021 8:01 PM
15	It always impacts our people when we have to travel to the mainland to get almost anything that we may need. Not only do we have to pay to come and go from our actual homes we also have to stress about lines up/too many cottagers and not enough room to get over and back on the ferry. Worrying about our safety and our children's safety. Constantly being in a state of rushing or worrying g we'll miss the boat/scoot/side by side. Waiting hours and hours to get home or to get to go to an appointment. It's a traumatized life and one that I am grateful you all are actually looking into helping to ease mentally, physically, emotionally and spiritually. Making it better so that our youth and children do not have to experience all that we have. Like our parents and grandparents did before us so that we wouldn't have to experience what they did. gchi miigwechwendam aho!	5/25/2021 3:32 PM
16	Yes I have to leave work early because last ferry is 9pm	5/25/2021 2:53 PM
17	Constant worry of weather conditions.	5/25/2021 1:24 PM
18	Mentally, financially, physically and more. I have lost jobs due to the uncertainty of the boat	5/25/2021 1:05 PM
19	It has made our family unable to live there full time due to work, extra curricular activities and school	5/25/2021 11:33 AM
20	It makes it incredibly difficult to be able to plan (especially with young children) to come to the island when there is so much uncertainty as to when and if you are even going to get there. It is unfortunate that the community is now synonymous with "cottage country traffic" and the	5/25/2021 11:02 AM

	influx in non-members have made it impossible for members and their families to fully enjoy the community's spaces. I would rather avoid the congestion, lack of certainty that the boat will be on schedule and the overall lack of innovation to address these key issues for years then continue to fight with cottagers, visitors, contractors and the constant dump trucks that seemed to have overtaken the only method of viable transportation created to service its members.	
21	I get anxiety almost every morning trying to get my kids out the door on time.	5/25/2021 11:00 AM
22	rushing to catch the ferry definitely causes more stress	5/25/2021 10:44 AM
23	Hasn't	5/25/2021 10:40 AM
24	It has not	5/25/2021 10:30 AM
25	None	5/25/2021 10:28 AM
26	Not impaccted	5/25/2021 10:11 AM
27	N/a	5/25/2021 10:00 AM
28	N/a	5/25/2021 9:50 AM
29	They have not affected my physical, emotional or mental health	5/25/2021 9:43 AM
30	not.	5/25/2021 9:39 AM
31	the uncertainties has greatly impacted my life. you really don't know from one day to the next if your going to need med help or food or if your going to get home. Right now you cant take anything for granted when it comes to our transportation. I feel isolated as it is.	5/25/2021 8:17 AM
32	Yes. Missed ferries and being stuck on nsjnland not enjoyable when vacationing home.	5/24/2021 10:10 PM
33	It hasn't yet	5/23/2021 1:17 PM
34	Not at all	5/22/2021 10:48 AM
35	I am always quite stressed during ice road session. We have tragically lost members over the years.	5/22/2021 8:41 AM
36	Well I didnt until covid happened! I'm sick of seeing cottagers allowed to just come and go as they please and needs to be stopped during a lock down... Especially during the lock down	5/21/2021 12:47 PM
37	It makes me anxious - not knowing if/when the boat is running and on time or not	5/21/2021 11:30 AM
38	get upset when you miss the ferry when time schedule is off and you have appointments . When you are shopping and have frozen food you have to get home and you can't get on because the line up is to big	5/21/2021 11:23 AM
39	Greatly, it's mostly having to pay. It's an essential service members should not have to pay. Especially when we don't get on the ferry because if cottagers	5/21/2021 9:00 AM
40	It impacts all of the above greatly. Especially emergencies and having little children, accidents happen and you never know if you can get them the help they need in a timely manner. Also when it comes to sports and recreation, sports sometimes start as early as 7am, and transportation off the island on weekends does not cater to that need. Especially in the winter seasons, it's hard to cater to sports and recreation past 6pm with the scoot if classes run until 7. This impacts the little ones greatly, on their health, physical and emotional. Which then makes it hard on parents to see their children become discouraged.	5/21/2021 9:00 AM
41	It was only frustrating when having to travel for sports and the boat only ran till a certain time.	5/21/2021 8:34 AM
42	Haven’t	5/21/2021 7:51 AM
43	None	5/21/2021 12:09 AM
44	None	5/20/2021 11:32 PM
45	Stress on not being able to get across to see or take care of my parents	5/20/2021 10:58 PM
46	n/a	5/20/2021 10:42 PM
47	Just during freeze /thaw time do i get anxious	5/20/2021 9:43 PM

48	It’s always a worry how you are going to get back and forth.	5/20/2021 9:38 PM
49	If the ferry is down it impacts visiting and since I live off reserve I then need to find an alternative day to visit when ferry is running	5/20/2021 8:39 PM
50	Greatly	5/20/2021 7:49 PM
51	Not a problem as a islander im a where of potential delay s	5/20/2021 7:29 PM
52	It hasnt	5/20/2021 6:28 PM
53	Physical	5/20/2021 6:24 PM
54	Hasn’t	5/20/2021 5:43 PM
55	Of course	5/20/2021 5:37 PM
56	Not at all.	5/20/2021 5:35 PM
57	Not at all	5/20/2021 5:03 PM
58	Sometimes. Especially in the winter. It is emotionally hard for me to travel in the scoot because when it breaks threw the ice I picture how my family member died going through the ice and what that must have felt like. I try not to think that but I always do when it goes from the ice into the water so I rarely take the scoot. Plus the noise and bumps are hard on me physically. I also have had to travel with others that I am Uncomfortable with and it’s awkward. I also have anxiety when I am on one side and my car is on the other and I hate being dependent on someone else to get me to and from the island.	5/20/2021 4:59 PM
59	There is nothing to do here We need aftercare after treatment We need emotional support and physical workshops	5/20/2021 4:40 PM
60	Impacts me emotionally causing stress to make sure I’m on time for ferry or on island in time before dark during freeze over season	5/20/2021 4:37 PM
61	nil	5/20/2021 4:35 PM
62	Stressful getting over and back sometimes	5/20/2021 4:20 PM
63	It’s SO STRESSFUL to make the boat and the lineups are huge! It’s difficult to plan my drive from Ottawa because if I miss the boat it adds an hour to my wait time	5/20/2021 3:55 PM
64	It's stressful when you don't know if you can get on the ferry or not, your groceries thaw, you miss appointments, your late for meetings....stress, stress, stress	5/20/2021 3:47 PM
65	No impact	5/20/2021 3:35 PM
66	No	5/20/2021 3:34 PM
67	It is very stressful, unwanted and definitely unneeded stress on mental health and well being	5/20/2021 3:18 PM
68	Stressful most times due to the car ferry being full of cottagers and not being able to get on and rushing to catch the boat and get in line early to get home or leave	5/20/2021 3:18 PM
69	I dont care to answer	5/20/2021 3:18 PM
70	All of them for the people that live there	5/20/2021 3:16 PM
71	Anxiety if I have somewhere to be	5/20/2021 3:10 PM

Q27 What changes can be made to the current transportation options (i.e., ferry, scoot, etc.) for the Island to improve your overall mental, physical, and emotional health?

Answered: 65 Skipped: 31

#	RESPONSES	DATE
1	Added schedule, members only line, bridge	8/9/2021 10:52 AM
2	Having more trips for the scoot would be beneficial as the scoot stop at 6pm. If you miss it then you are stuck on the mainland. I also think that band members shouldn't be charged. Being a single mother is hard to constantly pay for the boat.	6/14/2021 2:20 PM
3	NA	6/14/2021 2:03 PM
4	a bridge across the lake	6/14/2021 1:54 PM
5	na	6/11/2021 2:36 PM
6	na	6/11/2021 2:31 PM
7	Schedules that meet the needs of the people and there should not be a financial burden on the people that live here. We should not have to pay to come home.	5/28/2021 3:57 PM
8	I believe that our leadership tries to provide the community with the safest means of travel possible and tries to limit the financial impact that community members feel, however, without 24hr access and safety concerns alleviated there is only so much that can be done	5/27/2021 11:53 AM
9	Having more trips available and not having to wait in a line up for 30 to 60min to go over or come home.	5/27/2021 10:07 AM
10	more frequents trips during peak times	5/26/2021 11:11 AM
11	More trips for island workers morning trip and after work	5/25/2021 9:48 PM
12	Get us a bridge	5/25/2021 8:05 PM
13	Better scheduling so that we are not always feeling confused, a medical/members only line on either side. Mainland and Island sides.	5/25/2021 4:02 PM
14	Have a ferry after 9pm	5/25/2021 2:54 PM
15	New ferry boat	5/25/2021 1:26 PM
16	1. ACTUALLY LIMIT COTTAGER TRAFFIC and have the resources available to enforce it! 2. Provide a section/line for membership and another line for cottager/contractor/visitor traffic. Members should not have to wait to go home, it's become a negotiation to determine what days is best to travel due to such congested conditions	5/25/2021 1:17 PM
17	A bridge	5/25/2021 1:08 PM
18	Bridge	5/25/2021 11:35 AM
19	Member line	5/25/2021 11:02 AM
20	increased communication regarding scoots and side by sides from the drivers	5/25/2021 10:47 AM
21	No changes	5/25/2021 10:41 AM
22	Bridge	5/25/2021 10:32 AM
23	More crossing	5/25/2021 10:30 AM
24	N/a	5/25/2021 10:01 AM
25	N/a	5/25/2021 9:50 AM

26	band members who live on island should have priority over cottagers to return home	5/25/2021 9:45 AM
27	fixed link	5/25/2021 9:42 AM
28	Get a bridge.	5/25/2021 8:19 AM
29	Build a bridge	5/24/2021 10:13 PM
30	I'm not sure	5/23/2021 1:22 PM
31	None	5/22/2021 10:49 AM
32	Bridge/fixed link	5/22/2021 8:46 AM
33	Stop letting over cottagers	5/21/2021 12:50 PM
34	better communication between drivers and councilor and manager, manager need to do a better job of looking after maintenance the barge. train more drivers so if something happens you have extra drivers.	5/21/2021 12:06 PM
35	Priority given to band members	5/21/2021 11:31 AM
36	Maintain a consistent schedule 7 days a week to make access to sports/recreation and/or medical emergencies. Lower the cost for band members to travel and increase the cottager cost because the traffic is getting busier and busier every year. Priority to band members would be ideal because this is our home not a weekend getaway.	5/21/2021 9:15 AM
37	Band members should not have to pay	5/21/2021 9:01 AM
38	Not allowing cottagers on the ferry over during COVID!!!! Or if they are then they should be made to say where they live or are coming from due to all the hot spots in Toronto, Peel etc..... Making it mandatory that the cottagers cannot come over until mid May and that they only have 1-2 vehicles at their cottage at any given time and if they have more than that then the police should be made to give them a ticket or fine.	5/21/2021 8:46 AM
39	Make the ferry do wider tracks when going back-and-forth to help prevent ice from freezing	5/21/2021 7:52 AM
40	Unknown	5/21/2021 12:11 AM
41	None	5/20/2021 11:33 PM
42	Scheduling needs to be more consistent, ferry should run every hour And residents should have first priority over visitors and cottagers	5/20/2021 11:07 PM
43	-	5/20/2021 10:43 PM
44	Its pretty good actually and in case of emergencies the crew is always available	5/20/2021 9:49 PM
45	To improve my overall health would be a fixed link that is safe and I can rely on to go and come as I please.	5/20/2021 9:44 PM
46	New ferry	5/20/2021 8:40 PM
47	Members only line . Can’t travel like we used to due to cottagers and contractors filling up the boat.	5/20/2021 7:50 PM
48	New car ferry	5/20/2021 7:32 PM
49	I can’t think of anything	5/20/2021 6:31 PM
50	Bridge would be helpful	5/20/2021 6:26 PM
51	None	5/20/2021 5:46 PM
52	Priority for band members, inspection of cottager and "visitor/tourist" vehicles etc due to strangers with mental health issues and/or criminal backgrounds. Drug traffickers and ppl squatting in cottages and forest. No cottagers on our scoots. Period. Tourists have been observed smoking weed outside their vehicles in close proximity to Island children, smoke blowing back at them. All cottagers need to PAY and not get preferential treatment by certain staff! Cottagers shouldnt be allowed to RESIDE over here either. Seasonal only, may-oct. Should be special times for construction trucks	5/20/2021 5:45 PM

53	Current options are fine.	5/20/2021 5:39 PM
54	Please ask drivers and passengers to stop smoking on the ferry. It is the worst when you have a baby or a sick elder or you are allergic and the ferry staff come to your window with a smoke going. It also is terrible in the summer when you can't roll down your window because there are passengers smoking all around you.	5/20/2021 5:13 PM
55	More trips	5/20/2021 5:04 PM
56	Scheduled times for these workshops	5/20/2021 4:45 PM
57	Later ferry's	5/20/2021 4:40 PM
58	More trips. Later and earlier trips	5/20/2021 4:23 PM
59	More runs, but a bridge is ideal ans more boat trips are bad for the environment	5/20/2021 3:56 PM
60	I don't know	5/20/2021 3:48 PM
61	No changes	5/20/2021 3:37 PM
62	None	5/20/2021 3:36 PM
63	A better concrete ferry/scoot/side by side schedule that runs in the early morning hours and late evening hours daily.	5/20/2021 3:21 PM
64	Na	5/20/2021 3:20 PM
65	Leaving on time and making members first priority	5/20/2021 3:12 PM

Q28 What other potential transportation option(s) to and from Georgina Island would improve your overall mental, physical, and emotional health?

Answered: 65 Skipped: 31

#	RESPONSES	DATE
1	BRIDGE	8/9/2021 10:52 AM
2	I believe that residents and band members should have priority to get on the boat before cottagers, we should have our own separate line.	6/14/2021 2:20 PM
3	causeway	6/14/2021 2:03 PM
4	a bridge across the lake	6/14/2021 1:54 PM
5	na	6/11/2021 2:36 PM
6	na	6/11/2021 2:31 PM
7	A fixed link that we could travel on with no schedules and no financial burden	5/28/2021 3:57 PM
8	Not having to live by a schedule that can be affected by the amount of people wanting to come and go is the only I can think of as options to what we currently have	5/27/2021 11:53 AM
9	More trips on the Aazhaawe, a causeway or bridge.	5/27/2021 10:07 AM
10	A tug boat or passenger ferry, the water taxi can be unreliable due to mechanical issues	5/26/2021 11:11 AM
11	Later trips before freeze up so everyone has a chance to shop after work	5/25/2021 9:48 PM
12	A bridge	5/25/2021 8:05 PM
13	Proper Barge schedule accommodating to the First Nation. Proper member/medical lines on the mainland and Island sides.	5/25/2021 4:02 PM
14	Ferry after 9pm	5/25/2021 2:54 PM
15	A fixed link - causeway or bridge	5/25/2021 1:26 PM
16	Bridge, larger car capacity for ferry, increase ferry trip times	5/25/2021 1:17 PM
17	There is nothing more that can be done. I feel we as the FN has done everything we possibly can.	5/25/2021 1:08 PM
18	More trips	5/25/2021 11:35 AM
19	one of those tubes from tesla that they have in California	5/25/2021 11:02 AM
20	We need a bridge!	5/25/2021 10:47 AM
21	None	5/25/2021 10:41 AM
22	A bridge	5/25/2021 10:32 AM
23	None	5/25/2021 10:30 AM
24	N/a	5/25/2021 10:01 AM
25	N/a	5/25/2021 9:50 AM
26	water taxi should be available at all times for band members	5/25/2021 9:45 AM
27	water taxi as soon as break up happens.	5/25/2021 9:42 AM
28	A bridge.	5/25/2021 8:19 AM
29	Build a bridge	5/24/2021 10:13 PM

30	A boat running each way at same time	5/23/2021 1:22 PM
31	A fixed link	5/22/2021 10:49 AM
32	Safer craft then the scoot. I have seen a multiple passenger hovercraft that would be much easier on the body of passengers and crew.	5/22/2021 8:46 AM
33	Have a constant water taxi going back and forth	5/21/2021 12:50 PM
34	get a causeway of bridge	5/21/2021 12:06 PM
35	None	5/21/2021 11:31 AM
36	Consistency, reliability, and security are key, for all members. Not sure how to answer this as I'm not sure of what options are available.	5/21/2021 9:15 AM
37	We don't pay	5/21/2021 9:01 AM
38	A BRIDGE	5/21/2021 8:46 AM
39	Not required	5/21/2021 7:52 AM
40	Unknown	5/21/2021 12:11 AM
41	Airplane	5/20/2021 11:33 PM
42	A fixed link !	5/20/2021 11:07 PM
43	-	5/20/2021 10:43 PM
44	A bridge	5/20/2021 9:49 PM
45	Only a fixed link that I could drive would improve my life.	5/20/2021 9:44 PM
46	Bridge or reliable transportation applicable to all seasons	5/20/2021 8:40 PM
47	A bridge	5/20/2021 7:50 PM
48	Helicopter	5/20/2021 7:32 PM
49	Bridge would take away stress of having to consider transportation	5/20/2021 6:31 PM
50	NA	5/20/2021 6:26 PM
51	None	5/20/2021 5:46 PM
52	Not sure right nkw	5/20/2021 5:45 PM
53	Easier accessibility other than just relying on one ferry.	5/20/2021 5:39 PM
54	I’m unsure of how the water taxi works now and cost etc. But that is always handy when there is a missed boat. I also wish elders and people with young children living on the island had a priority to the cottagers on the weekends to make sure they could get to and from the island. It doesn’t seem Good for their well being to have to line up for so long in hot/running cars to get home or groceries or whatever.	5/20/2021 5:13 PM
55	None	5/20/2021 5:04 PM
56	Transportation vehicles to and from the meetings for those who need it	5/20/2021 4:45 PM
57	Bridge	5/20/2021 4:40 PM
58	A bridge	5/20/2021 4:23 PM
59	Just a bridge	5/20/2021 3:56 PM
60	a bridge	5/20/2021 3:48 PM
61	No other options	5/20/2021 3:37 PM
62	A causeway	5/20/2021 3:36 PM
63	Water Taxi	5/20/2021 3:21 PM
64	Anything but a bridge	5/20/2021 3:20 PM

65	More boats in the summer	5/20/2021 3:12 PM

Q29 What do you see as the main advantages or disadvantages of the transportation option(s) to travel to and from Georgina Island you identified in the question above?

Answered: 65 Skipped: 31

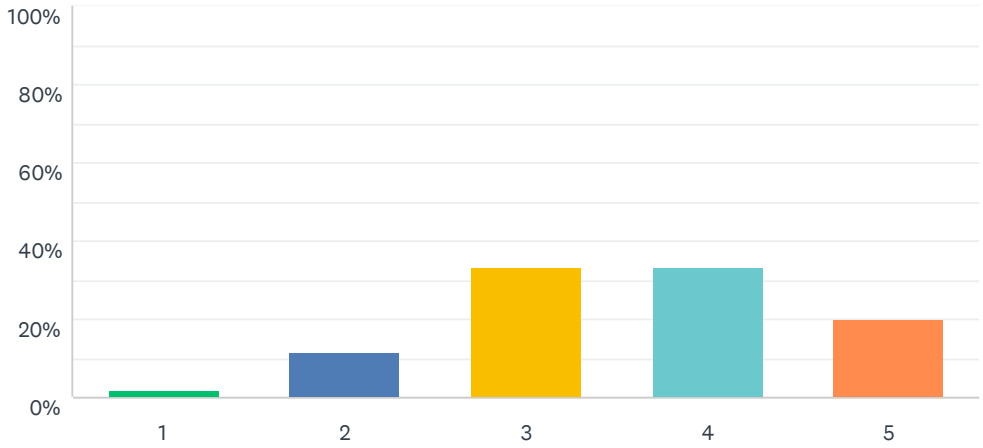
#	RESPONSES	DATE
1	There are no advantages	8/9/2021 10:52 AM
2	The main advantage I see this year is the new trips added to the schedule. The disadvantage is the cutoff time of 6pm for the scoot.	6/14/2021 2:20 PM
3	-	6/14/2021 2:03 PM
4	-	6/14/2021 1:54 PM
5	na	6/11/2021 2:36 PM
6	na	6/11/2021 2:31 PM
7	Advantages - not controlled by a schedule, freedom to come and go as we please, should be no financial burden to come home, opportunity to police those coming and going that are not members	5/28/2021 3:57 PM
8	Less traffic, more trips means more access and less waiting and missing of trips	5/27/2021 11:53 AM
9	Having to travel by boat but your life is predicted by a schedule and having to plan everything around the boat schedule.	5/27/2021 10:07 AM
10	Advantage - Security/ safe environment. Everyone knows everyone. Disadvantage - Non-members and members occasionally see it as a place without rules due its isolation lack and lack of services (ie. police presence).	5/26/2021 11:11 AM
11	Advantages our boat is safe , our drivers are the best	5/25/2021 9:48 PM
12	It would just be so much easier.No line ups and always getting to and fro when you want	5/25/2021 8:05 PM
13	Overflow and scheduling. It is ridiculous that we have to stress or go down to line up for our own transportation to and from our actual homes 45 minutes to an hour early just to get home or leave the reservation. If you want to relieve members of stressors. Due mainly to mental health stressing over the transportation issues. Make OUR PEOPLE the PRIORITY, NOT the COTTAGERS! They are only here because of a few members, not the community as a whole and it speaks volumes that priority always seems to go to them and not the actual First Nation Members as a whole. What we do now in this time impacts heavily on our 7-14 generations after us and we need to be very mindful of that!!	5/25/2021 4:02 PM
14	No late ferry	5/25/2021 2:54 PM
15	Opens the door for health and safety, economic development and opportunity for children to be involved in recreational activities.	5/25/2021 1:26 PM
16	Advantages - It would make it accessible to access the community in a timely manner. Disadvantages - pollution, risk to species and the environment	5/25/2021 1:17 PM
17	Without them we have nothing.	5/25/2021 1:08 PM
18	limits freedom advantage is that it has supported community to remain close	5/25/2021 11:35 AM
19	Keeps undesirables out (a bit)	5/25/2021 11:02 AM
20	Advantages - easy to use, convenient, quick Disadvantage - cost	5/25/2021 10:47 AM
21	Neither	5/25/2021 10:41 AM
22	Safer	5/25/2021 10:32 AM

23	None	5/25/2021 10:30 AM
24	N/a	5/25/2021 10:01 AM
25	N/a	5/25/2021 9:50 AM
26	for medical appointments	5/25/2021 9:45 AM
27	quicker and more accessable	5/25/2021 9:42 AM
28	main advantage- always have access to mainland and their services. disadvantage- cottagers and others accessing the island all year.	5/25/2021 8:19 AM
29	We are limited and I completely understand the hardship when relying on limited transportation to get home especi6wjwn the seasons change to winter!!	5/24/2021 10:13 PM
30	Waiting in line to get on boat n n ur gets full n have to wait for next boat	5/23/2021 1:22 PM
31	Safe travel	5/22/2021 10:49 AM
32	Larger craft with more passenger capacity will help with the waiting but would this cause a safety issue with a heavier craft?	5/22/2021 8:46 AM
33	It makes sense for members that want to get over quick if the they don't have their own boat and a vehicle already at the dock to get home.	5/21/2021 12:50 PM
34	advantages would be safety for our be in summer and winter for emergency trips. Our children could attend sport and other activities on main land and not have to board over on the main land. our members would be able to work over on the main land and get home each day. also we would be able to get material over faster for housing etc.	5/21/2021 12:06 PM
35	It is a strain emotionally	5/21/2021 11:31 AM
36	Not sure how to improve quality for members without allowing more cottagers and visitors to the island. Which is a huge disadvantage. Unless the cottagers are limited, because during the busy seasons it would leave more room for band members to come home and not wait for the next trip.	5/21/2021 9:15 AM
37	Disadvantages is we have to pay	5/21/2021 9:01 AM
38	The main disadvantage is the wait time to get home with groceries. It is very frustrating that I have to pick a day to take off work to do a grocery shopping just so I don't have to worry and fight to get home in time so my groceries aren't spoiled.	5/21/2021 8:46 AM
39	I would stay open all year	5/21/2021 7:52 AM
40	Seclusion	5/21/2021 12:11 AM
41	Be quick ride over unles yiu crash !	5/20/2021 11:33 PM
42	Advantage- can come and go as I please , can monitor who is coming into the community and easy access to emergency services ie fire,ambulance and police. Access for our children to after school activities, more opportunities for jobs . Opportunities for those that want to move back to reserve but don’t because of inability to get to jobs. If the fixed link is monitored like a gated community there is no disadvantages	5/20/2021 11:07 PM
43	-	5/20/2021 10:43 PM
44	Easy access when needed is an advantage of a bridge but controlled access to help keep the visitors off when needed could pose a problem. If there is no control of people that could be problematic	5/20/2021 9:49 PM
45	The lake is always risky and even more so now due to climate change. Everyone should have the right to safe passage to and from home. It is not fair that we should have to live this way. Everything you do is a task. You can’t buy groceries you would like because it’s too hot out to get them home. Everything is a struggle.	5/20/2021 9:44 PM
46	Wear and tear/maintenance costs	5/20/2021 8:40 PM
47	.	5/20/2021 7:50 PM
48	None	5/20/2021 7:32 PM

49	Ease of being able to come and go at any time	5/20/2021 6:31 PM
50	Working around someone else's schedule	5/20/2021 6:26 PM
51	Cottages take up room	5/20/2021 5:46 PM
52	Not sure how to answer	5/20/2021 5:45 PM
53	Waiting for a ferry at certain times of the year, results in extremely long line ups. Very stressful, if you are in a hurry. The fact that there is a car ferry at all, is an advantage for a small island.	5/20/2021 5:39 PM
54	Scheduling life around ferry times is a disadvantage for so many reasons. There are just too many issues to list and all quite obvious I think. Finding the advantages in comparison to a bridge is very difficult.	5/20/2021 5:13 PM
55	None	5/20/2021 5:04 PM
56	The disadvantage is nothing going on to help Our ppl that are struggling	5/20/2021 4:45 PM
57	Advantages to having a bridge to get to the island I feel would benefit everyone on the island causing members and non members to have less stress and cause them. To no longer have to worry about being late for the ferry or an appointment and wouldn't have to worry about missing the last boat to get home or if there were an appointment far away they wouldn't have to worry about getting there on time as much	5/20/2021 4:40 PM
58	More trips or a bridge would allow people to get jobs on mainland A bridge would bring more unwanted people to island.	5/20/2021 4:23 PM
59	Cost and security. We'd have to have a toll. It would also mean loss of jobs for members	5/20/2021 3:56 PM
60	convenience and less stress and less financial strain	5/20/2021 3:48 PM
61	No answer	5/20/2021 3:37 PM
62	Too many tourists	5/20/2021 3:36 PM
63	Boat is safer, scoot is too rough. Paying for transportation to go home to our home where we live. Too many cottagers using the ferry and too many times missing boats because of overflow of cottagers and cars.	5/20/2021 3:21 PM
64	N/a	5/20/2021 3:20 PM
65	More boats is good but then u can't bring your car unless it's the ferry	5/20/2021 3:12 PM

Q30 On a scale of 1 to 5, how would you rate your overall physical health? (1 = Bad, 5 = Very Good)

Answered: 60 Skipped: 36



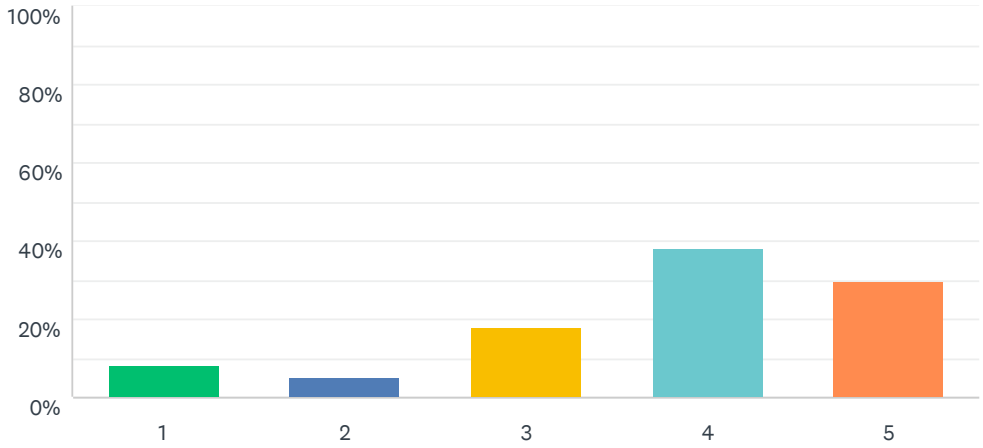
ANSWER CHOICES	RESPONSES	
1	1.67%	1
2	11.67%	7
3	33.33%	20
4	33.33%	20
5	20.00%	12
TOTAL		60

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	I am overall healthy but need to take odd trip to the doctors.	6/14/2021 2:21 PM
2	No diagnosed health issues and physically active	5/28/2021 4:13 PM
3	I'm ok I have diabetes and aching shoulders	5/26/2021 9:48 AM
4	Didn't get as much exercise this winter due to pandemic and hockey being cancelled	5/25/2021 11:09 AM
5	no one in our family has ongoing medical issues, except for 1 anaphylactic allergy	5/25/2021 10:55 AM
6	I have a post concussion syndrome	5/25/2021 10:33 AM
7	I am in good health, any issues are controlled through medication.	5/25/2021 9:48 AM
8	Nothing wrong with my physical health.	5/25/2021 8:23 AM
9	Asthma A little over weight Anxiety	5/24/2021 10:16 PM
10	I'm a alcoholic n epilepsy	5/23/2021 1:31 PM
11	Have some chronic illness's that require regular appts with drs	5/22/2021 8:51 AM
12	Always room for improvement but with covid, physical health has taken a hit.	5/21/2021 9:25 AM
13	I smoke	5/21/2021 9:05 AM
14	I am getting older and finding that my body is having a few issues but nothing to go to the doctors on a regular basis	5/21/2021 8:52 AM

15	Number 4	5/20/2021 11:36 PM
16	Some medical issues but nothing debilitating.	5/20/2021 11:15 PM
17	Have high blood pressure, over weight etc.	5/20/2021 9:58 PM
18	As a senior I have health issues	5/20/2021 9:53 PM
19	Aging	5/20/2021 6:36 PM
20	No underlying health conditions. In excellent physical and mental health.	5/20/2021 5:45 PM
21	Very active, little or no health issues	5/20/2021 3:57 PM
22	I'm healthy and well, I look after myself	5/20/2021 3:54 PM
23	Im overweight and have back issues	5/20/2021 3:45 PM
24	Smoking taking a toll	5/20/2021 3:24 PM
25	Overweight and to many losses of family members	5/20/2021 3:15 PM

Q31 On a scale of 1 to 5, how would you rate your overall mental health? (1 = Bad, 5 = Very Good)

Answered: 60 Skipped: 36



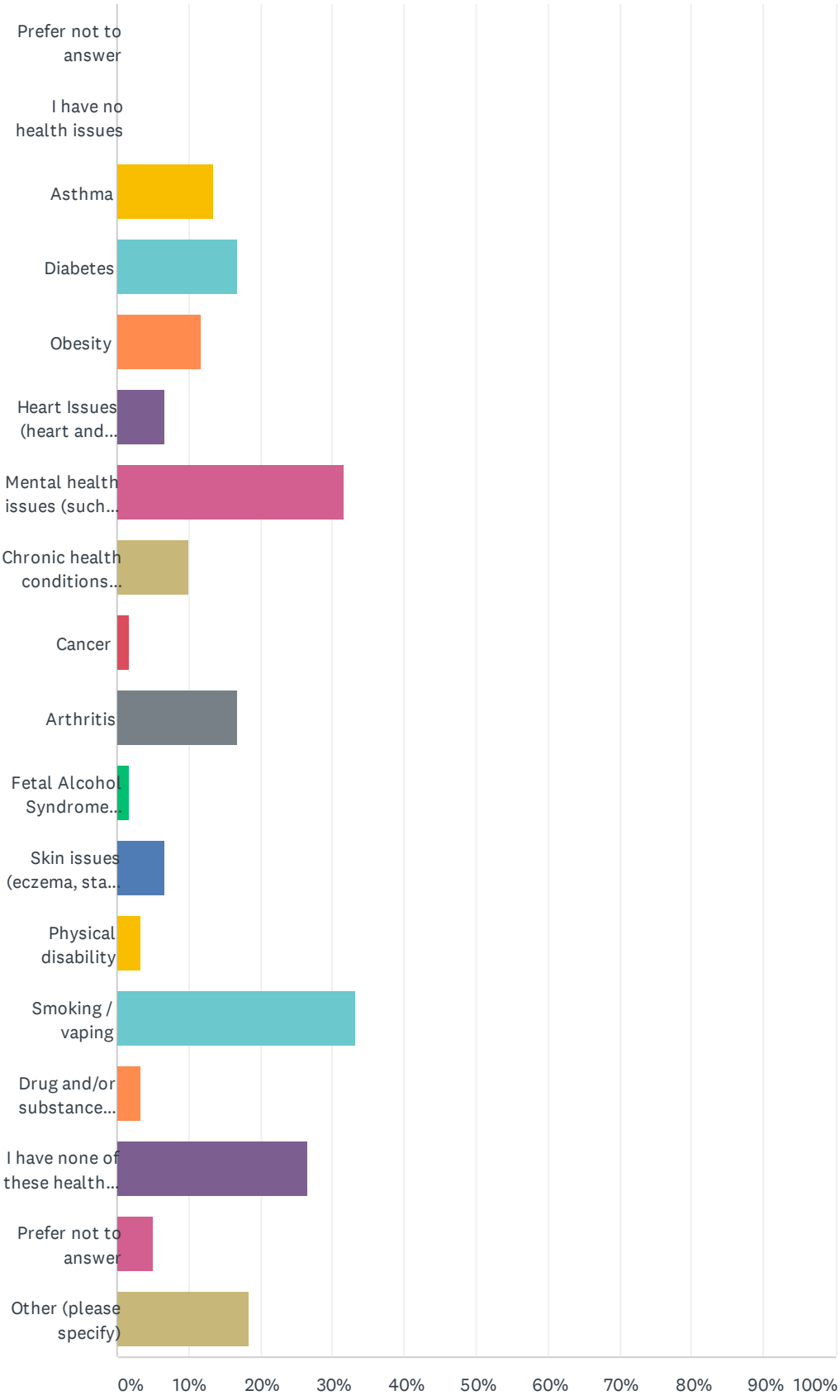
ANSWER CHOICES	RESPONSES	
1	8.33%	5
2	5.00%	3
3	18.33%	11
4	38.33%	23
5	30.00%	18
TOTAL		60

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	Can handle most stressful situations with relative ease. Speak with a Councilor in times of need.	5/28/2021 4:13 PM
2	Try to keep my mental health in order	5/26/2021 9:48 AM
3	Kids/wife/work keep me too busy to think about being sad or stress or anything much else	5/25/2021 11:09 AM
4	5/6 of us have good mental health, one family member have received counselling for social anxiety	5/25/2021 10:55 AM
5	All ok	5/25/2021 10:45 AM
6	I'm content and optimistic at all times.	5/25/2021 9:48 AM
7	Its different day to day. feel isolated.	5/25/2021 8:23 AM
8	Getting therapy	5/24/2021 10:16 PM
9	I'm usually in good mood just stress cause I have to many children 10	5/23/2021 1:31 PM
10	This can vary from day to day and be influenced by different areas. Most days I'm content, some days I'm at a 1, some days I'm rocking a 5. But I usually stay at about a 4.	5/21/2021 9:25 AM
11	Suffer from childhood trauma	5/21/2021 9:05 AM
12	I have the same routine as pre covid so nothing has changed for me	5/21/2021 8:52 AM
13	COVID	5/21/2021 12:15 AM

14	Very clear !	5/20/2021 11:36 PM
15	Over all usually good but with covid restrictions things are somewhat stressfull	5/20/2021 11:15 PM
16	Always had issues due to the unsafe crossing and now worse due to Covid lockdowns. Have you ever got stuck in a snow drift on lake Simcoe praying for someone to come along and help you?	5/20/2021 9:58 PM
17	Aging	5/20/2021 6:36 PM
18	Prefer not to answer.	5/20/2021 5:45 PM
19	I don’t worry about things I can’t change	5/20/2021 3:57 PM
20	I practice self care but stress can affect one's mental health and sometimes things can be stressful.	5/20/2021 3:54 PM
21	Covid19 is depressing me	5/20/2021 3:45 PM
22	Just cause of wat I've been through	5/20/2021 3:24 PM

Q32 Which of the following health issues do you have? Check all that apply.

Answered: 60 Skipped: 36

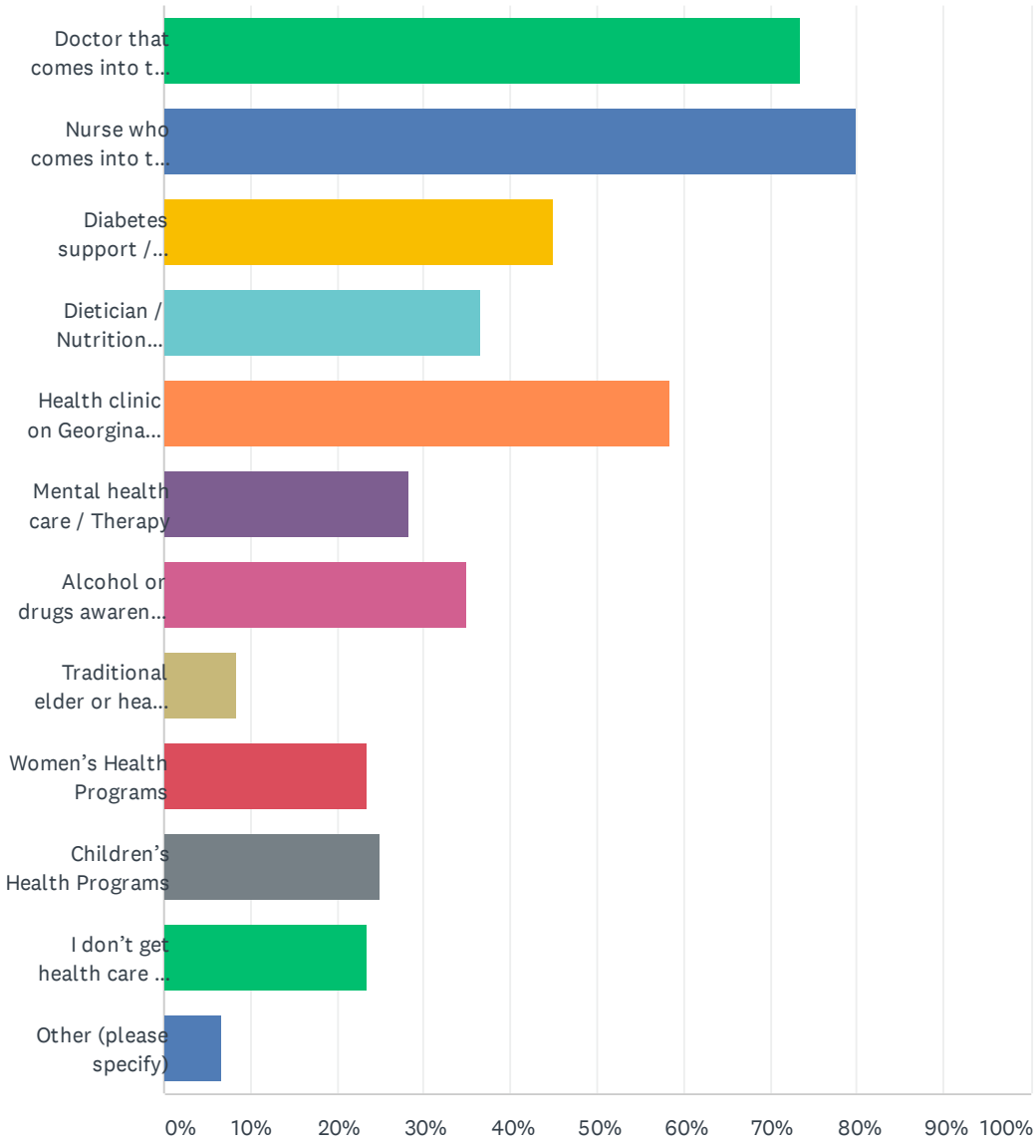

Prefer not to answer
I have no health issues
Asthma
Diabetes
Obesity
Heart Issues (heart and...
Mental health issues (such...
Chronic health conditions...
Cancer
Arthritis
Fetal Alcohol Syndrome...
Skin issues (eczema, sta...
Physical disability
Smoking / vaping
Drug and/or substance...
I have none of these health...
Prefer not to answer
Other (please specify)
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

ANSWER CHOICES	RESPONSES	
Prefer not to answer	0.00%	0
I have no health issues	0.00%	0
Asthma	13.33%	8
Diabetes	16.67%	10
Obesity	11.67%	7
Heart Issues (heart and stroke)	6.67%	4
Mental health issues (such as depression, anxiety, etc.)	31.67%	19
Chronic health conditions (chronic pain, etc.)	10.00%	6
Cancer	1.67%	1
Arthritis	16.67%	10
Fetal Alcohol Syndrome Disorder and associated symptoms	1.67%	1
Skin issues (eczema, staph infections, etc.)	6.67%	4
Physical disability	3.33%	2
Smoking / vaping	33.33%	20
Drug and/or substance additions	3.33%	2
I have none of these health issues	26.67%	16
Prefer not to answer	5.00%	3
Other (please specify)	18.33%	11
Total Respondents: 60		

#	OTHER (PLEASE SPECIFY)	DATE
1	Allergies and migraines	5/28/2021 4:13 PM
2	High Blood Pressure	5/26/2021 11:14 AM
3	My husband however has diabetes and lung issues	5/25/2021 8:20 PM
4	Battling Breast Cancer almost at the end of it now yay!!!	5/25/2021 4:28 PM
5	Hypoglycemic	5/25/2021 2:56 PM
6	high blood pressure	5/25/2021 9:48 AM
7	My children have asthma and excema. I checked off on their behalf.	5/21/2021 9:25 AM
8	Past trauma	5/21/2021 9:05 AM
9	Hypothyroidism , sleep apnea	5/20/2021 11:15 PM
10	Think half my health issues are due to worry and stress over lake crossing.	5/20/2021 9:58 PM
11	I have none of those.	5/20/2021 3:54 PM

Q33 What health care services offered on Georgina Island are you aware of? Check all that apply.

Answered: 60 Skipped: 36

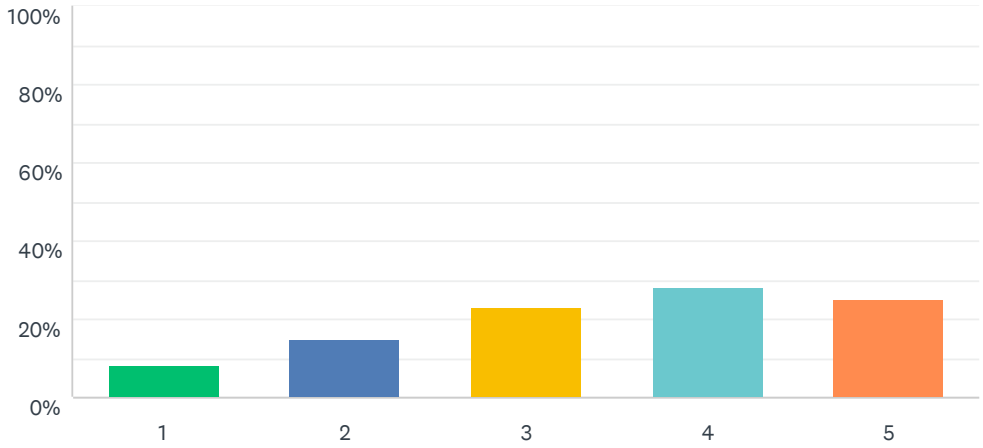


ANSWER CHOICES	RESPONSES	
Doctor that comes into the community	73.33%	44
Nurse who comes into the community	80.00%	48
Diabetes support / Diabetes clinic	45.00%	27
Dietician / Nutrition support	36.67%	22
Health clinic on Georgina Island with in-community access to nurse	58.33%	35
Mental health care / Therapy	28.33%	17
Alcohol or drugs awareness program	35.00%	21
Traditional elder or healer in the community	8.33%	5
Women's Health Programs	23.33%	14
Children's Health Programs	25.00%	15
I don't get health care in my community; I go to the mainland to access health care	23.33%	14
Other (please specify)	6.67%	4
Total Respondents: 60		

#	OTHER (PLEASE SPECIFY)	DATE
1	Message Therapy and foot care	5/28/2021 4:13 PM
2	When I got out of treatment there was no aftercare so I had to go to mainland	5/26/2021 9:48 AM
3	I also go to the mainland for mental health care not here on the FN. I also go to the mainland for Cultural support not here on the Island.	5/25/2021 4:28 PM
4	massage, foot care	5/25/2021 10:55 AM

Q34 On a scale of 1 to 5, how would you rate your overall access to the health services offered on the island? (1 = Bad, 5 = Very Good)

Answered: 60 Skipped: 36



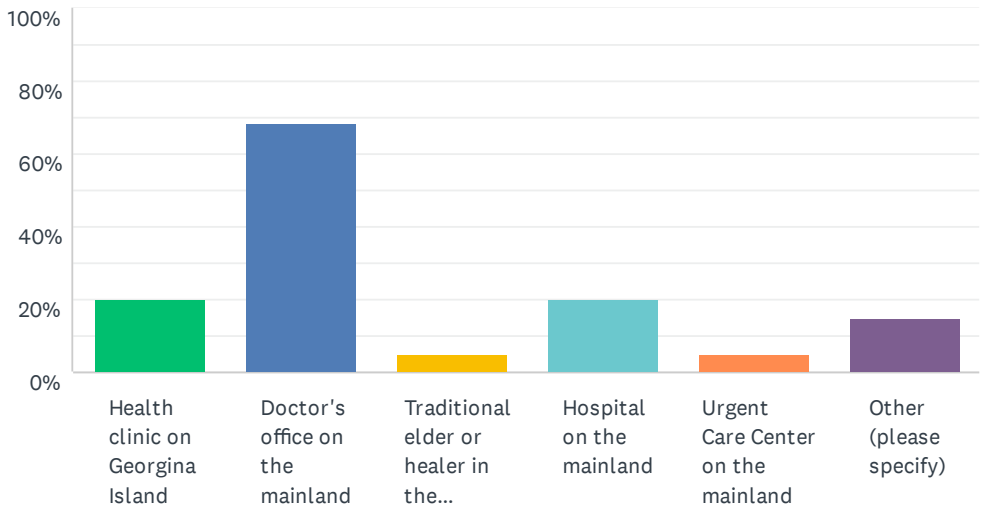
ANSWER CHOICES	RESPONSES	
1	8.33%	5
2	15.00%	9
3	23.33%	14
4	28.33%	17
5	25.00%	15
TOTAL		60

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	Services offered are often provided by non-Indigenous people and do not meet the Indigenous cultural and traditional needs. Do not like to use services as some of the staff within the health building have been known to break confidentiality	5/28/2021 4:13 PM
2	The First Nation offers a lot of support in health services and tries to accommodate members needs.	5/27/2021 10:11 AM
3	If you need help Just ask someone	5/26/2021 9:48 AM
4	I am very grateful and lucky our community has the ability to provide health services for it's membership, it makes it easier and more reflective of the health needs of our population	5/25/2021 2:31 PM
5	it's ok. It's good that we the doctor visits monthly, although some problems cannot wait a month until his next visit. We are a small community, so it wouldn't be practical to have acute/specialist/residential healthcare on the island. It is better to access quality experienced specialized care on the mainland.	5/25/2021 10:55 AM
6	N/a	5/25/2021 9:52 AM
7	We have amazing programs for diabetes, healthy babies, cancer screenings. I feel very comfortable going into the medical centre. Confidence in the staff when asking questions related to mine and my families health	5/22/2021 8:51 AM
8	poor communication when doc. or nurse are coming over when health programs are offered .	5/21/2021 12:20 PM
9	From the services I've needed, I don't think I have any complaints. Thankful to be in a	5/21/2021 9:25 AM

	community that has what I have needed thus far.	
10	Unknown	5/21/2021 12:15 AM
11	Awesome	5/20/2021 11:36 PM
12	Its good to have some access to health services	5/20/2021 9:53 PM
13	N/a as I do not use	5/20/2021 8:42 PM
14	Not applicable.	5/20/2021 5:45 PM
15	It’s a reservation, called a doctor on the mainland who ignored my emergency. I get better response to emergencies here on the island. The nurse and doctor are great	5/20/2021 3:57 PM
16	The hours are sometimes hard to access if you work on the mainland. Unless your unemployed or have a band job and can leave when you like its hard to take advantage of workshops and services.	5/20/2021 3:54 PM
17	Im not aware of or never been offered health care	5/20/2021 3:45 PM

Q35 Where do you go most often when you are sick?

Answered: 60 Skipped: 36

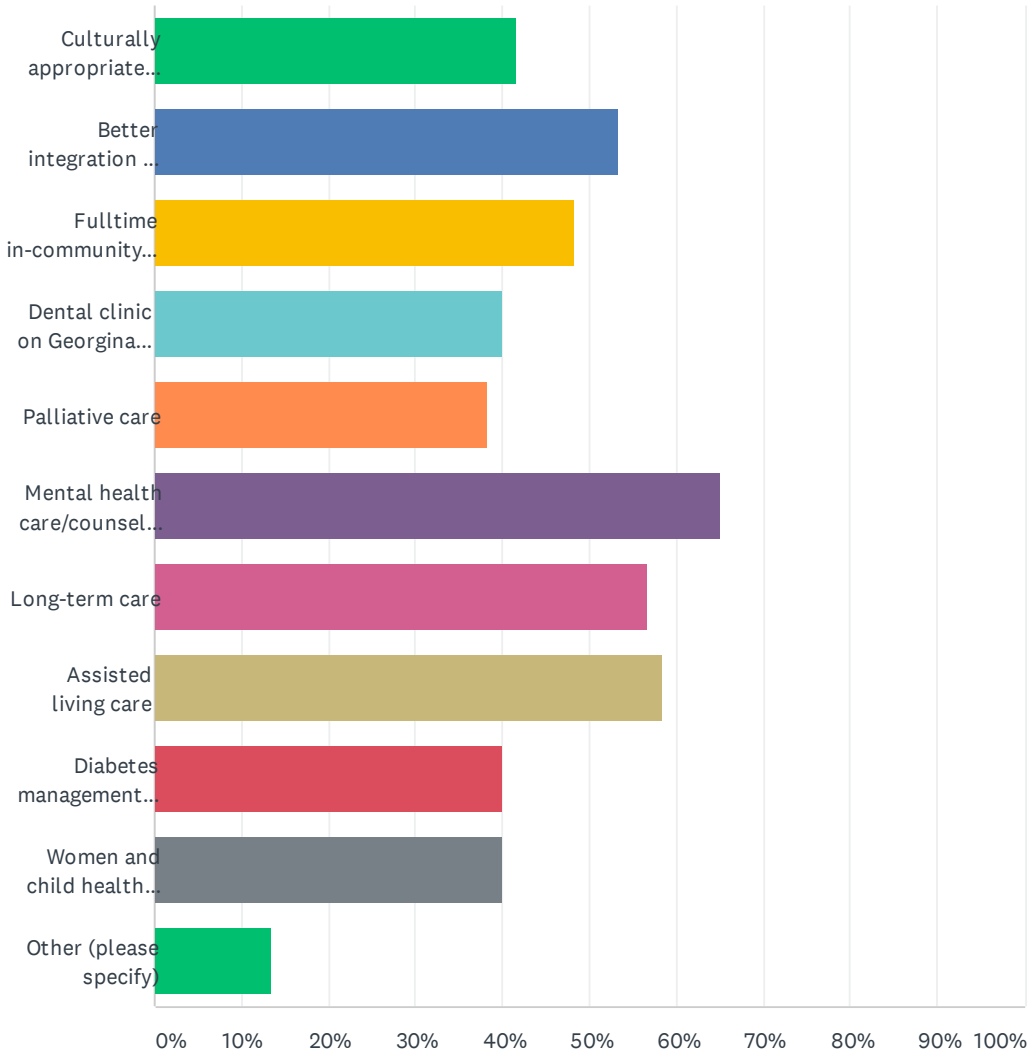


ANSWER CHOICES	RESPONSES	
Health clinic on Georgina Island	20.00%	12
Doctor's office on the mainland	68.33%	41
Traditional elder or healer in the community	5.00%	3
Hospital on the mainland	20.00%	12
Urgent Care Center on the mainland	5.00%	3
Other (please specify)	15.00%	9
Total Respondents: 60		

#	OTHER (PLEASE SPECIFY)	DATE
1	health clinic in sutton? button?	6/11/2021 2:37 PM
2	Needs to be noted that access to Traditional Healers has not been something that has been offered within the Community nor has there been connections available. This is defiantly a service that I would prefer to access.	5/28/2021 4:13 PM
3	N/a	5/25/2021 9:52 AM
4	Depends on the severity of the sickness.	5/21/2021 9:25 AM
5	To my bed	5/20/2021 11:36 PM
6	Own doctor	5/20/2021 8:42 PM
7	Home	5/20/2021 5:48 PM
8	No where	5/20/2021 3:24 PM
9	There’s no confidentiality at the health office on the island, everyone likes to share each other’s business	5/20/2021 3:15 PM

Q36 What health care services do you think the GIFN community is in need of?

Answered: 60 Skipped: 36

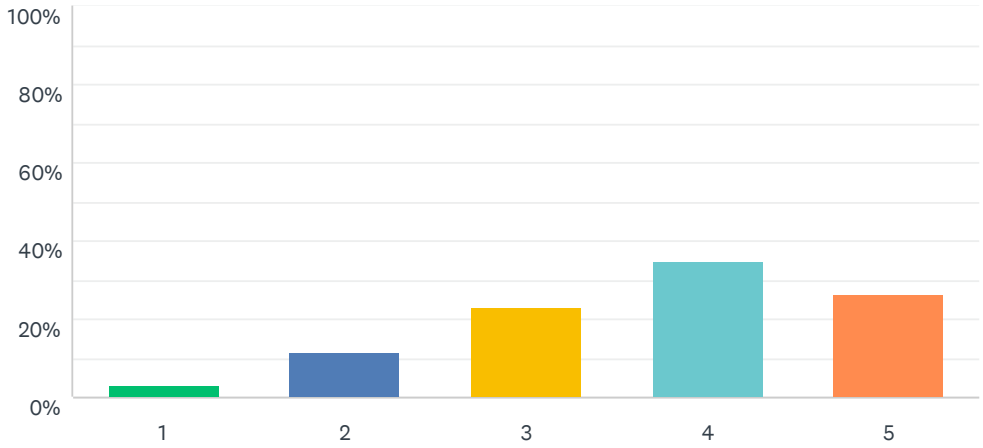


ANSWER CHOICES	RESPONSES	
Culturally appropriate healthcare (i.e., nurses and doctors that speak our native language, using our medicine to help us heal, etc.)	41.67%	25
Better integration of traditional healing methods into the community health care services	53.33%	32
Fulltime in-community doctors and nurses on Georgina Island	48.33%	29
Dental clinic on Georgina Island	40.00%	24
Palliative care	38.33%	23
Mental health care/counselling	65.00%	39
Long-term care	56.67%	34
Assisted living care	58.33%	35
Diabetes management clinic	40.00%	24
Women and child health care services	40.00%	24
Other (please specify)	13.33%	8
Total Respondents: 60		

#	OTHER (PLEASE SPECIFY)	DATE
1	I think a good mixture of both Indigenous Traditional Medical Practices as well as Western Medical Practices is needed. Both are valuable, can work together and people need to have a choice	5/28/2021 4:13 PM
2	If it is at all possible to provide or start providing everything we may need for our over all well-being, in our home community, why not do it or try our best to accomplish it. As well, using actual cultural advisers in our community that have years of experience under there belts and are willing to mentor our youth. As well as pulling different community members out of the woodwork to share what they may carry in terms of knowledge. A lot maybe just have not been approached before. What I find here on Georgina Island is that “Culture and Language isn’t always shared around the community in a good way.” I’m not saying this is what happens always, I’m saying it happens and it is my opinion that some people proclaim they are the go to for this knowledge in our community, meanwhile it is not shared in a positive way. It actually ends up being very ego based. There are pockets/groups of people doing different things and no one is sharing with the whole of the community. These groups don’t always allow others to participate and they don’t share with others easily. I have found it is a “look at me” based thing. It is done for acclamation/reward/spotlight. It would be nice if it was just done to share knowledge and grow as a community together. It reflects poorly on all of us as a whole. We have an amazing community with amazing people. Aho	5/25/2021 4:28 PM
3	Men and child services	5/21/2021 9:25 AM
4	After care and peer support	5/21/2021 9:05 AM
5	None	5/20/2021 11:36 PM
6	More health promotion via workshops etc. More drug awareness. Aftercare for drugs and alcohol. More promotion to report drug dealers on GI.. police know who the drug dealers are and turn a blind eye. More promotions for families when someone gets out of treatment for an addiction don’t welcome them home with drugs and alcohol. More workshops for youth on addictions. More programs for youth that will help promote a healthy life style.	5/20/2021 9:58 PM
7	Mental health care for children and youth	5/20/2021 5:48 PM
8	N/a	5/20/2021 3:24 PM

Q37 On a scale of 1 to 5, how would you rate your overall access to healthcare (doctors, specialists, clinics, hospitals, etc.)? (1 = Bad, 5 = Very Good)

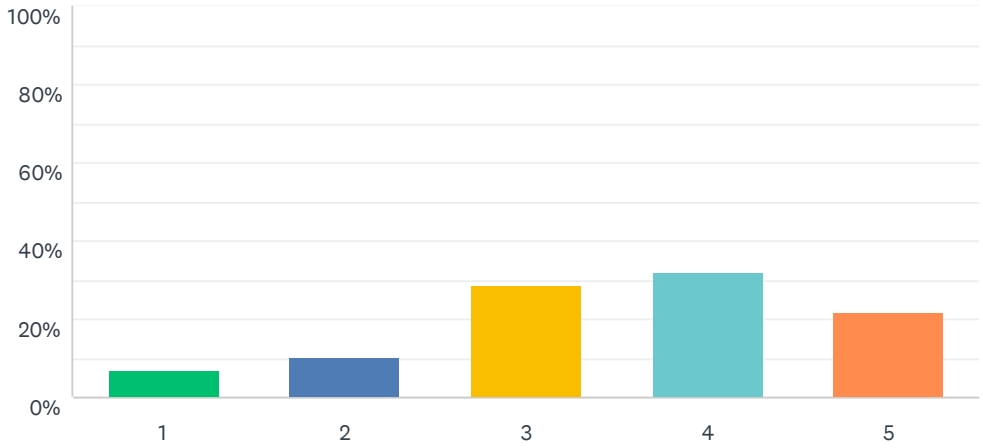
Answered: 60 Skipped: 36



ANSWER CHOICES	RESPONSES	
1	3.33%	2
2	11.67%	7
3	23.33%	14
4	35.00%	21
5	26.67%	16
TOTAL		60

Q38 On a scale of 1 to 5, how would you rate your overall access to emergency healthcare services off the Island (emergency doctors, specialists, clincs, hospitals, etc.)? (1 = Bad, 5 = Very Good)

Answered: 59 Skipped: 37

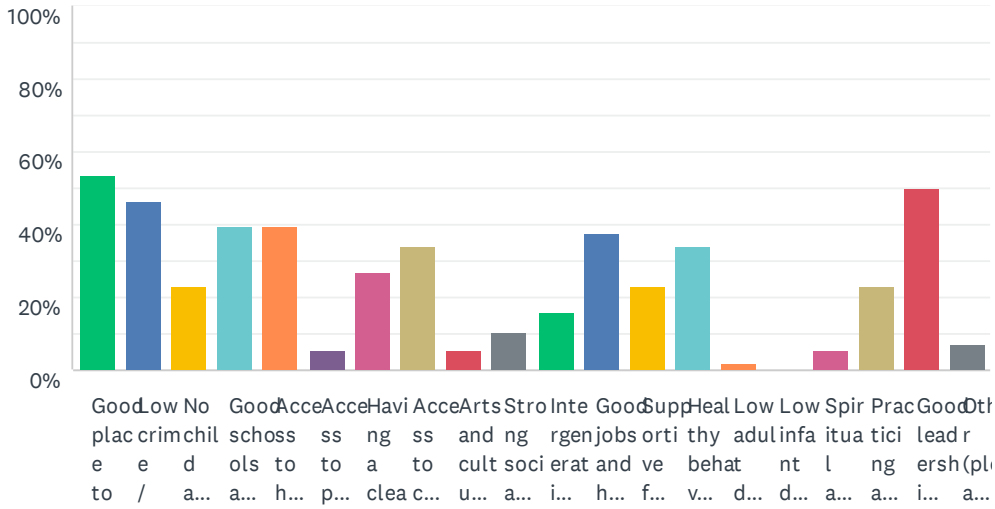


ANSWER CHOICES	RESPONSES	
1	6.78%	4
2	10.17%	6
3	28.81%	17
4	32.20%	19
5	22.03%	13
TOTAL		59

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	We are situated near a couple of hospitals but our limited by transportation.	5/27/2021 10:11 AM
2	You are on a schedule Rush here and rush there	5/26/2021 9:48 AM
3	I think I trust that I would be able to receive emergency care if needed on the mainland.	5/25/2021 2:31 PM
4	It's pretty good. Just have to travel to get there.	5/25/2021 10:55 AM
5	It is difficult when the ferry and scoot are down for thr night. Or missing the ferry for one of these appointments is hard.	5/21/2021 9:25 AM
6	Fast	5/20/2021 11:36 PM
7	Live off the island	5/20/2021 11:15 PM
8	I live close to a large hospital so have easy access	5/20/2021 8:42 PM
9	I got ignored by the doctor when I called regarding an emergency	5/20/2021 3:57 PM
10	hard to get over quickly in an emergency	5/20/2021 3:54 PM

Q39 In the following list, what do you think are the five (5) most important factors for a “Healthy Community?” (Those factors which most improve the quality of life in a community.)

Answered: 56 Skipped: 40

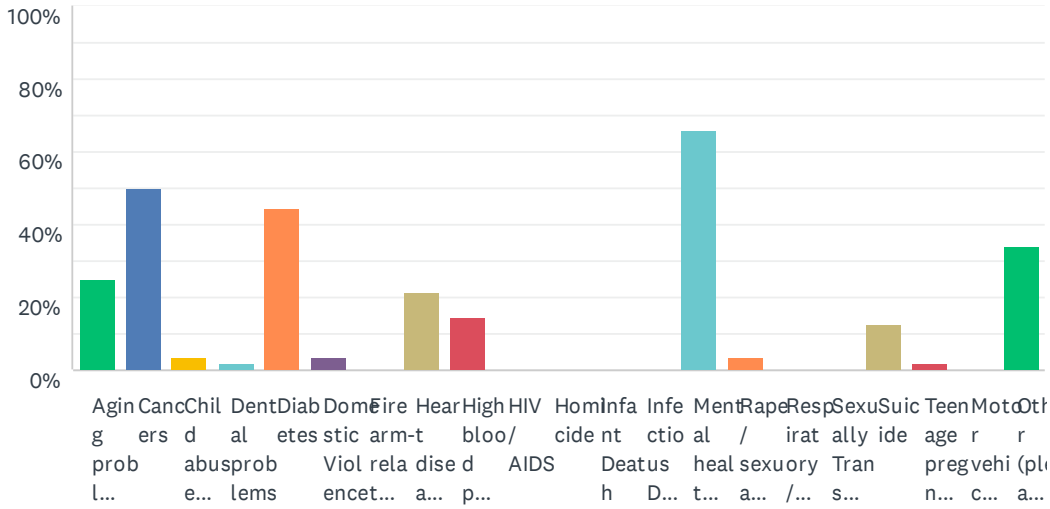


ANSWER CHOICES	RESPONSES	
Good place to raise children	53.57%	30
Low crime / safe neighbourhoods	46.43%	26
No child abuse	23.21%	13
Good schools and access to them	39.29%	22
Access to health care (e.g., family doctor)	39.29%	22
Access to parks and recreation	5.36%	3
Having a clean environment	26.79%	15
Access to clean and affordable housing	33.93%	19
Arts and cultural events	5.36%	3
Strong social ties across the community	10.71%	6
Intergenerational environmental and cultural knowledge	16.07%	9
Good jobs and healthy economy	37.50%	21
Supportive family life	23.21%	13
Healthy behaviors and lifestyles	33.93%	19
Low adult death and disease rates	1.79%	1
Low infant death rates	0.00%	0
Spiritual and Religious values	5.36%	3
Practicing and teaching traditional culture	23.21%	13
Good leadership and governance	50.00%	28
Other (please specify):	7.14%	4
Total Respondents: 56		

#	OTHER (PLEASE SPECIFY):	DATE
1	Religion and Spirituality are not the same thing.	5/25/2021 4:32 PM
2	access to organized community activities/sports.	5/25/2021 11:13 AM
3	I feel all of these need improvement	5/21/2021 9:10 AM
4	Access to housing and housing support for members that want to come home and raise there families. (Off Island members)	5/20/2021 3:52 PM

Q40 In the following list, what do you think are the three (3) most concerning “health problems” in your community? (Those problems which have the greatest impact on overall community health.)

Answered: 56 Skipped: 40



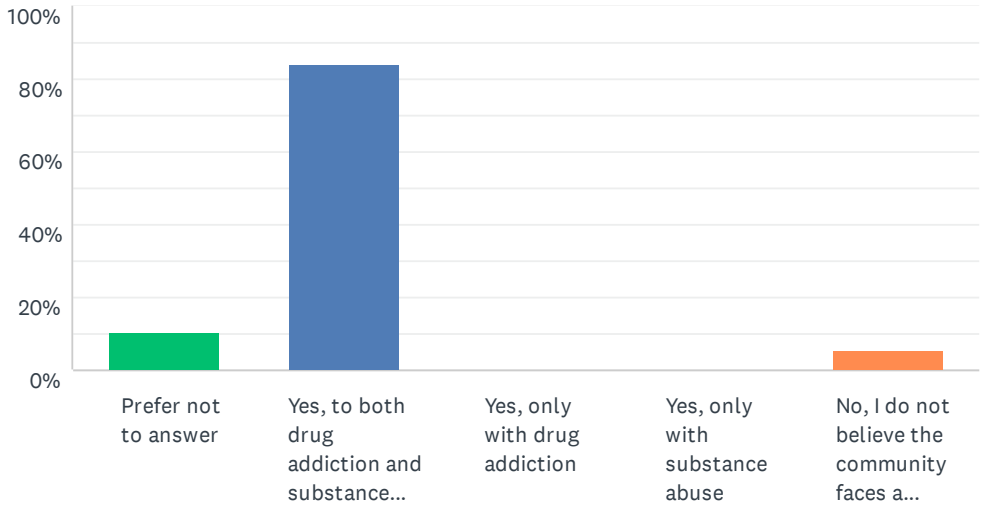
ANSWER CHOICES	RESPONSES	
Aging problems (e.g., arthritis, hearing/vision loss, etc.)	25.00%	14
Cancers	50.00%	28
Child abuse / neglect	3.57%	2
Dental problems	1.79%	1
Diabetes	44.64%	25
Domestic Violence	3.57%	2
Firearm-related injuries	0.00%	0
Heart disease and stroke	21.43%	12
High blood pressure	14.29%	8
HIV / AIDS	0.00%	0
Homicide	0.00%	0
Infant Death	0.00%	0
Infectious Diseases (e.g., hepatitis, TB, etc.)	0.00%	0
Mental health problems	66.07%	37
Rape / sexual assault	3.57%	2
Respiratory / lung disease	0.00%	0
Sexually Transmitted Diseases (STDs)	0.00%	0
Suicide	12.50%	7
Teenage pregnancy	1.79%	1
Motor vehicle crash injuries	0.00%	0
Other (please specify)	33.93%	19
Total Respondents: 56		

#	OTHER (PLEASE SPECIFY)	DATE
1	addictions	8/9/2021 10:57 AM
2	alcoholism	6/14/2021 2:05 PM
3	drug addiction	6/11/2021 2:32 PM
4	Alcohol and Drug Addictions	5/28/2021 4:25 PM
5	Addictions and Substance Abuse	5/27/2021 11:58 AM
6	Drugs be sold on the island!	5/25/2021 9:55 PM
7	Drugs	5/25/2021 8:33 PM
8	Drugs and Alcohol	5/25/2021 4:32 PM
9	Drug Addiction	5/25/2021 11:41 AM
10	Drugs	5/25/2021 11:13 AM
11	Drug addiction	5/24/2021 10:18 PM

12	Poor nutrition/lifestyle, alcohol/drug abuse,	5/21/2021 11:40 AM
13	Loss of culture	5/21/2021 9:10 AM
14	Drugs are the #1 problem on this reserve!!	5/21/2021 8:55 AM
15	Drug/alcohol addiction	5/20/2021 11:20 PM
16	Addictions Seclusion	5/20/2021 10:06 PM
17	Drug use and abuse	5/20/2021 4:46 PM
18	Drugs/alcohol	5/20/2021 4:28 PM
19	Addictions, the way people eat!	5/20/2021 3:59 PM

Q41 Do you believe the community faces a challenge with drug addiction and substance abuse?

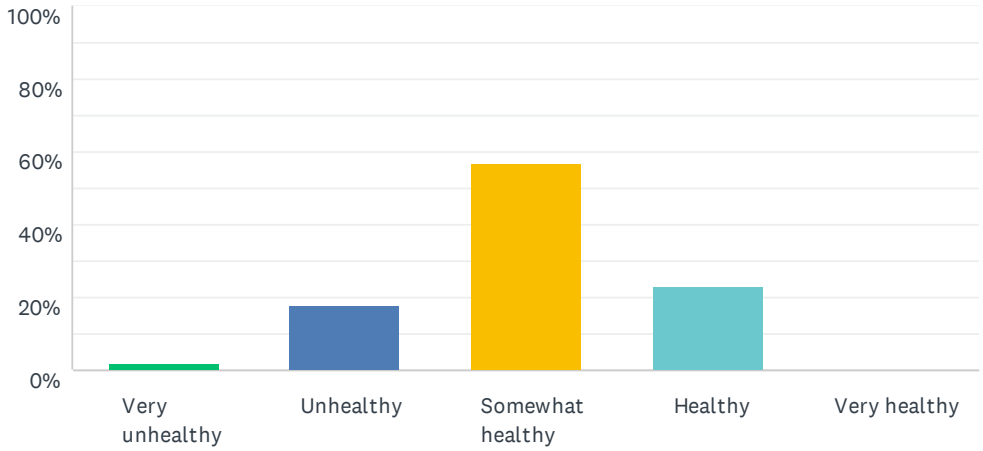
Answered: 56 Skipped: 40



ANSWER CHOICES	RESPONSES	
Prefer not to answer	10.71%	6
Yes, to both drug addiction and substance abuse	83.93%	47
Yes, only with drug addiction	0.00%	0
Yes, only with substance abuse	0.00%	0
No, I do not believe the community faces a challenge with drug addiction and substance abuse	5.36%	3
TOTAL		56

Q42 How would you rate the overall physical health condition of your community?

Answered: 56 Skipped: 40



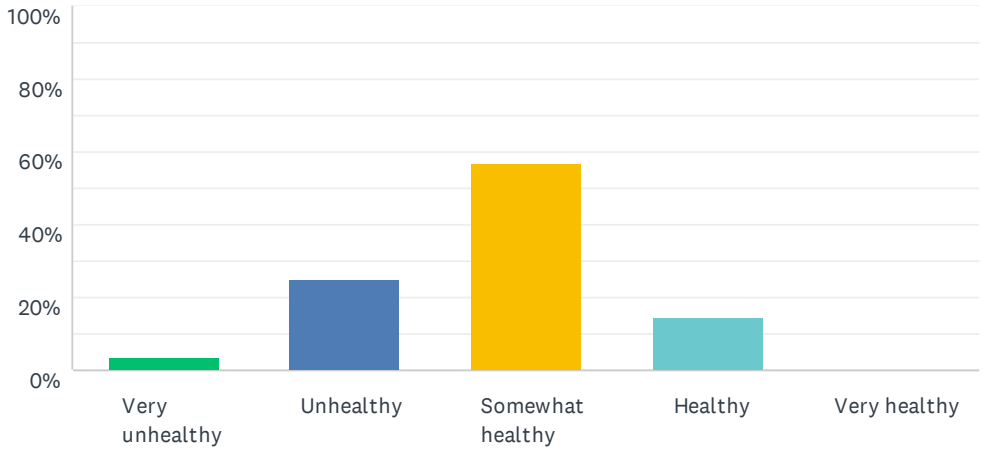
ANSWER CHOICES	RESPONSES	
Very unhealthy	1.79%	1
Unhealthy	17.86%	10
Somewhat healthy	57.14%	32
Healthy	23.21%	13
Very healthy	0.00%	0
TOTAL		56

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	I notice cancer is on the rise in our community	6/14/2021 2:22 PM
2	A lot of people are physically active and a lot of the youth participate in extra curricular activies	5/28/2021 4:25 PM
3	Many services are available, there's gym to access, outdoor rink, Trails to walk on and a park at sandy beach.	5/27/2021 10:16 AM
4	I think many communities no matter where struggle with issues around mental health and addictions, it's how you combat the problem that is most important.	5/25/2021 2:36 PM
5	There seems to be more community members with drug and alcohol addictions or the lasting effects, and there seems to be more cancers and tumors in the community than would be expected elsewhere.	5/25/2021 11:05 AM
6	Not everyone has addictions	5/23/2021 1:36 PM
7	Sedentary lifestyles, diabetes, poor lifestyle choices	5/21/2021 11:40 AM
8	Our community is divided. We need to come together to heal	5/21/2021 9:10 AM
9	The community needs to come together as a whole. There is too much division among the members	5/20/2021 9:58 PM
10	Everyone that I know has multiple chronic conditions. That should not be the case, where there is adequate education and access to care.	5/20/2021 5:52 PM

11	Other than “normal” illnesses the community appears healthy to me	5/20/2021 4:32 PM
12	Diet is an issue, causing all sorts of health issues	5/20/2021 3:59 PM

Q43 How would you rate the overall mental health condition of your community?

Answered: 56 Skipped: 40



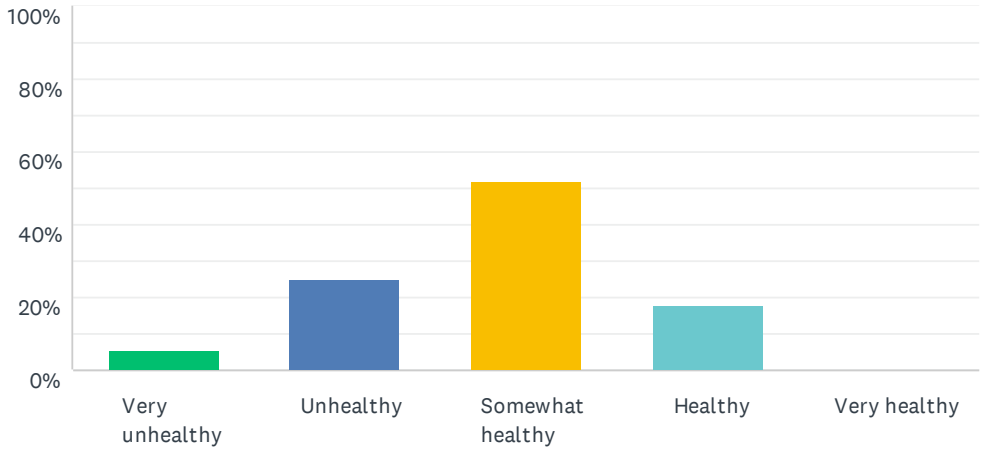
ANSWER CHOICES	RESPONSES	
Very unhealthy	3.57%	2
Unhealthy	25.00%	14
Somewhat healthy	57.14%	32
Healthy	14.29%	8
Very healthy	0.00%	0
TOTAL		56

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	I think we need more counsellors on the Island. I have had a few people tell me that they don't want to live anymore.	6/14/2021 2:22 PM
2	A lot of trauma, selfishness and disconnect	5/28/2021 4:25 PM
3	Concerns with young people being on social media and not socializing in person, anxiety issues and concerns with access to drugs.	5/27/2021 10:16 AM
4	A lot of young males with mental health problems	5/25/2021 8:33 PM
5	The community promotes a lot of mental health programming and supports, I think it's a balance that can shift from time to time depending on current demographics and need.	5/25/2021 2:36 PM
6	There are addicts and there are also those with developmental disabilities and children with disabilities as a result of their parents' addictions. There is also a need for counselling and psychological care that hasn't been filled since our psychiatrist passed away. Lots of people who were receiving counselling for many different reasons have been left on their own. There is also an unusual number of people who don't leave their house or go to the mainland.	5/25/2021 11:05 AM
7	Drugs are taking over not just pot etc out hard hard drugs. Crack cocaine fentanyl oxy etc	5/22/2021 9:01 AM
8	A lot of stigma, still, around mental health	5/21/2021 11:40 AM
9	We are divided and dislocated from our culture	5/21/2021 9:10 AM
10	Again, there is too much depression and not enough access to care in this area.	5/20/2021 5:52 PM

11	I’ve been here for a short time. Somewhat unaware of all that goes on	5/20/2021 4:32 PM
12	We have lots of mental health issues in our community	5/20/2021 3:59 PM

Q44 How would you rate the overall cultural and spiritual health condition of your community?

Answered: 56 Skipped: 40



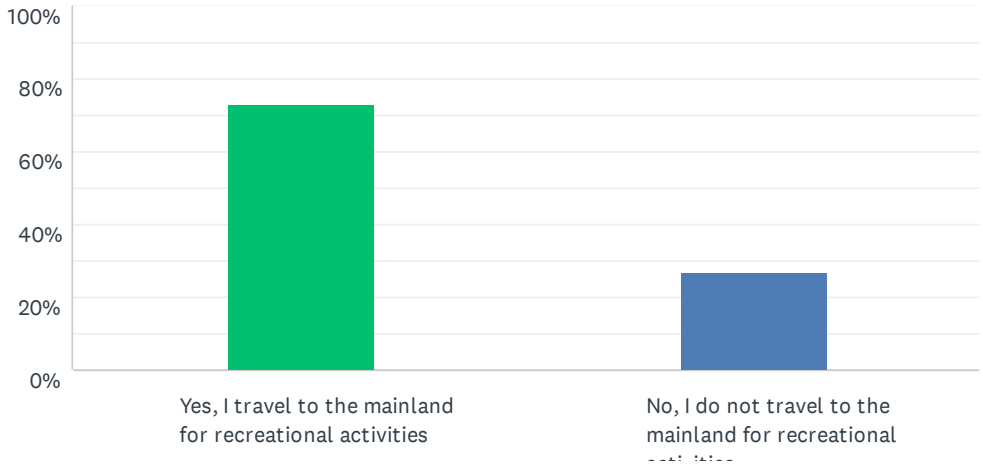
ANSWER CHOICES	RESPONSES	
Very unhealthy	5.36%	3
Unhealthy	25.00%	14
Somewhat healthy	51.79%	29
Healthy	17.86%	10
Very healthy	0.00%	0
TOTAL		56

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	we need more spiritual and cultural programs in our community	6/14/2021 2:22 PM
2	unsure	6/14/2021 2:05 PM
3	The Community is torn between a leadership whose spirituality is based on religion and the traditional peoples. This has lead to services and visions that often do not reflect the needs and wants of the Community Members. Access to culturally driven and traditional initiatives are little to none.	5/28/2021 4:25 PM
4	Workshops being offered on cultural teachings, members learning and teaching our traditions in a good way. Cultural teachers need to be positive.	5/27/2021 10:16 AM
5	Again, a lot of members are in tune with their culture and/or spirituality whether this is traditional or combined within their relationship to the Church but overall the community allows for the inclusion of both and has always supported culture which has a positive effect on it's membership.	5/25/2021 2:36 PM
6	We have strong family connections and visit with family often. There is a gap, where traditions have been lost, but more community members are learning about traditional ways from other communities.	5/25/2021 11:05 AM
7	Such a huge divide in our community. It makes you hesitant to even hold a cultural program because everyone shoots it down.	5/22/2021 9:01 AM
8	Some people are, but I do not feel comfortable attending workshops/events/etc. because of who is the organizer (I do not trust them and do. not want them to know things about me	5/21/2021 11:40 AM

	because of this).	
9	No trust in leadership and divided ad a community	5/21/2021 9:10 AM
10	We need more people to teach the traditional way. We need to learn more about natural medicine	5/20/2021 9:58 PM
11	Some are very connected, but there are also too many individuals who are completely left out.	5/20/2021 5:52 PM
12	Somewhat new to the island	5/20/2021 4:32 PM
13	There needs to be more priority on this because people do not realize how much this is related to the mental health issues, people need to put religion aside and realize cultural and spiritual health is a different thing altogether	5/20/2021 3:59 PM

Q45 Do you travel to the mainland for recreational activities? Recreational activities are activities that you do for fun. Some examples of recreational activities are joining sports teams, taking music or art lessons, or joining programmed activities.

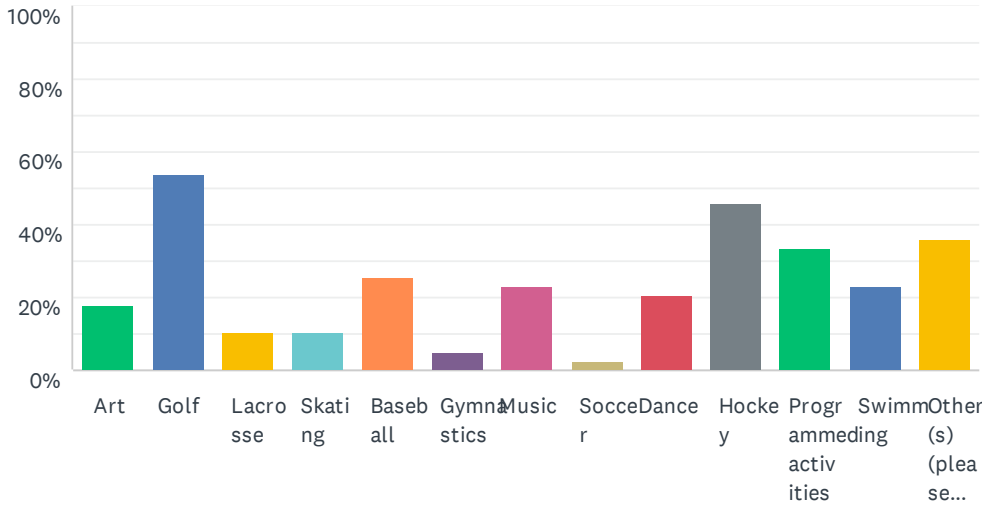
Answered: 56 Skipped: 40



ANSWER CHOICES	RESPONSES	
Yes, I travel to the mainland for recreational activities	73.21%	41
No, I do not travel to the mainland for recreational activities	26.79%	15
TOTAL		56

Q46 Which recreational activities do you travel to the mainland for? Check all that apply.

Answered: 39 Skipped: 57



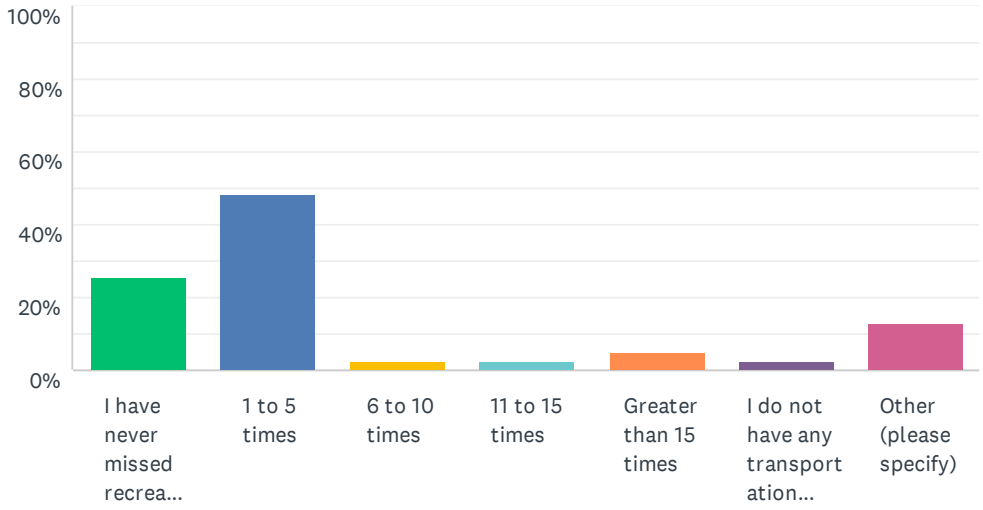
ANSWER CHOICES	RESPONSES	
Art	17.95%	7
Golf	53.85%	21
Lacrosse	10.26%	4
Skating	10.26%	4
Baseball	25.64%	10
Gymnastics	5.13%	2
Music	23.08%	9
Soccer	2.56%	1
Dance	20.51%	8
Hockey	46.15%	18
Programmed activities	33.33%	13
Swimming	23.08%	9
Other(s) (please specify):	35.90%	14
Total Respondents: 39		

#	OTHER(S) (PLEASE SPECIFY):	DATE
1	kickboxing	6/14/2021 2:23 PM
2	bingo, movies	6/14/2021 1:57 PM
3	bingo, concerts	6/11/2021 2:33 PM
4	Organized environmental outdoor activities such as bioblitz's	5/28/2021 4:41 PM

5	Ball hockey	5/27/2021 10:19 AM
6	Swimming lessons	5/25/2021 8:36 PM
7	Karate	5/25/2021 2:59 PM
8	School based Events	5/25/2021 2:40 PM
9	skiing, travel, hiking ,sight seeing, restaurants	5/25/2021 11:10 AM
10	M/a	5/25/2021 10:06 AM
11	These are for my kids.	5/21/2021 9:38 AM
12	Cultural healing and act	5/21/2021 9:12 AM
13	Library movie	5/20/2021 6:41 PM
14	Yoga	5/20/2021 4:02 PM

Q47 In a typical year, how many times have you missed recreational activities because of a down ferry?

Answered: 39 Skipped: 57

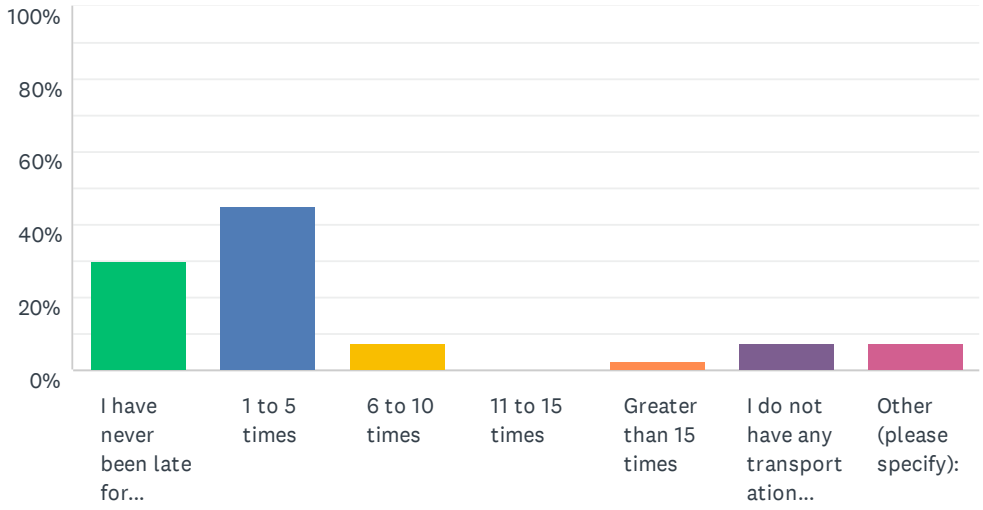


ANSWER CHOICES	RESPONSES	
I have never missed recreational actvities because of a down ferry	25.64%	10
1 to 5 times	48.72%	19
6 to 10 times	2.56%	1
11 to 15 times	2.56%	1
Greater than 15 times	5.13%	2
I do not have any transportation issues going back and forth between the mainland and Georgina Island	2.56%	1
Other (please specify)	12.82%	5
TOTAL		39

#	OTHER (PLEASE SPECIFY)	DATE
1	-	6/14/2021 1:57 PM
2	My access to participating in recreational activities ON THE First Nation can be limited due to ferry congestion	5/25/2021 2:40 PM
3	N/a	5/25/2021 10:06 AM
4	Never	5/23/2021 1:39 PM
5	We have missed a couple of games in a season of baseball.	5/21/2021 9:00 AM

Q48 In a typical year, how many times have you been late for recreational activities because of a down ferry?

Answered: 40 Skipped: 56

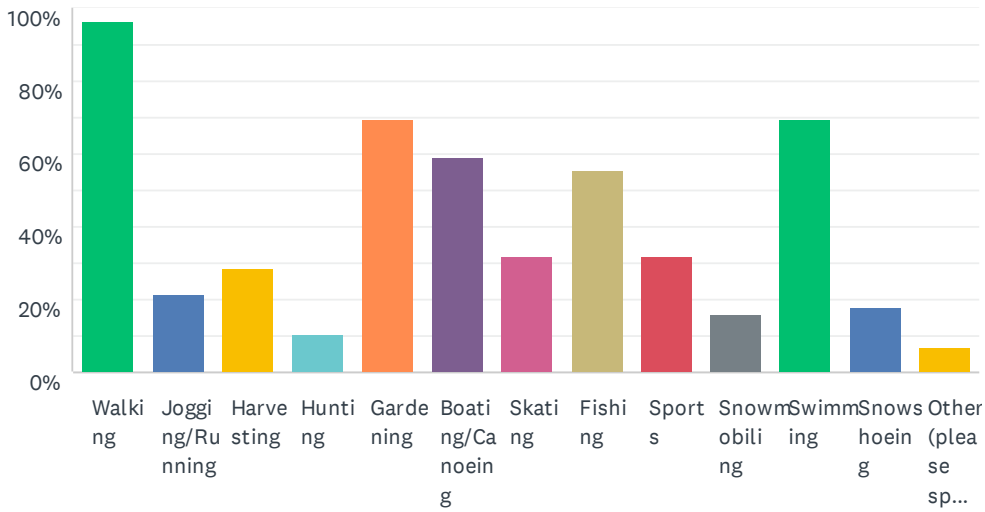


ANSWER CHOICES	RESPONSES	
I have never been late for recreational activities because of a down ferry	30.00%	12
1 to 5 times	45.00%	18
6 to 10 times	7.50%	3
11 to 15 times	0.00%	0
Greater than 15 times	2.50%	1
I do not have any transportation issues going back and forth between the mainland and Georgina Island	7.50%	3
Other (please specify):	7.50%	3
TOTAL		40

#	OTHER (PLEASE SPECIFY):	DATE
1	-	6/14/2021 1:57 PM
2	N/A	5/25/2021 2:40 PM
3	N/a	5/25/2021 10:06 AM

Q49 What outdoor activities do you do? Check all that apply.

Answered: 56 Skipped: 40



ANSWER CHOICES	RESPONSES	
Walking	96.43%	54
Jogging/Running	21.43%	12
Harvesting	28.57%	16
Hunting	10.71%	6
Gardening	69.64%	39
Boating/Canoeing	58.93%	33
Skating	32.14%	18
Fishing	55.36%	31
Sports	32.14%	18
Snowmobiling	16.07%	9
Swimming	69.64%	39
Snowshoeing	17.86%	10
Other (please specify)	7.14%	4
Total Respondents: 56		

#	OTHER (PLEASE SPECIFY)	DATE
1	golf	6/14/2021 2:06 PM
2	na	6/11/2021 2:38 PM
3	bike riding	6/11/2021 2:33 PM
4	skiing, hiking	5/25/2021 11:10 AM

Q50 Please list the ways (if any) that the current Island transportation affects your participation in recreational activities:

Answered: 36 Skipped: 60

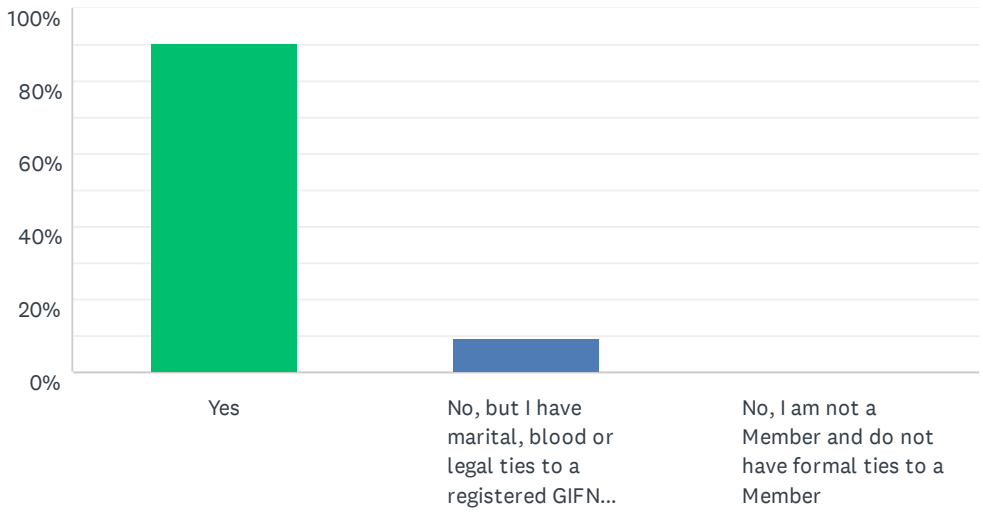
#	RESPONSES	DATE
1	hard to plan activities off island	8/9/2021 10:59 AM
2	having to pay on the boat affects my participation in recreational events. I am on a tight budget.	6/14/2021 2:23 PM
3	there should be trips for the childrens sports	6/14/2021 1:57 PM
4	na	6/11/2021 2:38 PM
5	we need later trips for bingo and concerts. when I go to concerts I have to leave early because of the ferry schedule	6/11/2021 2:33 PM
6	For gardening if there are things you need you waste a day going to get them. Others are the same if you need any kind of equipment that may brake etc...	5/28/2021 4:41 PM
7	The timing it takes on the ferry boat to get in line and go across plus the freeze and thaw up can make it dangerous to attend activities.	5/27/2021 10:19 AM
8	over-capacity	5/26/2021 11:18 AM
9	We need to have the water taxi available for sports	5/25/2021 9:57 PM
10	I would love to come to the island more and be a part of things going on but it is hard to navigate the issues going across can pose when you rely on the ferry and it's not on schedule or you're competing with non-members to come across.	5/25/2021 2:40 PM
11	It takes so long for travelling to and from mainland to island for any recreational activities, because you have to plan with ferry schedule	5/25/2021 1:45 PM
12	Time management. Work schedule.	5/25/2021 1:16 PM
13	Our family lives on mainland so that we are not limited in our access to recreation and engagement with programs	5/25/2021 11:43 AM
14	If you miss the boat you could swim	5/25/2021 11:14 AM
15	we have to plan our schedule around the ferry boat schedule. Sometimes we cannot make it to early or late hockey games, especially if there is travel to another city for the game. Only certain swimming lessons fit with the ferry schedule. I can't do morning yoga or fitness because of having to go on the ferry boat and how long it would take to get there and back again. Any of the kids sports activities take more time because it takes about an hour longer to get there each way, including time in the ferry line-up.	5/25/2021 11:10 AM
16	Na	5/25/2021 10:48 AM
17	You have to plan around the ferry schedule	5/25/2021 8:28 AM
18	Always the checking schedule...	5/24/2021 10:20 PM
19	There is none	5/23/2021 1:39 PM
20	Not at all	5/22/2021 10:55 AM
21	Boat schedule - you are always timing everything according to it	5/21/2021 11:41 AM
22	The current transportation does not cater to the early practices on weekends. Hockey will start at 7am on Saturdays and Sundays. In the winter, dance/gymnastics runs til 7pm and the last scoot is 6. Very disappointing and discouraging for both parents and the Littles.	5/21/2021 9:38 AM
23	Line ups due to cottagers and construction and broken ferry	5/21/2021 9:12 AM

24	When doing mainland sports it was how late the ferry ran on Monday and Wednesdays.	5/21/2021 9:00 AM
25	I hope you don’t have to wait for an empty ferry	5/21/2021 8:00 AM
26	Sometimes the schedule of the ferry doesn’t match up with the activity or doesn’t run late enough to return home	5/20/2021 11:25 PM
27	Broken, late, Most often left behind because boat is full. You need to line up at least 40 mins prior to stand a chance of getting on the boat. Ridiculous	5/20/2021 10:09 PM
28	N/a	5/20/2021 8:45 PM
29	There is no structure when it comes up recreational activities on the island	5/20/2021 6:34 PM
30	Prefer not to answer.	5/20/2021 5:52 PM
31	None	5/20/2021 5:10 PM
32	Not applicable to me	5/20/2021 4:33 PM
33	Can't get my kids to hockey or skating on time. Have to stay the night on mainland to get there on time	5/20/2021 4:30 PM
34	It’s a hassle and limits time, adds stress to relaxing activities	5/20/2021 4:02 PM
35	It's too much of a hassel to go over for recreational activities	5/20/2021 4:01 PM
36	Late boats, broken down, leaving early , can fit more people on but choose not too	5/20/2021 3:18 PM

Results from Respondents living permanently on the Island

Q1 Are you a Georgina Island First Nation (GIFN) member?

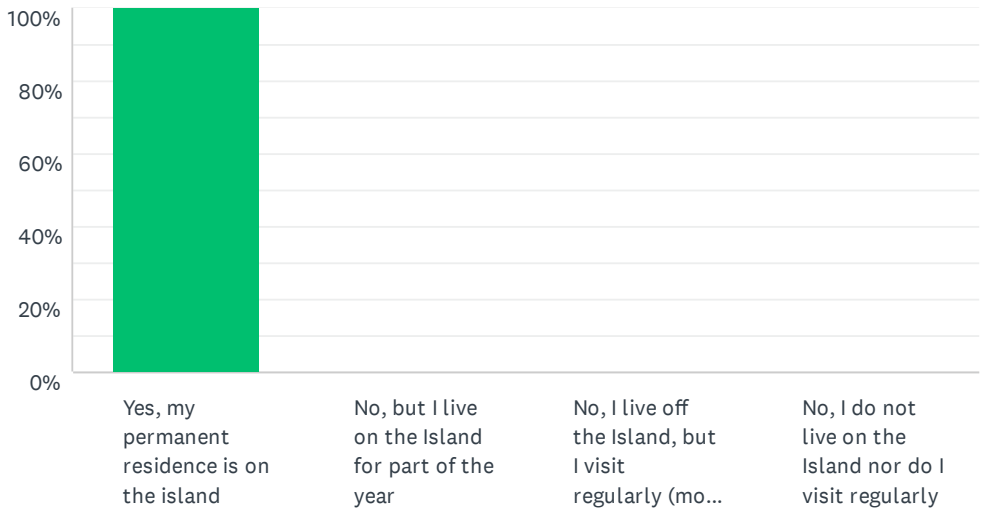
Answered: 42 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	90.48%	38
No, but I have marital, blood or legal ties to a registered GIFN member	9.52%	4
No, I am not a Member and do not have formal ties to a Member	0.00%	0
TOTAL		42

Q2 Do you live on Georgina Island year-round ?

Answered: 42 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes, my permanent residence is on the island	100.00%	42
No, but I live on the Island for part of the year	0.00%	0
No, I live off the Island, but I visit regularly (more than twice a year)	0.00%	0
No, I do not live on the Island nor do I visit regularly	0.00%	0
TOTAL		42

Q3 What months of the year do you live on or visit Georgina Island? Check all that apply.

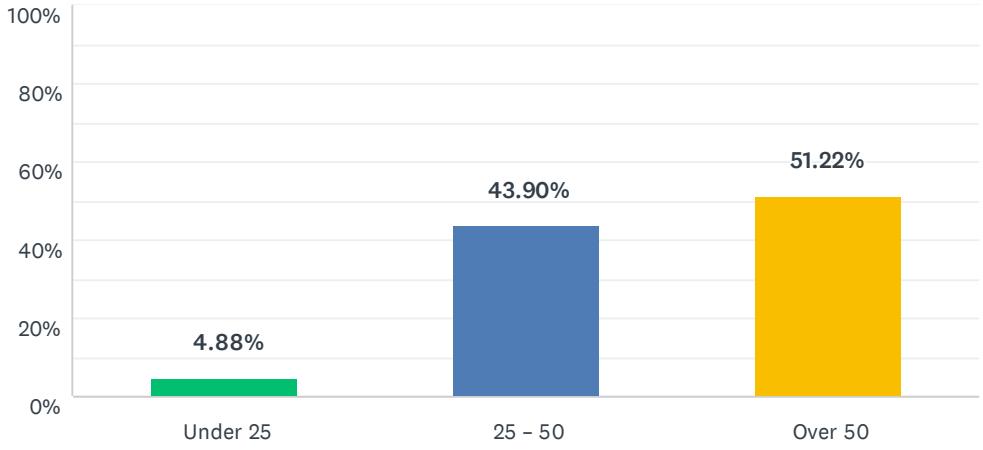
Answered: 0 Skipped: 42

⚠ No matching responses.

ANSWER CHOICES	RESPONSES	
January	0.00%	0
February	0.00%	0
March	0.00%	0
April	0.00%	0
May	0.00%	0
June	0.00%	0
July	0.00%	0
August	0.00%	0
September	0.00%	0
October	0.00%	0
November	0.00%	0
December	0.00%	0
Total Respondents: 0		

Q4 What age are you?

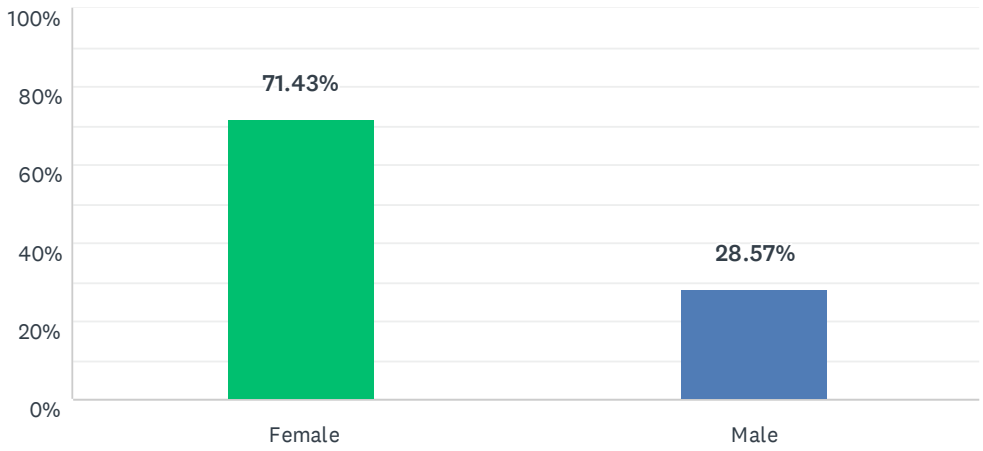
Answered: 42 Skipped: 0



ANSWER CHOICES	RESPONSES	
Under 25	4.88%	2
25 – 50	43.90%	18
Over 50	51.22%	21
TOTAL		41

Q5 Do you identify as…?

Answered: 42 Skipped: 0

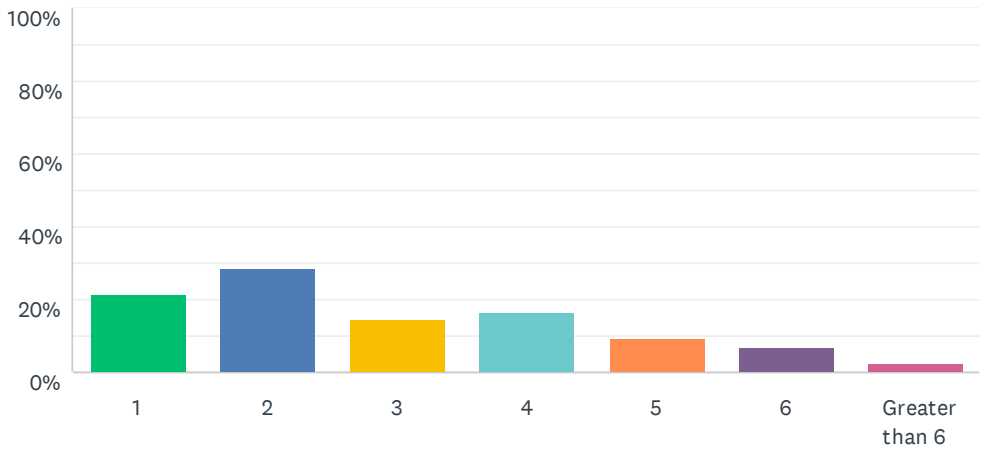


ANSWER CHOICES	RESPONSES	
Female	71.43%	30
Male	28.57%	12
TOTAL		42

#	OTHER (PLEASE SPECIFY):	DATE
	There are no responses.	

Q6 Including yourself, how many people live in your household?

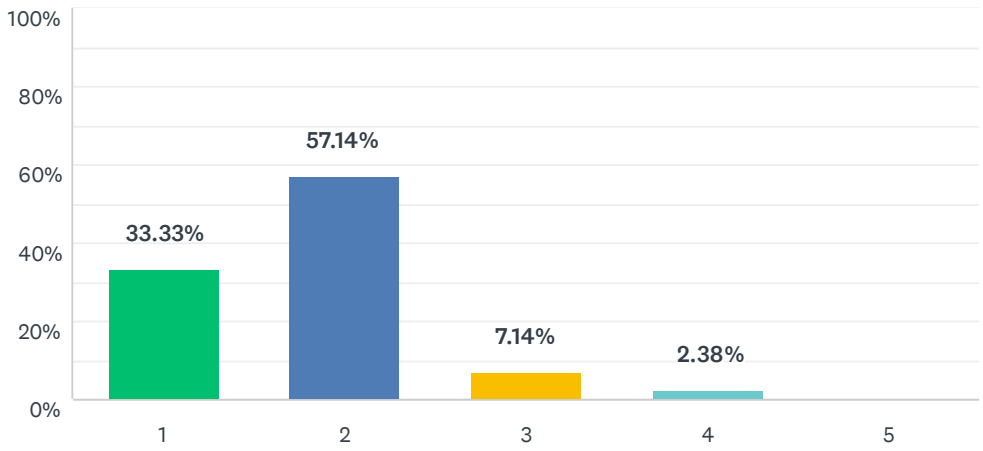
Answered: 42 Skipped: 0



ANSWER CHOICES	RESPONSES	
1	21.43%	9
2	28.57%	12
3	14.29%	6
4	16.67%	7
5	9.52%	4
6	7.14%	3
Greater than 6	2.38%	1
TOTAL		42

Q7 How many generations live in your household?

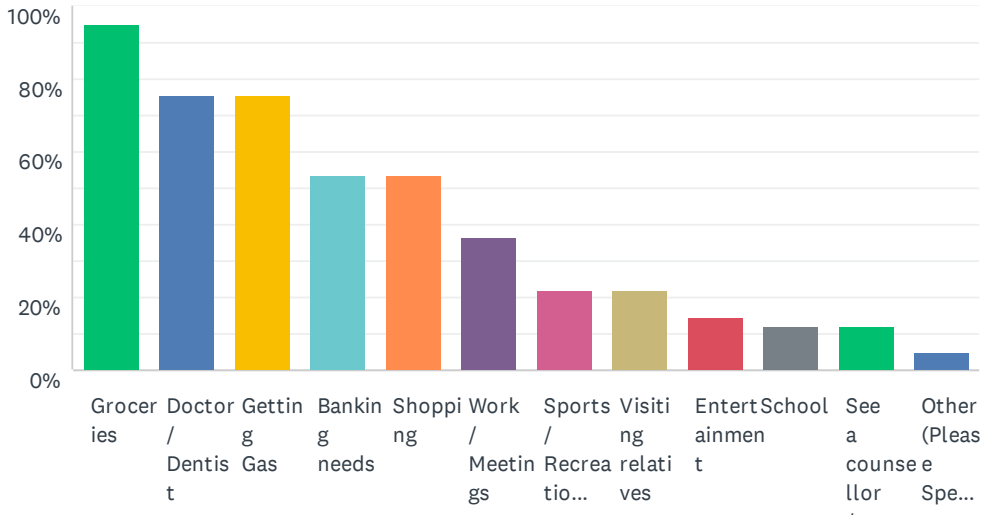
Answered: 42 Skipped: 0



ANSWER CHOICES	RESPONSES	
1	33.33%	14
2	57.14%	24
3	7.14%	3
4	2.38%	1
5	0.00%	0
TOTAL		42

Q8 We acknowledge that GIFN community members need to visit the mainland for the services listed below. Please check the top five (5) reasons you travel to the mainland in a typical week.

Answered: 41 Skipped: 1

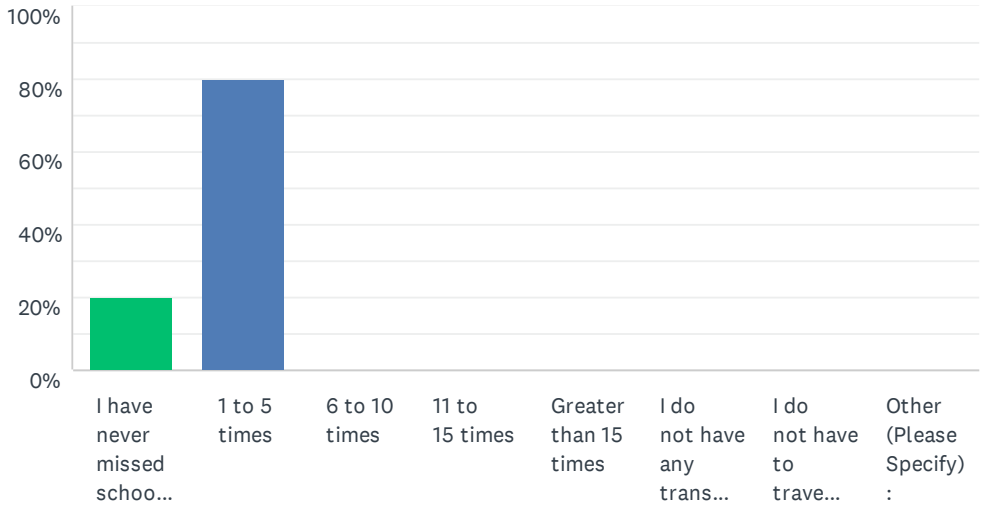


ANSWER CHOICES	RESPONSES	
Groceries	95.12%	39
Doctor / Dentist	75.61%	31
Getting Gas	75.61%	31
Banking needs	53.66%	22
Shopping	53.66%	22
Work / Meetings	36.59%	15
Sports / Recreational activities	21.95%	9
Visiting relatives	21.95%	9
Entertainment	14.63%	6
School	12.20%	5
See a counsellor / mental health services	12.20%	5
Other (Please Specify):	4.88%	2
Total Respondents: 41		

#	OTHER (PLEASE SPECIFY):	DATE
1	Elders shopping	5/25/2021 2:50 PM
2	See my son	5/20/2021 3:11 PM

Q9 In a typical year, how many times have you missed school because of a down ferry?

Answered: 5 Skipped: 37

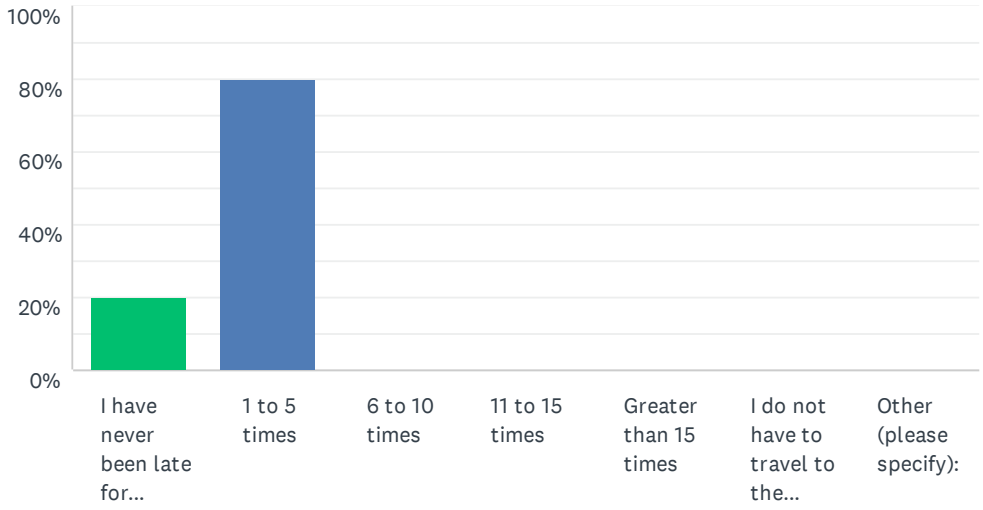


ANSWER CHOICES	RESPONSES	
I have never missed school because of a down ferry	20.00%	1
1 to 5 times	80.00%	4
6 to 10 times	0.00%	0
11 to 15 times	0.00%	0
Greater than 15 times	0.00%	0
I do not have any transportation issues going back and forth between the mainland and Georgina Island	0.00%	0
I do not have to travel to the mainland for school	0.00%	0
Other (Please Specify):	0.00%	0
TOTAL		5

#	OTHER (PLEASE SPECIFY):	DATE
	There are no responses.	

Q10 In a typical year, how many times have you been late for school because of a down ferry?

Answered: 5 Skipped: 37

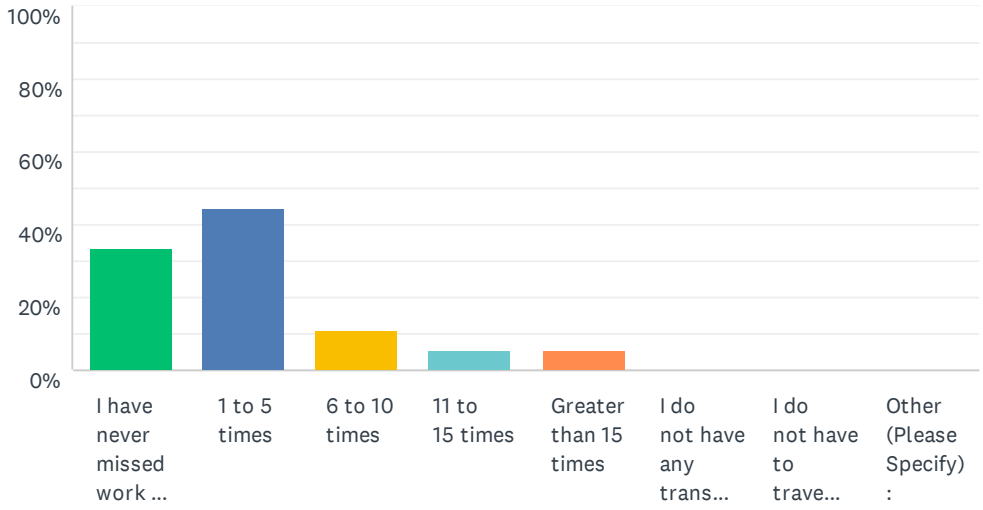


ANSWER CHOICES	RESPONSES	
I have never been late for school because of a down ferry	20.00%	1
1 to 5 times	80.00%	4
6 to 10 times	0.00%	0
11 to 15 times	0.00%	0
Greater than 15 times	0.00%	0
I do not have to travel to the mainland for school	0.00%	0
Other (please specify):	0.00%	0
TOTAL		5

#	OTHER (PLEASE SPECIFY):	DATE
	There are no responses.	

Q11 In a typical year, how many times have you missed work / meetings because of a down ferry?

Answered: 18 Skipped: 24

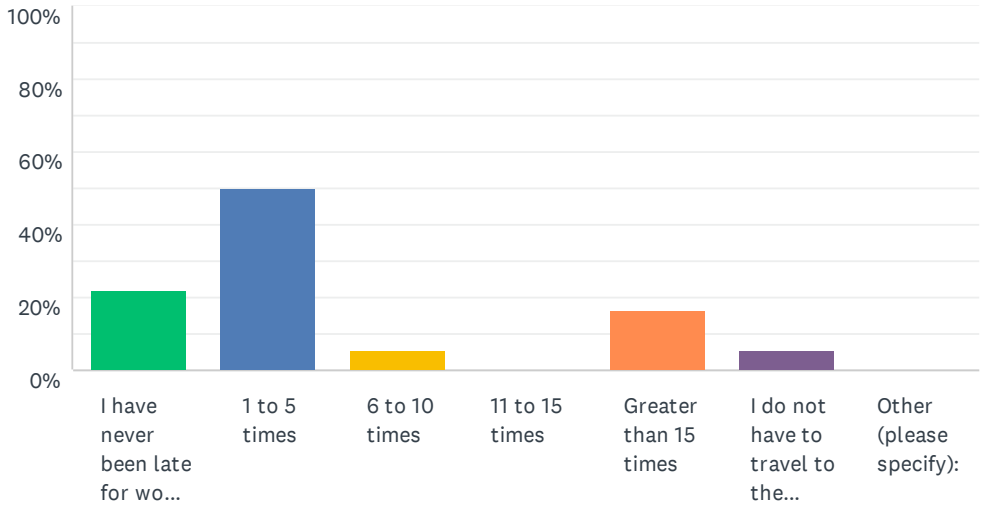


ANSWER CHOICES	RESPONSES	
I have never missed work / meetings because of a down ferry	33.33%	6
1 to 5 times	44.44%	8
6 to 10 times	11.11%	2
11 to 15 times	5.56%	1
Greater than 15 times	5.56%	1
I do not have any transportation issues going back and forth between the mainland and Georgina Island	0.00%	0
I do not have to travel to the mainland for work / meetings	0.00%	0
Other (Please Specify):	0.00%	0
TOTAL		18

#	OTHER (PLEASE SPECIFY):	DATE
	There are no responses.	

Q12 In a typical year, how many times have you been late for work / meetings because of a down ferry?

Answered: 18 Skipped: 24

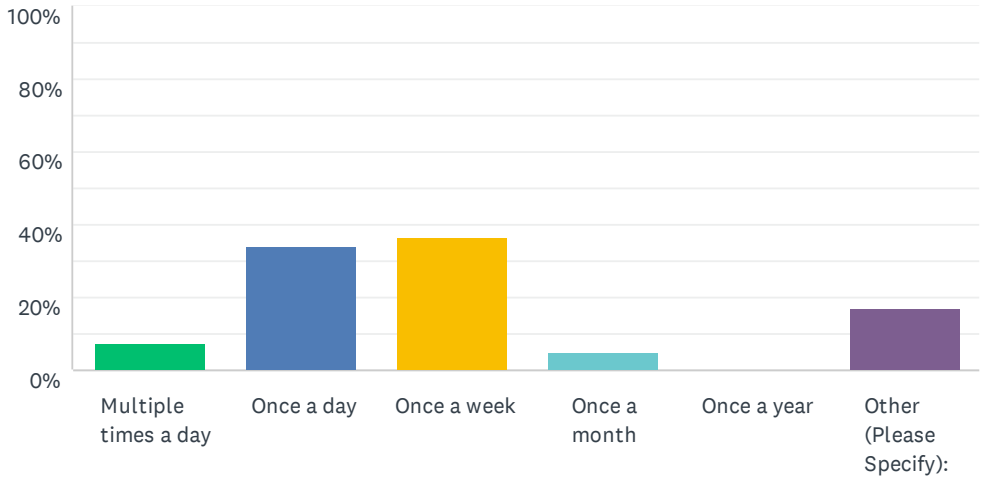


ANSWER CHOICES	RESPONSES	
I have never been late for work / meetings because of a down ferry	22.22%	4
1 to 5 times	50.00%	9
6 to 10 times	5.56%	1
11 to 15 times	0.00%	0
Greater than 15 times	16.67%	3
I do not have to travel to the mainland for work / meetings	5.56%	1
Other (please specify):	0.00%	0
TOTAL		18

#	OTHER (PLEASE SPECIFY):	DATE
	There are no responses.	

Q13 Generally speaking, how often do you use the return ferry service (there and back) when it is operational?

Answered: 41 Skipped: 1

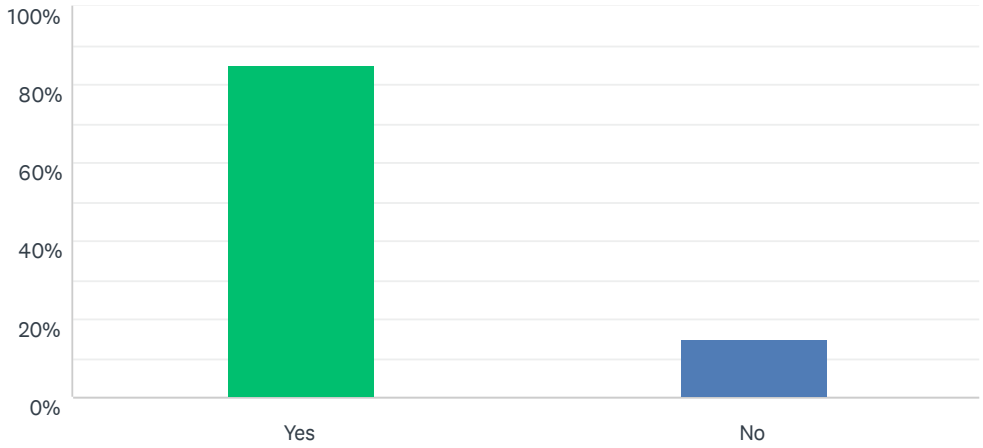


ANSWER CHOICES	RESPONSES	
Multiple times a day	7.32%	3
Once a day	34.15%	14
Once a week	36.59%	15
Once a month	4.88%	2
Once a year	0.00%	0
Other (Please Specify):	17.07%	7
TOTAL		41

#	OTHER (PLEASE SPECIFY):	DATE
1	2-3 week	6/14/2021 1:59 PM
2	2-3 times weekly	5/26/2021 11:04 AM
3	Approximately twice a week	5/25/2021 7:56 PM
4	Late fall early spring	5/25/2021 10:02 AM
5	at least 2 times per week sometimes 3	5/25/2021 9:38 AM
6	Twice weekly	5/21/2021 8:20 PM
7	2x week	5/20/2021 6:24 PM

Q14 Does the freeze up and thaw seasons impact the number of crossings you typically make to the Island?

Answered: 40 Skipped: 2



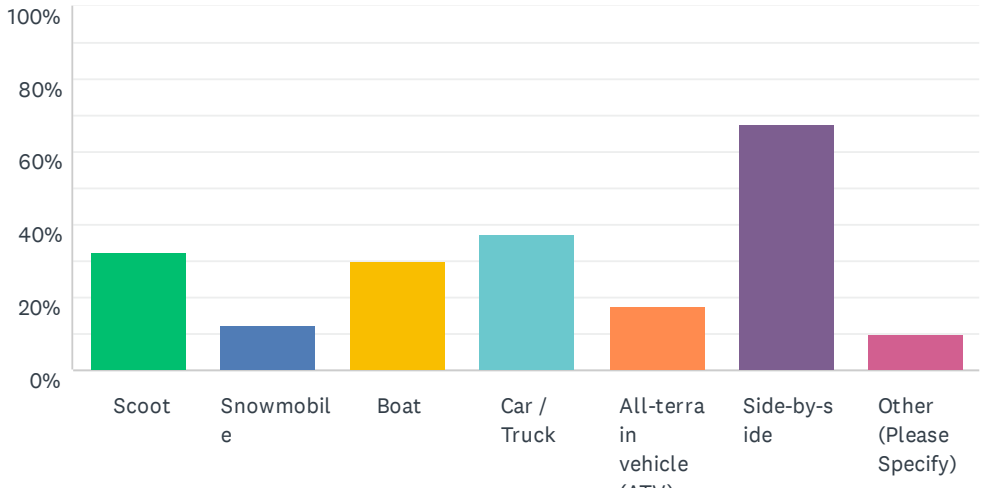
ANSWER CHOICES	RESPONSES	
Yes	85.00%	34
No	15.00%	6
TOTAL		40

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	Do not like the scoot and too bumpy	6/11/2021 2:29 PM
2	It can be dangerous to go over depending on weather conditions with the air boat or side by sides.	5/27/2021 9:59 AM
3	I try not to go as much due to safety issues with crossing the lake and ice.	5/25/2021 3:24 PM
4	I prepare in advance so I don't have to travel to the mainland during freeze up or thaw. I try to avoid riding in the scoot as much as possible.	5/25/2021 10:37 AM
5	safety	5/25/2021 9:38 AM
6	Try not to use scoot	5/21/2021 8:20 PM
7	I hate riding on the scoot I feel unsafe and driving on the ice rd is unpredictable as it depends on the weather for safe ice conditions	5/21/2021 10:51 AM
8	I work on the mainland	5/21/2021 8:56 AM
9	I dread traveling across during freeze up and thaw seasons because it's always SO busy with other members doing their errands. Its mentally draining to have to do grocery shops when everyone else is too. And wondering how long until you get home or how much room you'll take up. The commute itself is nerve wrecking, due to weather conditions, condition of the lake, specific drivers and their ways of driving, all in all its a difficult time especially if you have other health concerns (ache body, bad back, early pregnancy etc)	5/21/2021 8:35 AM
10	More like from the island because when having to do groceries it is harder to lug a bigger shopping on to scoot and there is a lot of waiting to get back home. So I will wait till it is safe enough to side by side just to avoid scoot travel.	5/21/2021 8:27 AM
11	I work on mainland. I have kept a room on the mainland. When ferry not running I stay on the mainland	5/20/2021 6:24 PM

12	Safety issues	5/20/2021 5:34 PM
13	The scoot is too hard on the body bumpy	5/20/2021 4:33 PM
14	I don't cross during that time unless it is safe to drive on the ice.	5/20/2021 3:43 PM
15	I wait until it is safe to cross	5/20/2021 3:31 PM
16	Yea safety reasons	5/20/2021 3:15 PM
17	Bad crossing unsafe ice conditions	5/20/2021 3:14 PM
18	Yea cause don't have any type of vehicle	5/20/2021 3:13 PM

Q15 Generally speaking, what is your preferred method of crossing during the freeze up and thaw seasons? Please check all that apply.

Answered: 40 Skipped: 2

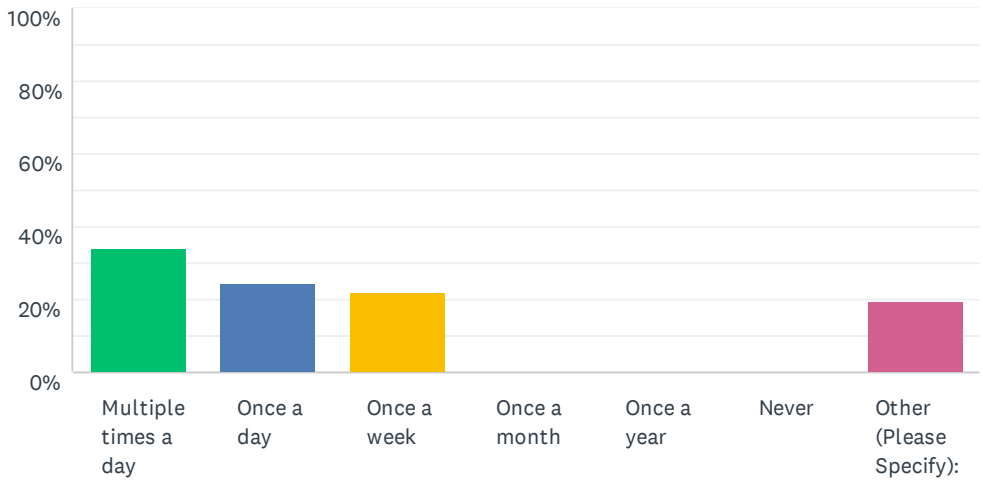


ANSWER CHOICES	RESPONSES	
Scoot	32.50%	13
Snowmobile	12.50%	5
Boat	30.00%	12
Car / Truck	37.50%	15
All-terrain vehicle (ATV)	17.50%	7
Side-by-side	67.50%	27
Other (Please Specify)	10.00%	4
Total Respondents: 40		

#	OTHER (PLEASE SPECIFY)	DATE
1	Car when it is absolutely safe to do so.	5/25/2021 3:24 PM
2	none I stay home , during the freeze up and thaw all you can use are the scoots and it is ruff and when wind s are strong it is unsafe to drive them	5/21/2021 10:51 AM
3	Ice conditions allowing	5/20/2021 6:24 PM
4	Have been staying on the Island during these times until travel is safe for vehicles, scoot is uncomfortable and can be scary depending on who is driving	5/20/2021 5:34 PM

Q16 How often do you use the ice road when it is operational?

Answered: 41 Skipped: 1

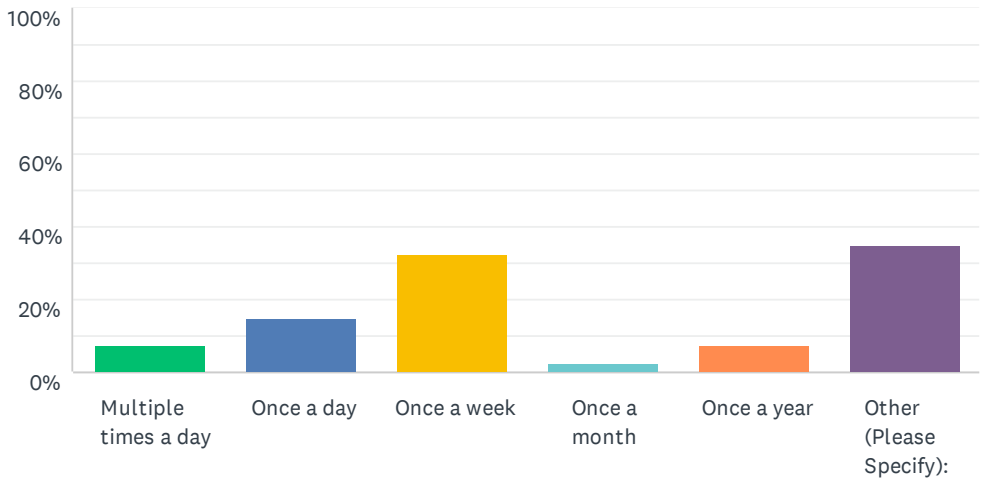


ANSWER CHOICES	RESPONSES	
Multiple times a day	34.15%	14
Once a day	24.39%	10
Once a week	21.95%	9
Once a month	0.00%	0
Once a year	0.00%	0
Never	0.00%	0
Other (Please Specify):	19.51%	8
TOTAL		41

#	OTHER (PLEASE SPECIFY):	DATE
1	couple times a week	6/14/2021 2:14 PM
2	multiple times a week	6/14/2021 1:59 PM
3	na	6/14/2021 1:51 PM
4	2-3 times weekly	5/26/2021 11:04 AM
5	Several times a week - I often drive my children across to meet the school bus so they don't have to ride the scoot each morning if the ice road is good.	5/25/2021 10:37 AM
6	Twice weekly	5/21/2021 8:20 PM
7	When it is safe, a few times a week. I will shop in bulk to stock up to prepare for thaw., to lessen the need to travel by scoot.	5/21/2021 8:35 AM
8	It depends on how thick the ice is and appointments that have to been attended. Some weeks once but some weeks 2 times.	5/21/2021 8:27 AM

Q17 How often do you use the airboat (or "scoot") when it is operational?

Answered: 40 Skipped: 2

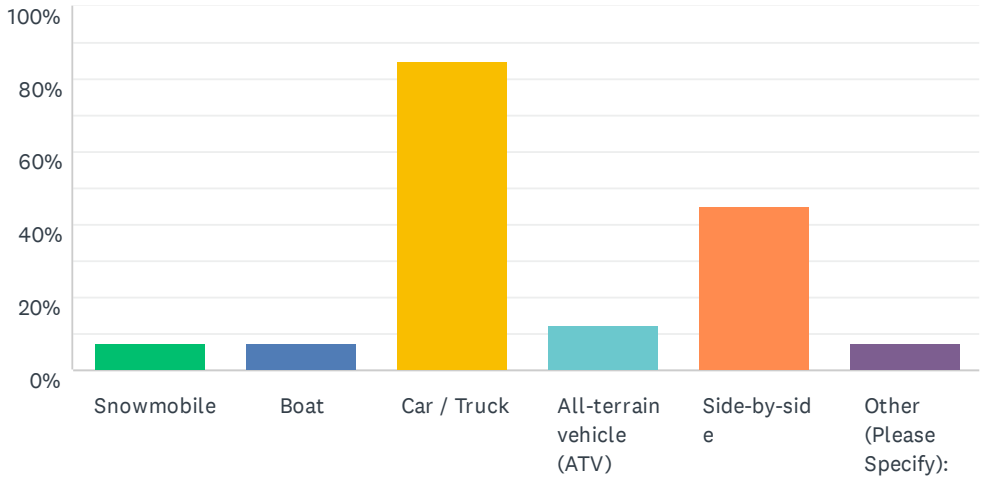


ANSWER CHOICES	RESPONSES	
Multiple times a day	7.50%	3
Once a day	15.00%	6
Once a week	32.50%	13
Once a month	2.50%	1
Once a year	7.50%	3
Other (Please Specify):	35.00%	14
TOTAL		40

#	OTHER (PLEASE SPECIFY):	DATE
1	I try to avoid the scoot, once every couple years	8/9/2021 10:49 AM
2	twice weekend	6/14/2021 2:02 PM
3	-	6/14/2021 1:52 PM
4	I'm a driver	5/25/2021 10:03 AM
5	I generally take my holidays so I don't have to use the scoot.	5/25/2021 9:36 AM
6	Rarely use if usually don't	5/21/2021 12:43 PM
7	only if I have to	5/21/2021 10:58 AM
8	Maybe once a week or every few weeks. I don't enjoy the scoot but use it when I have to.	5/21/2021 8:44 AM
9	As little as possible. I think in the last 2-3 years I have been on it a total of 6 times.	5/21/2021 8:29 AM
10	Couple times per week	5/20/2021 7:47 PM
11	Only use if it's emergency	5/20/2021 6:25 PM
12	2-3 times a month	5/20/2021 5:35 PM
13	not unless I have to	5/20/2021 3:44 PM
14	The least I can	5/20/2021 3:14 PM

Q18 What personal vehicle do you use when you use the ice road for travelling purposes (not recreational use)? Please check all that apply.

Answered: 40 Skipped: 2

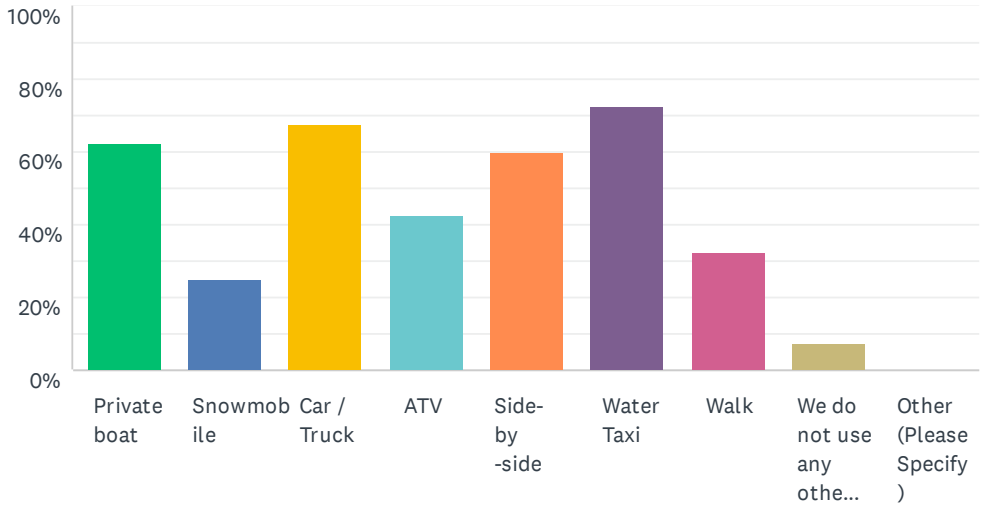


ANSWER CHOICES	RESPONSES	
Snowmobile	7.50%	3
Boat	7.50%	3
Car / Truck	85.00%	34
All-terrain vehicle (ATV)	12.50%	5
Side-by-side	45.00%	18
Other (Please Specify):	7.50%	3
Total Respondents: 40		

#	OTHER (PLEASE SPECIFY):	DATE
1	taxi	6/11/2021 2:35 PM
2	Or a small light vehicle when it is safe.	5/21/2021 8:44 AM
3	Don't have one	5/20/2021 3:14 PM

Q19 Aside from the ferry and airboat / scoot, what are some other ways of transportation that you or members of your household have used to travel to and from Georgina Island?

Answered: 40 Skipped: 2

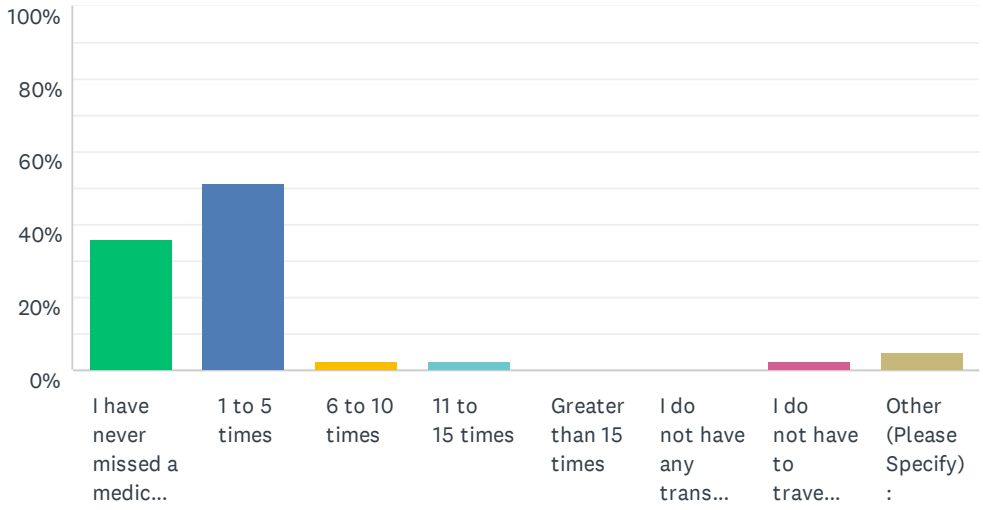


ANSWER CHOICES	RESPONSES	
Private boat	62.50%	25
Snowmobile	25.00%	10
Car / Truck	67.50%	27
ATV	42.50%	17
Side-by-side	60.00%	24
Water Taxi	72.50%	29
Walk	32.50%	13
We do not use any other modes of transportation	7.50%	3
Other (Please Specify)	0.00%	0
Total Respondents: 40		

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Q20 In a typical year, how many times have you missed a medical appointment because of a down ferry?

Answered: 39 Skipped: 3

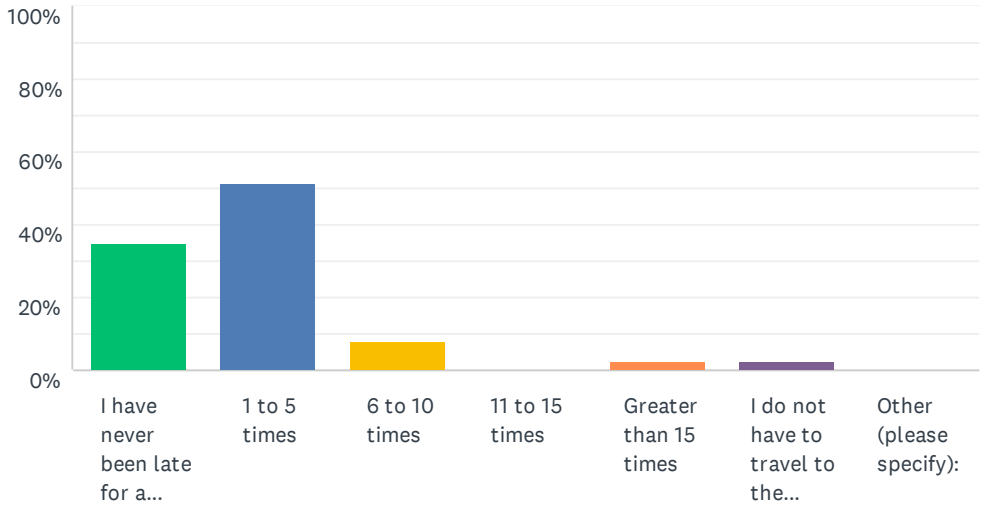


ANSWER CHOICES	RESPONSES	
I have never missed a medical appointment because of a down ferry	35.90%	14
1 to 5 times	51.28%	20
6 to 10 times	2.56%	1
11 to 15 times	2.56%	1
Greater than 15 times	0.00%	0
I do not have any transportation issues going back and forth between the mainland and Georgina Island	0.00%	0
I do not have to travel to the mainland for medical appointments	2.56%	1
Other (Please Specify):	5.13%	2
TOTAL		39

#	OTHER (PLEASE SPECIFY):	DATE
1	Use my own transportation	5/25/2021 10:10 AM
2	I have been pretty lucky and can say that I have never missed an appointment	5/21/2021 8:31 AM

Q21 In a typical year, how many times have you been late for a medical appointment because of a down ferry?

Answered: 37 Skipped: 5

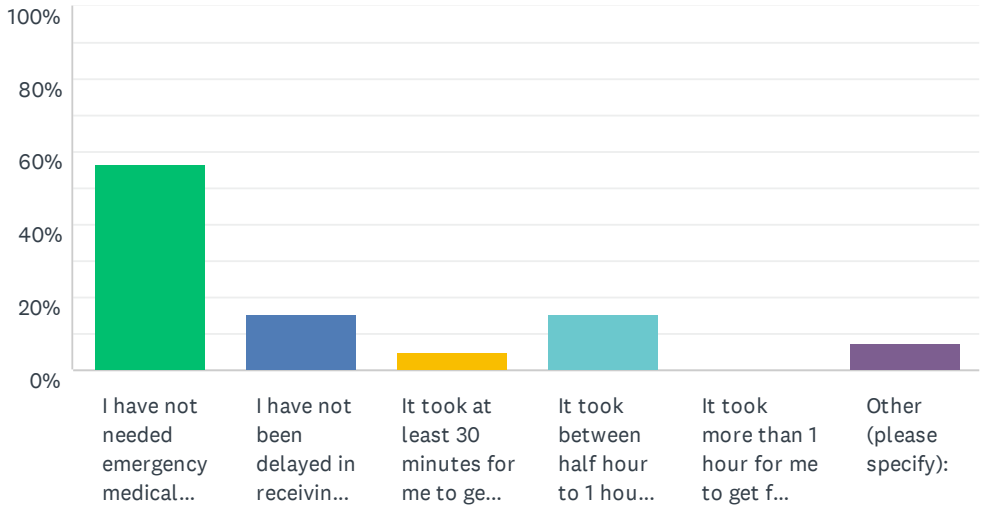


ANSWER CHOICES	RESPONSES	
I have never been late for a medical appointment because of a down ferry	35.14%	13
1 to 5 times	51.35%	19
6 to 10 times	8.11%	3
11 to 15 times	0.00%	0
Greater than 15 times	2.70%	1
I do not have to travel to the mainland for medical appointments	2.70%	1
Other (please specify):	0.00%	0
TOTAL		37

#	OTHER (PLEASE SPECIFY):	DATE
	There are no responses.	

Q22 In a medical emergency where you had to travel off the Island, have the current transportation options caused you delays in receiving emergency services?

Answered: 39 Skipped: 3

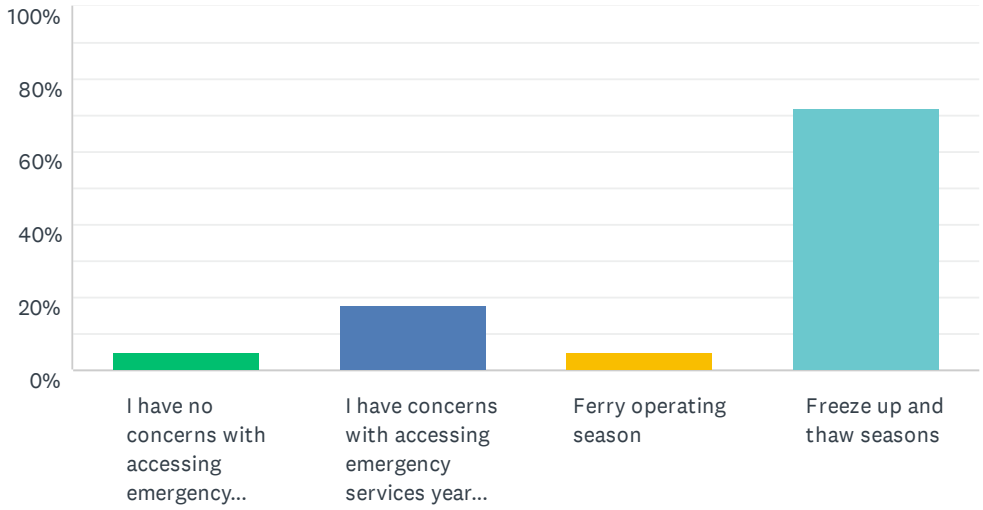


ANSWER CHOICES	RESPONSES	
I have not needed emergency medical services off the Island	56.41%	22
I have not been delayed in receiving emergency medical care	15.38%	6
It took at least 30 minutes for me to get from the Island to the mainland ambulance	5.13%	2
It took between half hour to 1 hour for me to get from the Island to the mainland ambulance	15.38%	6
It took more than 1 hour for me to get from the Island to the mainland ambulance	0.00%	0
Other (please specify):	7.69%	3
TOTAL		39

#	OTHER (PLEASE SPECIFY):	DATE
1	Sometimes due to boat or scoot I am late or have missed medical appointments.	5/25/2021 3:27 PM
2	When I was expecting a baby during freeze-up, I had to stay in a hotel in the city because the doctors did not want me to have to ride the scoot and they didn't think I would get to the hospital in time.	5/25/2021 10:44 AM
3	Yes. When I was in labor, no boat driver showed up to get myself over, even when 911 was called. Myself and the first response guys waited. But luckily ended up using one of the response guys personal boat to get me over to the ambulance waiting on the mainland.	5/21/2021 8:52 AM

Q23 Which time of the year would be of the greatest concern for you accessing emergency healthcare services on the mainland?

Answered: 39 Skipped: 3

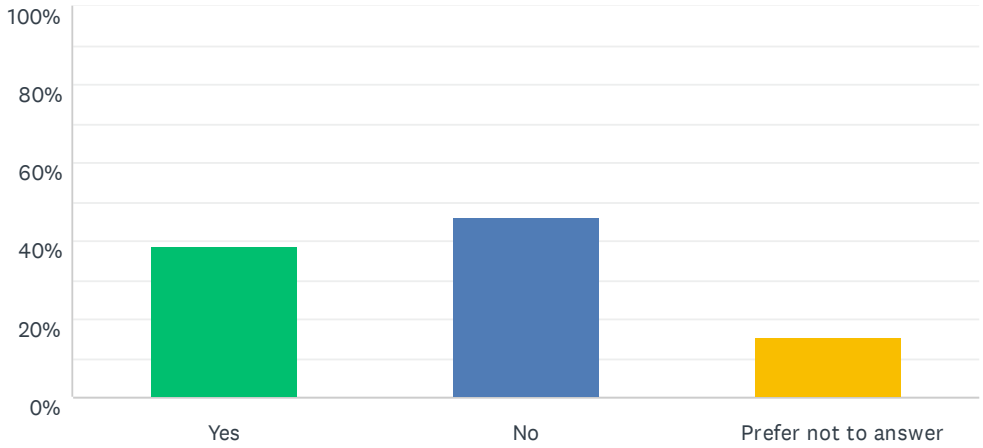


ANSWER CHOICES	RESPONSES	
I have no concerns with accessing emergency services off the Island	5.13%	2
I have concerns with accessing emergency services year round	17.95%	7
Ferry operating season	5.13%	2
Freeze up and thaw seasons	71.79%	28
TOTAL		39

#	PLEASE EXPLAIN YOUR SELECTION	DATE
1	When I had my son I chose to live in Orillia as I didn't want to take my newborn baby on airboat in case we had to go to doctors for his care	6/14/2021 2:15 PM
2	If the ferry is on the other side/mainland	6/14/2021 1:53 PM
3	Freeze up and thaw are when it is most difficult to cross. At other times of the year we would be able to use our boats or the ice road to access medical care for minor emergencies. However, if it was a serious medical emergency, the extra travel time associated with getting across on the ferry could be the difference between life and death.	5/25/2021 10:44 AM
4	when the ferry is operating it could be on the main land and you need the get over right away it has to come to the island than take you back over about a 30 min. wait. in freeze up and thaw seasons you can.t get a stretcher in the scoots it is also s very ruff ride over	5/21/2021 11:14 AM
5	Once the ferry is shut down for the night, its hard to get to the hospital and back home, especially when it's through the middle of the night or one trip left til it's done. Travel isn't always guaranteed, and/or a hotel or place to sleep isn't either guaranteed. The choice to stay home (within some reason of course) until the first boat is almost the best choice for those reasons. But an extremely difficult decision - especially if it's a younger one with the emergency.	5/21/2021 8:52 AM
6	The lake is unpredictable	5/20/2021 4:37 PM
7	difficult crossing	5/20/2021 3:45 PM

Q24 Do the costs to use the ferry, airboat and other current transportation options pose a financial hardship for you?

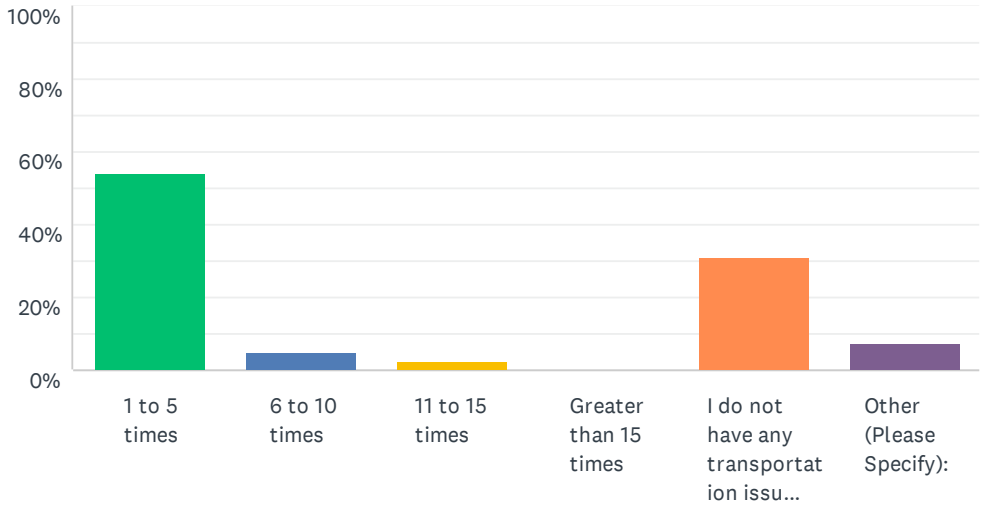
Answered: 39 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	38.46%	15
No	46.15%	18
Prefer not to answer	15.38%	6
TOTAL		39

Q25 In a typical year, how many times have you not been able to come back to the Island because of a down ferry on the same day of your visit to the mainland?

Answered: 39 Skipped: 3



ANSWER CHOICES	RESPONSES	
1 to 5 times	53.85%	21
6 to 10 times	5.13%	2
11 to 15 times	2.56%	1
Greater than 15 times	0.00%	0
I do not have any transportation issues going back and forth between the mainland and Georgina Island	30.77%	12
Other (Please Specify):	7.69%	3
TOTAL		39

#	OTHER (PLEASE SPECIFY):	DATE
1	na	6/11/2021 2:36 PM
2	0	5/26/2021 11:08 AM
3	Can't remember	5/20/2021 3:18 PM

Q26 How have the uncertainties in the current transportation options to and from the island impacted your physical, emotional, and mental health?

Answered: 39 Skipped: 3

#	RESPONSES	DATE
1	i can't hangout with my friends as much so i'm distressed	8/10/2021 1:52 PM
2	Having to wait for the ferry just to miss it due to overflow can be very frustrating	8/9/2021 10:51 AM
3	If the boat breaks down I am unable to see a doctor or have the NP not being able to come to the Island	6/14/2021 2:16 PM
4	NA	6/14/2021 2:02 PM
5	The waiting. missing ferry or scoot, not able to get on	6/14/2021 1:53 PM
6	na	6/11/2021 2:36 PM
7	na	6/11/2021 2:31 PM
8	Concerns with my children having to attend school on mainland and board away from home during the freeze and thaw seasons.	5/27/2021 10:03 AM
9	frustration with getting home due to over-capacity	5/26/2021 11:08 AM
10	They haven't	5/25/2021 8:01 PM
11	It always impacts our people when we have to travel to the mainland to get almost anything that we may need. Not only do we have to pay to come and go from our actual homes we also have to stress about lines up/too many cottagers and not enough room to get over and back on the ferry. Worrying about our safety and our children's safety. Constantly being in a state of rushing or worrying g we'll miss the boat/scoot/side by side. Waiting hours and hours to get home or to get to go to an appointment. It's a traumatized life and one that I am grateful you all are actually looking into helping to ease mentally, physically, emotionally and spiritually. Making it better so that our youth and children do not have to experience all that we have. Like our parents and grandparents did before us so that we wouldn't have to experience what they did. gchi miigwechwendam aho!	5/25/2021 3:32 PM
12	Yes I have to leave work early because last ferry is 9pm	5/25/2021 2:53 PM
13	Mentally, financially, physically and more. I have lost jobs due to the uncertainty of the boat	5/25/2021 1:05 PM
14	rushing to catch the ferry definitely causes more stress	5/25/2021 10:44 AM
15	It has not	5/25/2021 10:30 AM
16	Not impaccted	5/25/2021 10:11 AM
17	They have not affected my physical, emotional or mental health	5/25/2021 9:43 AM
18	not.	5/25/2021 9:39 AM
19	the uncertainties has greatly impacted my life. you really don't know from one day to the next if your going to need med help or food or if your going to get home. Right now you cant take anything for granted when it comes to our transportation. I feel isolated as it is.	5/25/2021 8:17 AM
20	Not at all	5/22/2021 10:48 AM
21	I am always quite stressed during ice road session. We have tragically lost members over the years.	5/22/2021 8:41 AM
22	Well I didnt until covid happened! I'm sick of seeing cottagers allowed to just come and go as they please and needs to be stopped during a lock down... Especially during the lock down	5/21/2021 12:47 PM
23	get upset when you miss the ferry when time schedule is off and you have appointments .	5/21/2021 11:23 AM

	When you are shopping and have frozen food you have to get home and you can't get on because the line up is to big	
24	Greatly, it's mostly having to pay. It's an essential service members should not have to pay. Especially when we don't get on the ferry because if cottagers	5/21/2021 9:00 AM
25	It impacts all of the above greatly. Especially emergencies and having little children, accidents happen and you never know if you can get them the help they need in a timely manner. Also when it comes to sports and recreation, sports sometimes start as early as 7am, and transportation off the island on weekends does not cater to that need. Especially in the winter seasons, it's hard to cater to sports and recreation past 6pm with the scoot if classes run until 7. This impacts the little ones greatly, on their health, physical and emotional. Which then makes it hard on parents to see their children become discouraged.	5/21/2021 9:00 AM
26	It was only frustrating when having to travel for sports and the boat only ran till a certain time.	5/21/2021 8:34 AM
27	None	5/20/2021 11:32 PM
28	Greatly	5/20/2021 7:49 PM
29	Not a problem as a islander im a where of potential delay s	5/20/2021 7:29 PM
30	It hasnt	5/20/2021 6:28 PM
31	Of course	5/20/2021 5:37 PM
32	There is nothing to do here We need aftercare after treatment We need emotional support and physical workshops	5/20/2021 4:40 PM
33	Impacts me emotionally causing stress to make sure I’m on time for ferry or on island in time before dark during freeze over season	5/20/2021 4:37 PM
34	Stressful getting over and back sometimes	5/20/2021 4:20 PM
35	It's stressful when you don't know if you can get on the ferry or not, your groceries thaw, you miss appointments, your late for meetings....stress, stress, stress	5/20/2021 3:47 PM
36	No	5/20/2021 3:34 PM
37	It is very stressful, unwanted and definitely unneeded stress on mental health and well being	5/20/2021 3:18 PM
38	Stressful most times due to the car ferry being full of cottagers and not being able to get on and rushing to catch the boat and get in line early to get home or leave	5/20/2021 3:18 PM
39	I dont care to answer	5/20/2021 3:18 PM

Q27 What changes can be made to the current transportation options (i.e., ferry, scoot, etc.) for the Island to improve your overall mental, physical, and emotional health?

Answered: 36 Skipped: 6

#	RESPONSES	DATE
1	Added schedule, members only line, bridge	8/9/2021 10:52 AM
2	Having more trips for the scoot would be beneficial as the scoot stop at 6pm. If you miss it then you are stuck on the mainland. I also think that band members shouldn't be charged. Being a single mother is hard to constantly pay for the boat.	6/14/2021 2:20 PM
3	NA	6/14/2021 2:03 PM
4	a bridge across the lake	6/14/2021 1:54 PM
5	na	6/11/2021 2:36 PM
6	na	6/11/2021 2:31 PM
7	Having more trips available and not having to wait in a line up for 30 to 60min to go over or come home.	5/27/2021 10:07 AM
8	more frequents trips during peak times	5/26/2021 11:11 AM
9	Get us a bridge	5/25/2021 8:05 PM
10	Better scheduling so that we are not always feeling confused, a medical/members only line on either side. Mainland and Island sides.	5/25/2021 4:02 PM
11	Have a ferry after 9pm	5/25/2021 2:54 PM
12	A bridge	5/25/2021 1:08 PM
13	increased communication regarding scoots and side by sides from the drivers	5/25/2021 10:47 AM
14	Bridge	5/25/2021 10:32 AM
15	band members who live on island should have priority over cottagers to return home	5/25/2021 9:45 AM
16	fixed link	5/25/2021 9:42 AM
17	Get a bridge.	5/25/2021 8:19 AM
18	None	5/22/2021 10:49 AM
19	Bridge/fixed link	5/22/2021 8:46 AM
20	Stop letting over cottagers	5/21/2021 12:50 PM
21	better communication between drivers and councilor and manager, manager need to do a better job of looking after maintenance the barge. train more drivers so if something happens you have extra drivers.	5/21/2021 12:06 PM
22	Maintain a consistent schedule 7 days a week to make access to sports/recreation and/or medical emergencies. Lower the cost for band members to travel and increase the cottager cost because the traffic is getting busier and busier every year. Priority to band members would be ideal because this is our home not a weekend getaway.	5/21/2021 9:15 AM
23	Band members should not have to pay	5/21/2021 9:01 AM
24	Not allowing cottagers on the ferry over during COVID!!!! Or if they are then they should be made to say where they live or are coming from due to all the hot spots in Toronto, Peel etc..... Making it mandatory that the cottagers cannot come over until mid May and that they only	5/21/2021 8:46 AM

	have 1-2 vehicles at their cottage at any given time and if they have more than that then the police should be made to give them a ticket or fine.	
25	None	5/20/2021 11:33 PM
26	Members only line . Can’t travel like we used to due to cottagers and contractors filling up the boat.	5/20/2021 7:50 PM
27	New car ferry	5/20/2021 7:32 PM
28	I can’t think of anything	5/20/2021 6:31 PM
29	Priority for band members, inspection of cottager and "visitor/tourist" vehicles etc due to strangers with mental health issues and/or criminal backgrounds. Drug traffickers and ppl squatting in cottages and forest. No cottagers on our scoots. Period. Tourists have been observed smoking weed outside their vehicles in close proximity to Island children, smoke blowing back at them. All cottagers need to PAY and not get preferential treatment by certain staff! Cottagers shouldnt be allowed to RESIDE over here either. Seasonal only, may-oct. Should be special times for construction trucks	5/20/2021 5:45 PM
30	Scheduled times for these workshops	5/20/2021 4:45 PM
31	Later ferry’s	5/20/2021 4:40 PM
32	More trips. Later and earlier trips	5/20/2021 4:23 PM
33	I don't know	5/20/2021 3:48 PM
34	None	5/20/2021 3:36 PM
35	A better concrete ferry/scoot/side by side schedule that runs in the early morning hours and late evening hours daily.	5/20/2021 3:21 PM
36	Na	5/20/2021 3:20 PM

Q28 What other potential transportation option(s) to and from Georgina Island would improve your overall mental, physical, and emotional health?

Answered: 36 Skipped: 6

#	RESPONSES	DATE
1	BRIDGE	8/9/2021 10:52 AM
2	I believe that residents and band members should have priority to get on the boat before cottagers, we should have our own separate line.	6/14/2021 2:20 PM
3	causeway	6/14/2021 2:03 PM
4	a bridge across the lake	6/14/2021 1:54 PM
5	na	6/11/2021 2:36 PM
6	na	6/11/2021 2:31 PM
7	More trips on the Aazhaawe, a causeway or bridge.	5/27/2021 10:07 AM
8	A tug boat or passenger ferry, the water taxi can be unreliable due to mechanical issues	5/26/2021 11:11 AM
9	A bridge	5/25/2021 8:05 PM
10	Proper Barge schedule accommodating to the First Nation. Proper member/medical lines on the mainland and Island sides.	5/25/2021 4:02 PM
11	Ferry after 9pm	5/25/2021 2:54 PM
12	There is nothing more that can be done. I feel we as the FN has done everything we possibly can.	5/25/2021 1:08 PM
13	We need a bridge!	5/25/2021 10:47 AM
14	A bridge	5/25/2021 10:32 AM
15	water taxi should be available at all times for band members	5/25/2021 9:45 AM
16	water taxi as soon as break up happens.	5/25/2021 9:42 AM
17	A bridge.	5/25/2021 8:19 AM
18	A fixed link	5/22/2021 10:49 AM
19	Safer craft then the scoot. I have seen a multiple passenger hovercraft that would be much easier on the body of passengers and crew.	5/22/2021 8:46 AM
20	Have a constant water taxi going back and forth	5/21/2021 12:50 PM
21	get a causeway of bridge	5/21/2021 12:06 PM
22	Consistency, reliability, and security are key, for all members. Not sure how to answer this as I'm not sure of what options are available.	5/21/2021 9:15 AM
23	We don't pay	5/21/2021 9:01 AM
24	A BRIDGE	5/21/2021 8:46 AM
25	Airplane	5/20/2021 11:33 PM
26	A bridge	5/20/2021 7:50 PM
27	Helicopter	5/20/2021 7:32 PM
28	Bridge would take away stress of having to consider transportation	5/20/2021 6:31 PM
29	Not sure right nkw	5/20/2021 5:45 PM

30	Transportation vehicles to and from the meetings for those who need it	5/20/2021 4:45 PM
31	Bridge	5/20/2021 4:40 PM
32	A bridge	5/20/2021 4:23 PM
33	a bridge	5/20/2021 3:48 PM
34	A causeway	5/20/2021 3:36 PM
35	Water Taxi	5/20/2021 3:21 PM
36	Anything but a bridge	5/20/2021 3:20 PM

Q29 What do you see as the main advantages or disadvantages of the transportation option(s) to travel to and from Georgina Island you identified in the question above?

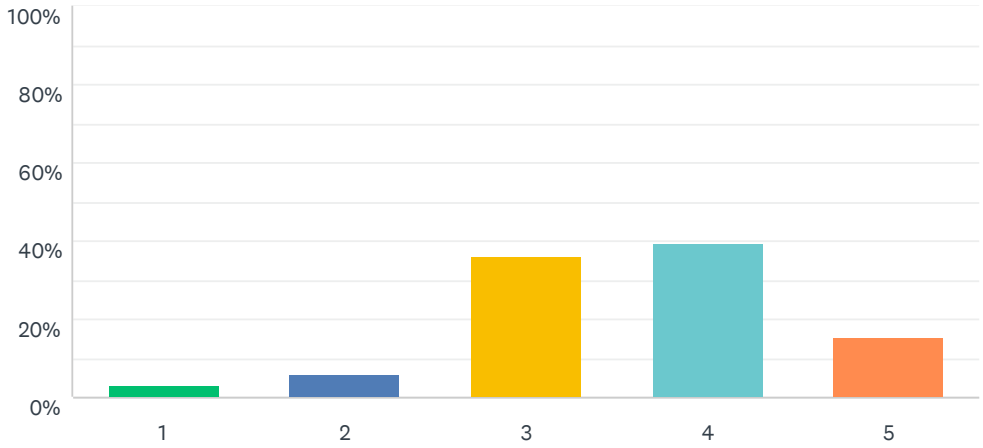
Answered: 36 Skipped: 6

#	RESPONSES	DATE
1	There are no advantages	8/9/2021 10:52 AM
2	The main advantage I see this year is the new trips added to the schedule. The disadvantage is the cutoff time of 6pm for the scoot.	6/14/2021 2:20 PM
3	-	6/14/2021 2:03 PM
4	-	6/14/2021 1:54 PM
5	na	6/11/2021 2:36 PM
6	na	6/11/2021 2:31 PM
7	Having to travel by boat but your life is predicted by a schedule and having to plan everything around the boat schedule.	5/27/2021 10:07 AM
8	Advantage - Security/ safe environment. Everyone knows everyone. Disadvantage - Non-members and members occasionally see it as a place without rules due its isolation lack and lack of services (ie. police presence).	5/26/2021 11:11 AM
9	It would just be so much easier.No line ups and always getting to and fro when you want	5/25/2021 8:05 PM
10	Overflow and scheduling. It is ridiculous that we have to stress or go down to line up for our own transportation to and from our actual homes 45 minutes to an hour early just to get home or leave the reservation. If you want to relieve members of stressors. Due mainly to mental health stressing over the transportation issues. Make OUR PEOPLE the PRIORITY, NOT the COTTAGERS! They are only here because of a few members, not the community as a whole and it speaks volumes that priority always seems to go to them and not the actual First Nation Members as a whole. What we do now in this time impacts heavily on our 7-14 generations after us and we need to be very mindful of that!!	5/25/2021 4:02 PM
11	No late ferry	5/25/2021 2:54 PM
12	Without them we have nothing.	5/25/2021 1:08 PM
13	Advantages - easy to use, convenient, quick Disadvantage - cost	5/25/2021 10:47 AM
14	Safer	5/25/2021 10:32 AM
15	for medical appointments	5/25/2021 9:45 AM
16	quicker and more accessable	5/25/2021 9:42 AM
17	main advantage- always have access to mainland and their services. disadvantage- cottagers and others accessing the island all year.	5/25/2021 8:19 AM
18	Safe travel	5/22/2021 10:49 AM
19	Larger craft with more passenger capacity will help with the waiting but would this cause a safety issue with a heavier craft?	5/22/2021 8:46 AM
20	It makes sense for members that want to get over quick if the they don't have their own boat and a vehicle already at the dock to get home.	5/21/2021 12:50 PM
21	advantages would be safety for our be in summer and winter for emergency trips. Our children could attend sport and other activities on main land and not have to board over on the main	5/21/2021 12:06 PM

	land. our members would be able to work over on the main land and get home each day. also we would be able to get material over faster for housing etc.	
22	Not sure how to improve quality for members without allowing more cottagers and visitors to the island. Which is a huge disadvantage. Unless the cottagers are limited, because during the busy seasons it would leave more room for band members to come home and not wait for the next trip.	5/21/2021 9:15 AM
23	Disadvantages is we have to pay	5/21/2021 9:01 AM
24	The main disadvantage is the wait time to get home with groceries. It is very frustrating that I have to pick a day to take off work to do a grocery shopping just so I don't have to worry and fight to get home in time so my groceries aren't spoiled.	5/21/2021 8:46 AM
25	Be quick ride over unles yiu crash !	5/20/2021 11:33 PM
26	.	5/20/2021 7:50 PM
27	None	5/20/2021 7:32 PM
28	Ease of being able to come and go at any time	5/20/2021 6:31 PM
29	Not sure how to answer	5/20/2021 5:45 PM
30	The disadvantage is nothing going on to help Our ppl that are struggling	5/20/2021 4:45 PM
31	Advantages to having a bridge to get to the island I feel would benefit everyone on the island causing members and non members to have less stress and cause them. To no longer have to worry about being late for the ferry or an appointment and wouldn’t have to worry about missing the last boat to get home or if there were an appointment far away they wouldn’t have to worry about getting there on time as much	5/20/2021 4:40 PM
32	More trips or a bridge would allow people to get jobs on mainland A bridge would bring more unwanted people to island.	5/20/2021 4:23 PM
33	convenience and less stress and less financial strain	5/20/2021 3:48 PM
34	Too many tourists	5/20/2021 3:36 PM
35	Boat is safer, scoot is too rough. Paying for transportation to go home to our home where we live. Too many cottagers using the ferry and too many times missing boats because of overflow of cottagers and cars.	5/20/2021 3:21 PM
36	N/a	5/20/2021 3:20 PM

Q30 On a scale of 1 to 5, how would you rate your overall physical health? (1 = Bad, 5 = Very Good)

Answered: 33 Skipped: 9

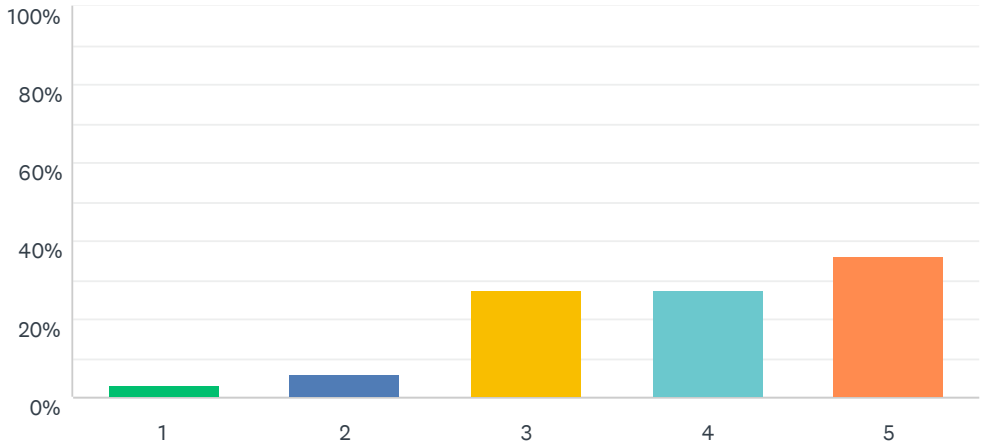


ANSWER CHOICES	RESPONSES	
1	3.03%	1
2	6.06%	2
3	36.36%	12
4	39.39%	13
5	15.15%	5
TOTAL		33

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	I am overall healthy but need to take odd trip to the doctors.	6/14/2021 2:21 PM
2	I'm ok I have diabetes and aching shoulders	5/26/2021 9:48 AM
3	no one in our family has ongoing medical issues, except for 1 anaphylactic allergy	5/25/2021 10:55 AM
4	I am in good health, any issues are controlled through medication.	5/25/2021 9:48 AM
5	Nothing wrong with my physical health.	5/25/2021 8:23 AM
6	Have some chronic illness's that require regular appts with drs	5/22/2021 8:51 AM
7	Always room for improvement but with covid, physical health has taken a hit.	5/21/2021 9:25 AM
8	I smoke	5/21/2021 9:05 AM
9	I am getting older and finding that my body is having a few issues but nothing to go to the doctors on a regular basis	5/21/2021 8:52 AM
10	Number 4	5/20/2021 11:36 PM
11	Aging	5/20/2021 6:36 PM
12	Very active, little or no health issues	5/20/2021 3:57 PM
13	I'm healthy and well, I look after myself	5/20/2021 3:54 PM
14	Smoking taking a toll	5/20/2021 3:24 PM

Q31 On a scale of 1 to 5, how would you rate your overall mental health? (1 = Bad, 5 = Very Good)

Answered: 33 Skipped: 9

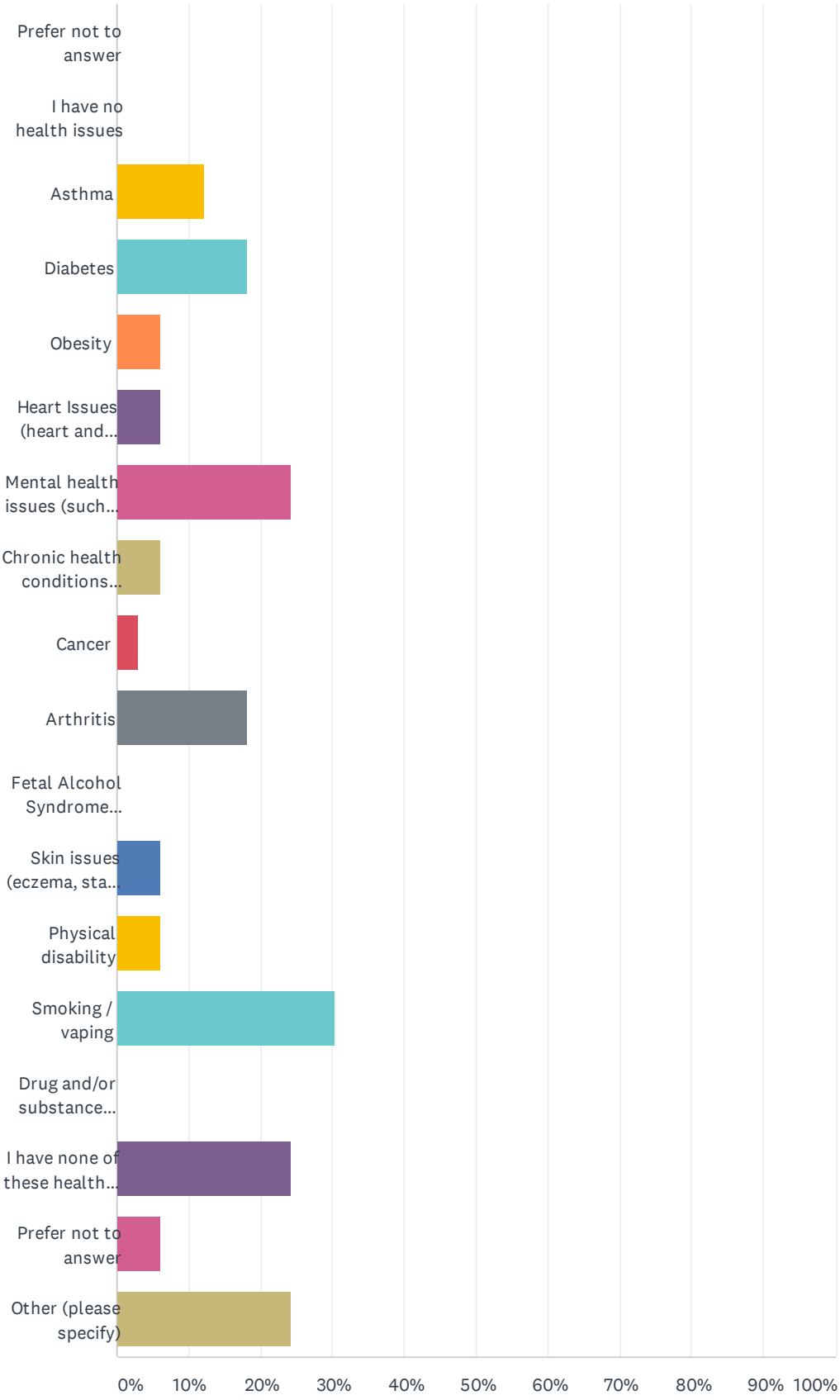


ANSWER CHOICES	RESPONSES	
1	3.03%	1
2	6.06%	2
3	27.27%	9
4	27.27%	9
5	36.36%	12
TOTAL		33

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	Try to keep my mental health in order	5/26/2021 9:48 AM
2	5/6 of us have good mental health, one family member have received counselling for social anxiety	5/25/2021 10:55 AM
3	I'm content and optimistic at all times.	5/25/2021 9:48 AM
4	Its different day to day. feel isolated.	5/25/2021 8:23 AM
5	This can vary from day to day and be influenced by different areas. Most days I'm content, some days I'm at a 1, some days I'm rocking a 5. But I usually stay at about a 4.	5/21/2021 9:25 AM
6	Suffer from childhood trauma	5/21/2021 9:05 AM
7	I have the same routine as pre covid so nothing has changed for me	5/21/2021 8:52 AM
8	Very clear !	5/20/2021 11:36 PM
9	Aging	5/20/2021 6:36 PM
10	I don’t worry about things I can’t change	5/20/2021 3:57 PM
11	I practice self care but stress can affect one's mental health and sometimes things can be stressful.	5/20/2021 3:54 PM
12	Just cause of wat I've been through	5/20/2021 3:24 PM

Q32 Which of the following health issues do you have? Check all that apply.

Answered: 33 Skipped: 9

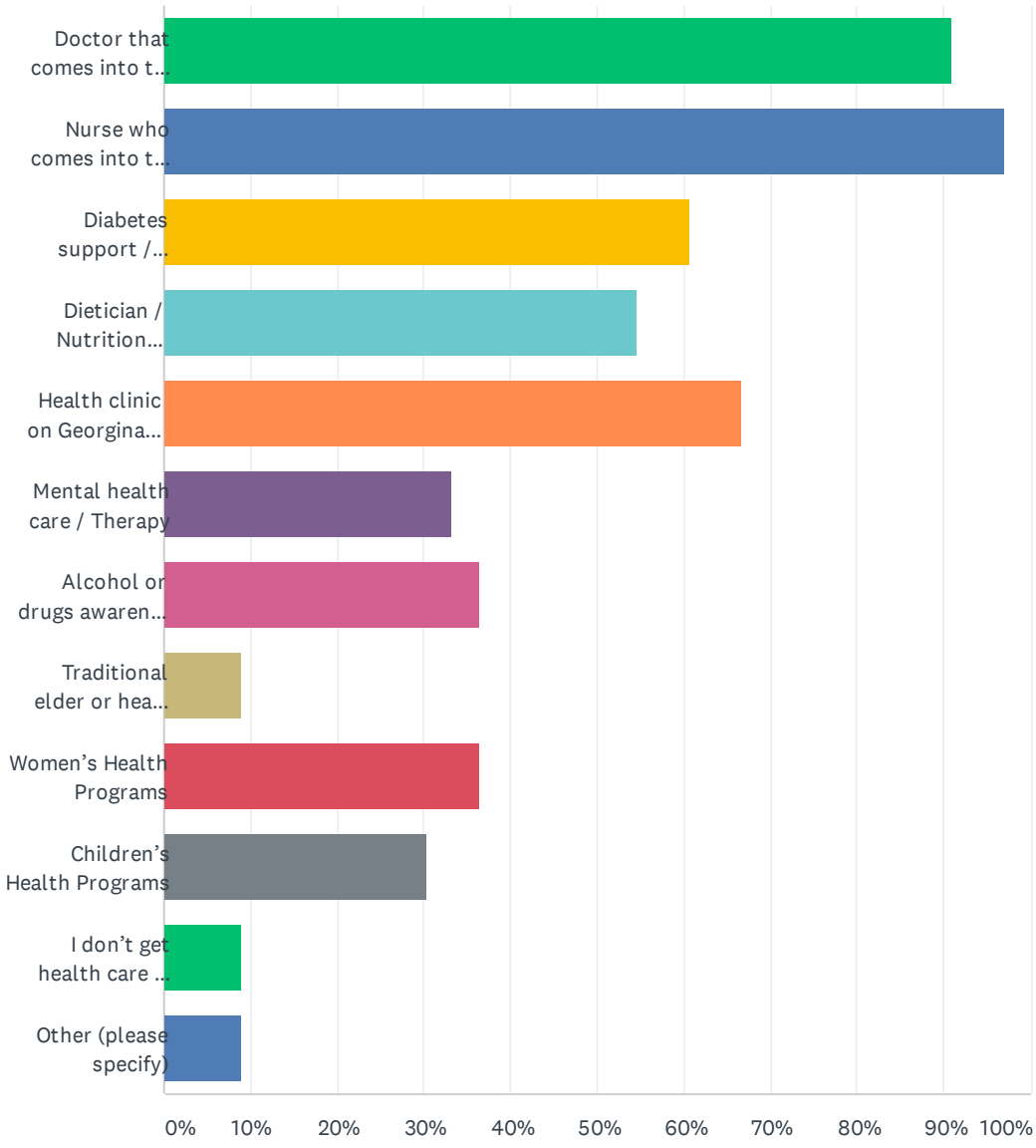

Prefer not to answer
I have no health issues
Asthma
Diabetes
Obesity
Heart Issues (heart and...
Mental health issues (such...
Chronic health conditions...
Cancer
Arthritis
Fetal Alcohol Syndrome...
Skin issues (eczema, sta...
Physical disability
Smoking / vaping
Drug and/or substance...
I have none of these health...
Prefer not to answer
Other (please specify)
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

ANSWER CHOICES	RESPONSES	
Prefer not to answer	0.00%	0
I have no health issues	0.00%	0
Asthma	12.12%	4
Diabetes	18.18%	6
Obesity	6.06%	2
Heart Issues (heart and stroke)	6.06%	2
Mental health issues (such as depression, anxiety, etc.)	24.24%	8
Chronic health conditions (chronic pain, etc.)	6.06%	2
Cancer	3.03%	1
Arthritis	18.18%	6
Fetal Alcohol Syndrome Disorder and associated symptoms	0.00%	0
Skin issues (eczema, staph infections, etc.)	6.06%	2
Physical disability	6.06%	2
Smoking / vaping	30.30%	10
Drug and/or substance additions	0.00%	0
I have none of these health issues	24.24%	8
Prefer not to answer	6.06%	2
Other (please specify)	24.24%	8
Total Respondents: 33		

#	OTHER (PLEASE SPECIFY)	DATE
1	High Blood Pressure	5/26/2021 11:14 AM
2	My husband however has diabetes and lung issues	5/25/2021 8:20 PM
3	Battling Breast Cancer almost at the end of it now yay!!!	5/25/2021 4:28 PM
4	Hypoglycemic	5/25/2021 2:56 PM
5	high blood pressure	5/25/2021 9:48 AM
6	My children have asthma and excema. I checked off on their behalf.	5/21/2021 9:25 AM
7	Past trauma	5/21/2021 9:05 AM
8	I have none of those.	5/20/2021 3:54 PM

Q33 What health care services offered on Georgina Island are you aware of? Check all that apply.

Answered: 33 Skipped: 9

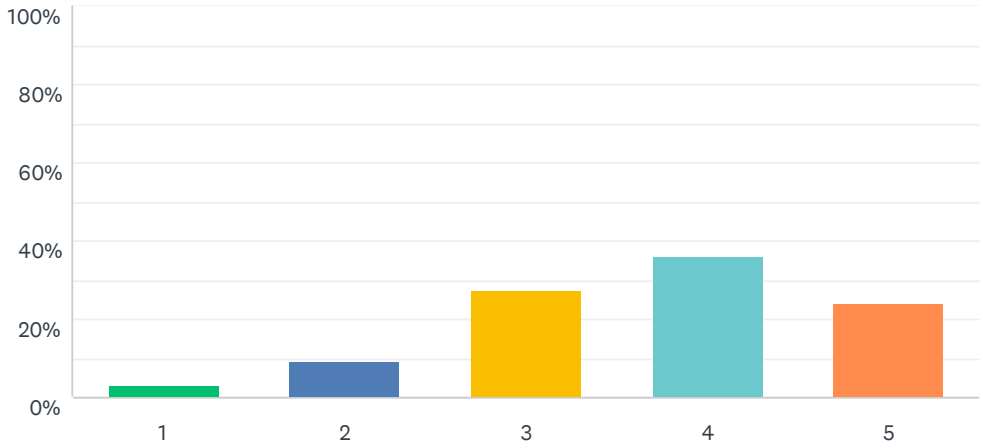


ANSWER CHOICES	RESPONSES	
Doctor that comes into the community	90.91%	30
Nurse who comes into the community	96.97%	32
Diabetes support / Diabetes clinic	60.61%	20
Dietician / Nutrition support	54.55%	18
Health clinic on Georgina Island with in-community access to nurse	66.67%	22
Mental health care / Therapy	33.33%	11
Alcohol or drugs awareness program	36.36%	12
Traditional elder or healer in the community	9.09%	3
Women's Health Programs	36.36%	12
Children's Health Programs	30.30%	10
I don't get health care in my community; I go to the mainland to access health care	9.09%	3
Other (please specify)	9.09%	3
Total Respondents: 33		

#	OTHER (PLEASE SPECIFY)	DATE
1	When I got out of treatment there was no aftercare so I had to go to mainland	5/26/2021 9:48 AM
2	I also go to the mainland for mental health care not here on the FN. I also go to the mainland for Cultural support not here on the Island.	5/25/2021 4:28 PM
3	massage, foot care	5/25/2021 10:55 AM

Q34 On a scale of 1 to 5, how would you rate your overall access to the health services offered on the island? (1 = Bad, 5 = Very Good)

Answered: 33 Skipped: 9



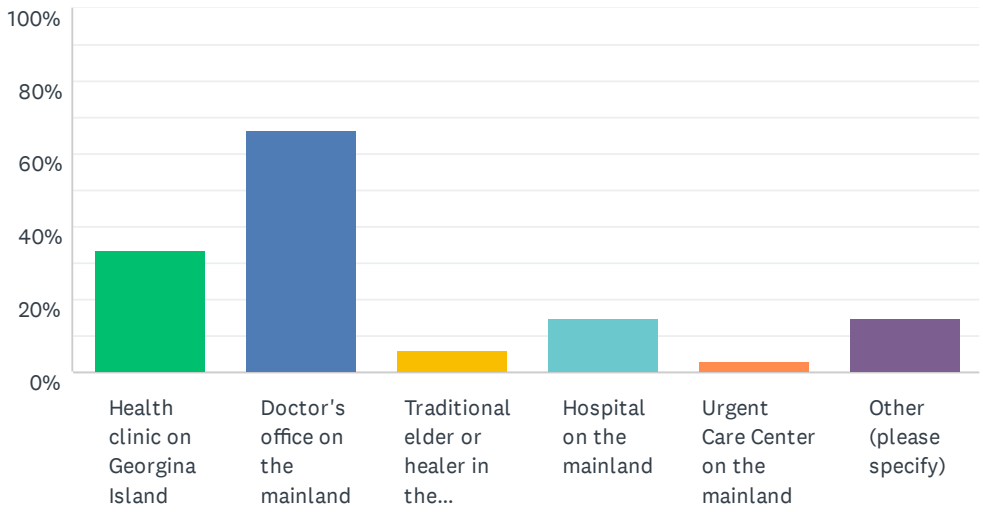
ANSWER CHOICES	RESPONSES	
1	3.03%	1
2	9.09%	3
3	27.27%	9
4	36.36%	12
5	24.24%	8
TOTAL		33

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	The First Nation offers a lot of support in health services and tries to accommodate members needs.	5/27/2021 10:11 AM
2	If you need help Just ask someone	5/26/2021 9:48 AM
3	it's ok. It's good that we the doctor visits monthly, although some problems cannot wait a month until his next visit. We are a small community, so it wouldn't be practical to have acute/specialist/residential healthcare on the island. It is better to access quality experienced specialized care on the mainland.	5/25/2021 10:55 AM
4	We have amazing programs for diabetes, healthy babies, cancer screenings. I feel very comfortable going into the medical centre. Confidence in the staff when asking questions related to mine and my families health	5/22/2021 8:51 AM
5	poor communication when doc. or nurse are coming over when health programs are offered .	5/21/2021 12:20 PM
6	From the services I've needed, I don't think I have any complaints. Thankful to be in a community that has what I have needed thus far.	5/21/2021 9:25 AM
7	Awesome	5/20/2021 11:36 PM
8	It’s a reservation, called a doctor on the mainland who ignored my emergency. I get better response to emergencies here on the island. The nurse and doctor are great	5/20/2021 3:57 PM
9	The hours are sometimes hard to access if you work on the mainland. Unless your unemployed or have a band job and can leave when you like its hard to take advantage of	5/20/2021 3:54 PM

workshops and services.

Q35 Where do you go most often when you are sick?

Answered: 33 Skipped: 9

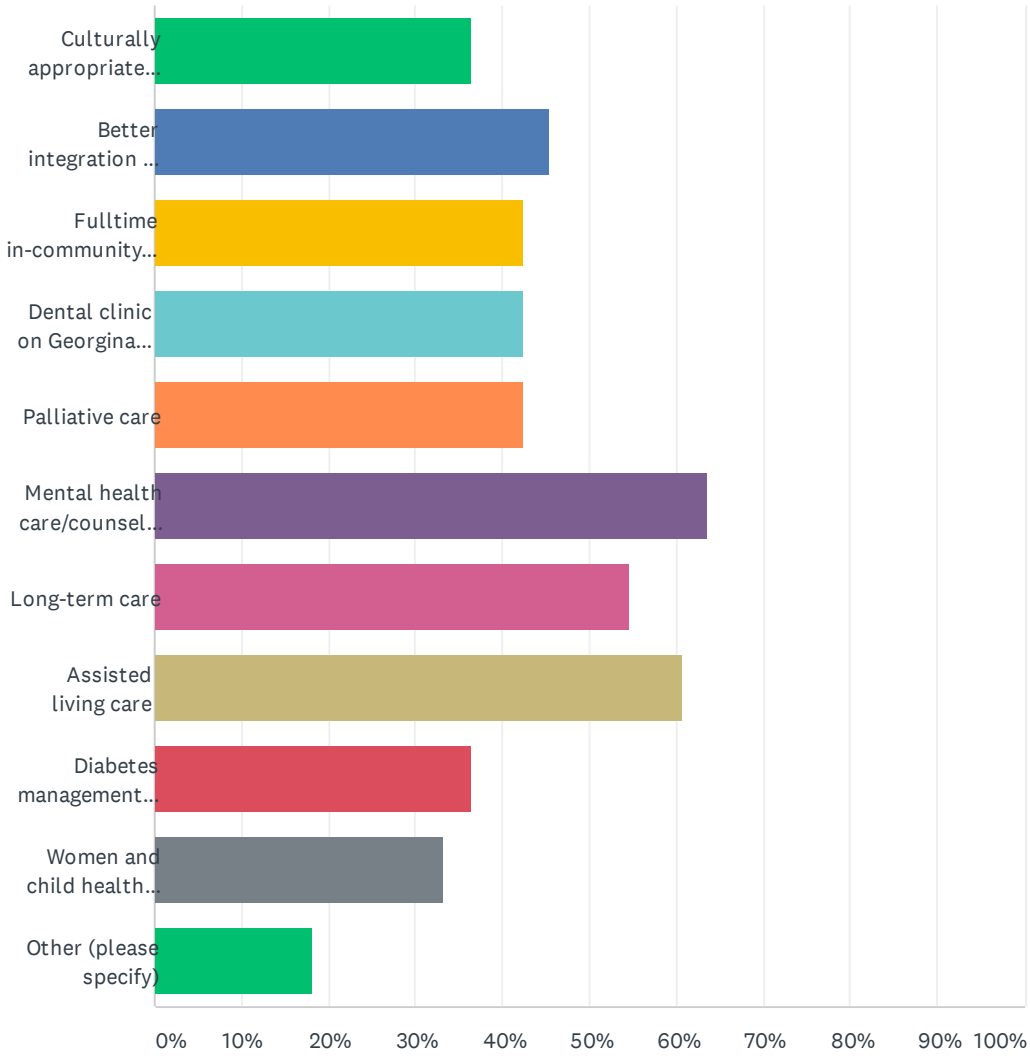


ANSWER CHOICES	RESPONSES	
Health clinic on Georgina Island	33.33%	11
Doctor's office on the mainland	66.67%	22
Traditional elder or healer in the community	6.06%	2
Hospital on the mainland	15.15%	5
Urgent Care Center on the mainland	3.03%	1
Other (please specify)	15.15%	5
Total Respondents: 33		

#	OTHER (PLEASE SPECIFY)	DATE
1	health clinic in sutton? button?	6/11/2021 2:37 PM
2	Depends on the severity of the sickness.	5/21/2021 9:25 AM
3	To my bed	5/20/2021 11:36 PM
4	Home	5/20/2021 5:48 PM
5	No where	5/20/2021 3:24 PM

Q36 What health care services do you think the GIFN community is in need of?

Answered: 33 Skipped: 9

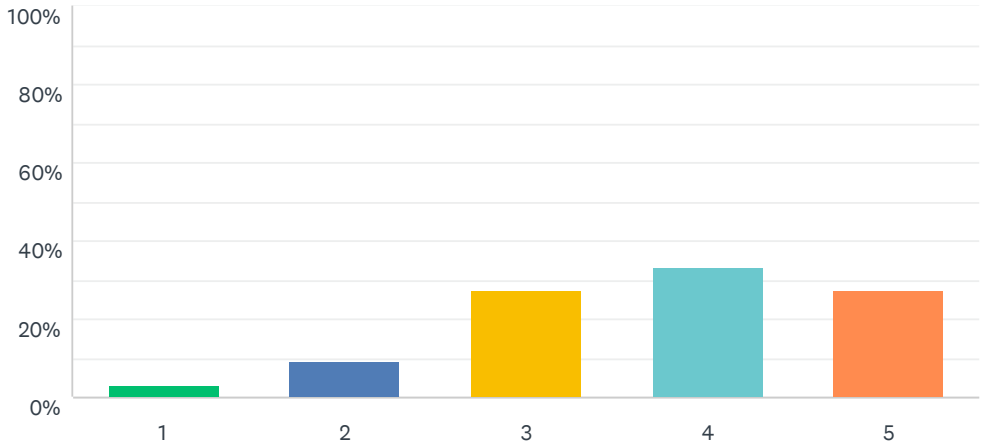


ANSWER CHOICES	RESPONSES	
Culturally appropriate healthcare (i.e., nurses and doctors that speak our native language, using our medicine to help us heal, etc.)	36.36%	12
Better integration of traditional healing methods into the community health care services	45.45%	15
Fulltime in-community doctors and nurses on Georgina Island	42.42%	14
Dental clinic on Georgina Island	42.42%	14
Palliative care	42.42%	14
Mental health care/counselling	63.64%	21
Long-term care	54.55%	18
Assisted living care	60.61%	20
Diabetes management clinic	36.36%	12
Women and child health care services	33.33%	11
Other (please specify)	18.18%	6
Total Respondents: 33		

#	OTHER (PLEASE SPECIFY)	DATE
1	If it is at all possible to provide or start providing everything we may need for our over all well-being, in our home community, why not do it or try our best to accomplish it. As well, using actual cultural advisers in our community that have years of experience under there belts and are willing to mentor our youth. As well as pulling different community members out of the woodwork to share what they may carry in terms of knowledge. A lot maybe just have not been approached before. What I find here on Georgina Island is that “Culture and Language isn’t always shared around the community in a good way.” I’m not saying this is what happens always, I’m saying it happens and it is my opinion that some people proclaim they are the go to for this knowledge in our community, meanwhile it is not shared in a positive way. It actually ends up being very ego based. There are pockets/groups of people doing different things and no one is sharing with the whole of the community. These groups don’t always allow others to participate and they don’t share with others easily. I have found it is a “look at me” based thing. It is done for acclamation/reward/spotlight. It would be nice if it was just done to share knowledge and grow as a community together. It reflects poorly on all of us as a whole. We have an amazing community with amazing people. Aho	5/25/2021 4:28 PM
2	Men and child services	5/21/2021 9:25 AM
3	After care and peer support	5/21/2021 9:05 AM
4	None	5/20/2021 11:36 PM
5	Mental health care for children and youth	5/20/2021 5:48 PM
6	N/a	5/20/2021 3:24 PM

Q37 On a scale of 1 to 5, how would you rate your overall access to healthcare (doctors, specialists, clinics, hospitals, etc.)? (1 = Bad, 5 = Very Good)

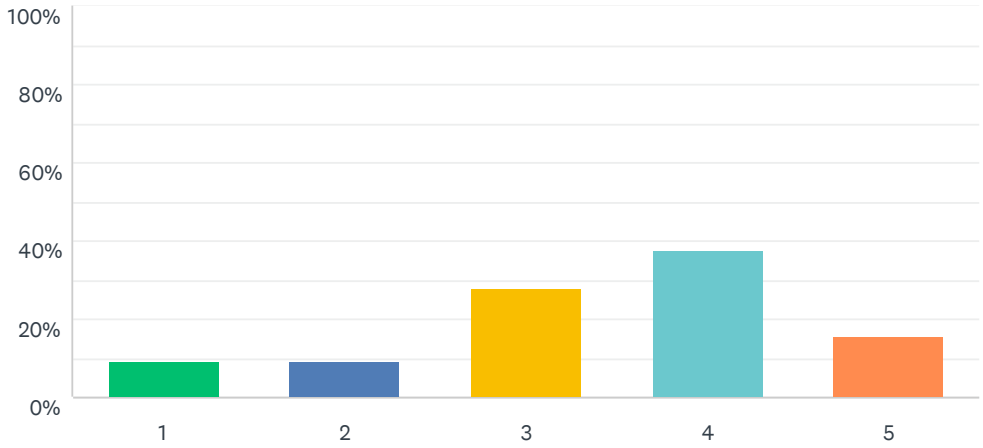
Answered: 33 Skipped: 9



ANSWER CHOICES	RESPONSES	
1	3.03%	1
2	9.09%	3
3	27.27%	9
4	33.33%	11
5	27.27%	9
TOTAL		33

Q38 On a scale of 1 to 5, how would you rate your overall access to emergency healthcare services off the Island (emergency doctors, specialists, clincs, hospitals, etc.)? (1 = Bad, 5 = Very Good)

Answered: 32 Skipped: 10

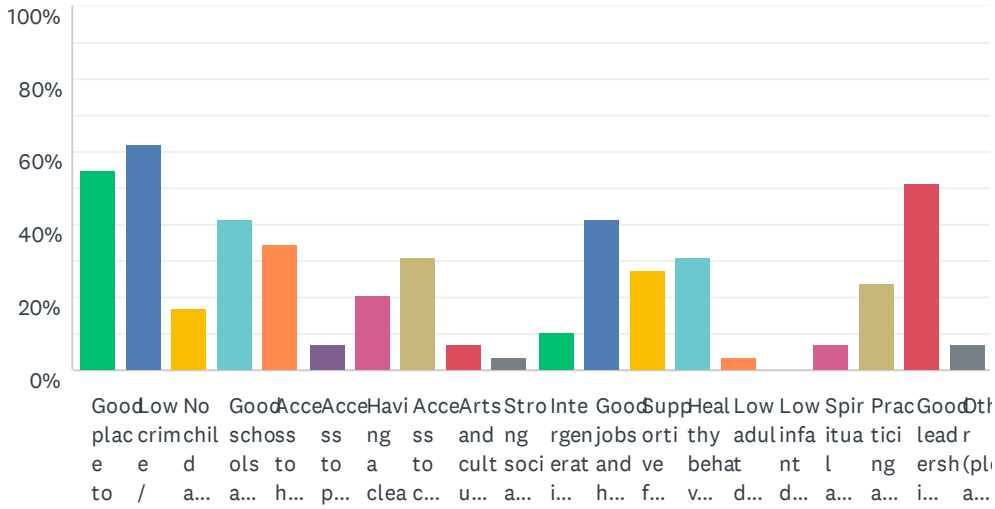


ANSWER CHOICES	RESPONSES	
1	9.38%	3
2	9.38%	3
3	28.13%	9
4	37.50%	12
5	15.63%	5
TOTAL		32

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	We are situated near a couple of hospitals but our limited by transportation.	5/27/2021 10:11 AM
2	You are on a schedule Rush here and rush there	5/26/2021 9:48 AM
3	It's pretty good. Just have to travel to get there.	5/25/2021 10:55 AM
4	It is difficult when the ferry and scoot are down for thr night. Or missing the ferry for one of these appointments is hard.	5/21/2021 9:25 AM
5	Fast	5/20/2021 11:36 PM
6	I got ignored by the doctor when I called regarding an emergency	5/20/2021 3:57 PM
7	hard to get over quickly in an emergency	5/20/2021 3:54 PM

Q39 In the following list, what do you think are the five (5) most important factors for a “Healthy Community?” (Those factors which most improve the quality of life in a community.)

Answered: 29 Skipped: 13

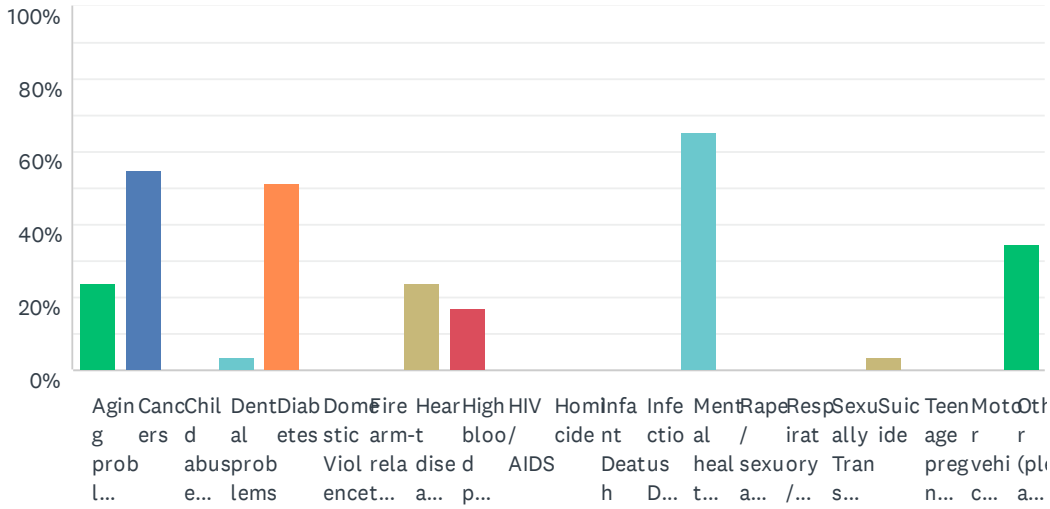


ANSWER CHOICES	RESPONSES	
Good place to raise children	55.17%	16
Low crime / safe neighbourhoods	62.07%	18
No child abuse	17.24%	5
Good schools and access to them	41.38%	12
Access to health care (e.g., family doctor)	34.48%	10
Access to parks and recreation	6.90%	2
Having a clean environment	20.69%	6
Access to clean and affordable housing	31.03%	9
Arts and cultural events	6.90%	2
Strong social ties across the community	3.45%	1
Intergenerational environmental and cultural knowledge	10.34%	3
Good jobs and healthy economy	41.38%	12
Supportive family life	27.59%	8
Healthy behaviors and lifestyles	31.03%	9
Low adult death and disease rates	3.45%	1
Low infant death rates	0.00%	0
Spiritual and Religious values	6.90%	2
Practicing and teaching traditional culture	24.14%	7
Good leadership and governance	51.72%	15
Other (please specify):	6.90%	2
Total Respondents: 29		

#	OTHER (PLEASE SPECIFY):	DATE
1	Religion and Spirituality are not the same thing.	5/25/2021 4:32 PM
2	I feel all of these need improvement	5/21/2021 9:10 AM

Q40 In the following list, what do you think are the three (3) most concerning “health problems” in your community? (Those problems which have the greatest impact on overall community health.)

Answered: 29 Skipped: 13

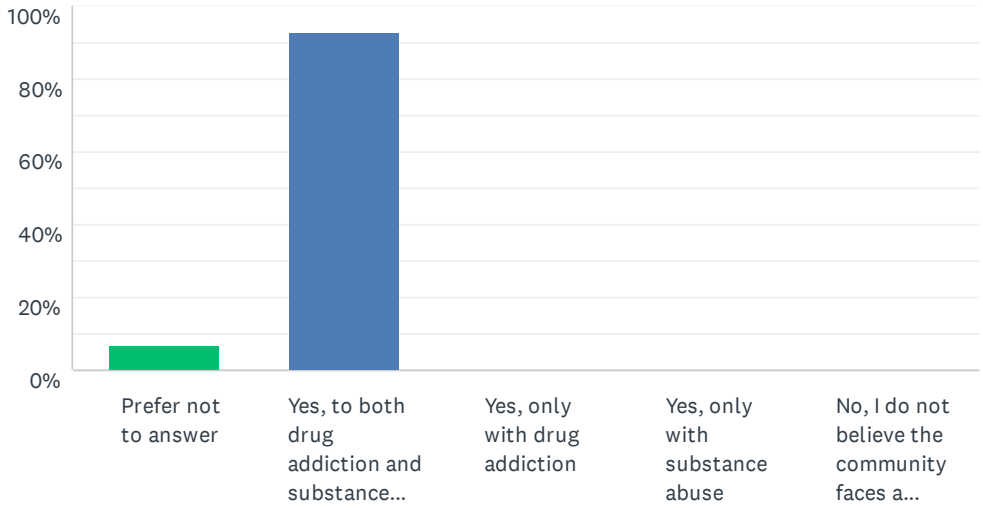


ANSWER CHOICES	RESPONSES	
Aging problems (e.g., arthritis, hearing/vision loss, etc.)	24.14%	7
Cancers	55.17%	16
Child abuse / neglect	0.00%	0
Dental problems	3.45%	1
Diabetes	51.72%	15
Domestic Violence	0.00%	0
Firearm-related injuries	0.00%	0
Heart disease and stroke	24.14%	7
High blood pressure	17.24%	5
HIV / AIDS	0.00%	0
Homicide	0.00%	0
Infant Death	0.00%	0
Infectious Diseases (e.g., hepatitis, TB, etc.)	0.00%	0
Mental health problems	65.52%	19
Rape / sexual assault	0.00%	0
Respiratory / lung disease	0.00%	0
Sexually Transmitted Diseases (STDs)	0.00%	0
Suicide	3.45%	1
Teenage pregnancy	0.00%	0
Motor vehicle crash injuries	0.00%	0
Other (please specify)	34.48%	10
Total Respondents: 29		

#	OTHER (PLEASE SPECIFY)	DATE
1	addictions	8/9/2021 10:57 AM
2	alcoholism	6/14/2021 2:05 PM
3	drug addiction	6/11/2021 2:32 PM
4	Drugs	5/25/2021 8:33 PM
5	Drugs and Alcohol	5/25/2021 4:32 PM
6	Loss of culture	5/21/2021 9:10 AM
7	Drugs are the #1 problem on this reserve!!	5/21/2021 8:55 AM
8	Drug use and abuse	5/20/2021 4:46 PM
9	Drugs/alcohol	5/20/2021 4:28 PM
10	Addictions, the way people eat!	5/20/2021 3:59 PM

Q41 Do you believe the community faces a challenge with drug addiction and substance abuse?

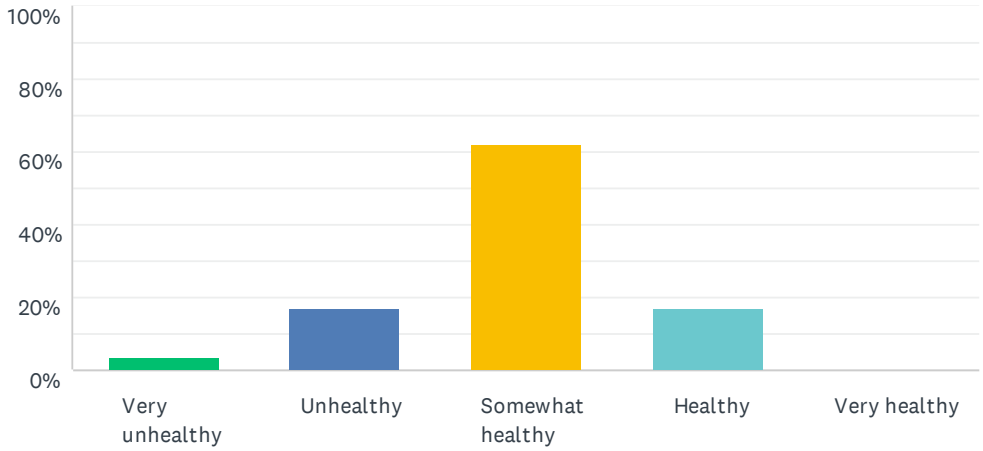
Answered: 29 Skipped: 13



ANSWER CHOICES	RESPONSES	
Prefer not to answer	6.90%	2
Yes, to both drug addiction and substance abuse	93.10%	27
Yes, only with drug addiction	0.00%	0
Yes, only with substance abuse	0.00%	0
No, I do not believe the community faces a challenge with drug addiction and substance abuse	0.00%	0
TOTAL		29

Q42 How would you rate the overall physical health condition of your community?

Answered: 29 Skipped: 13

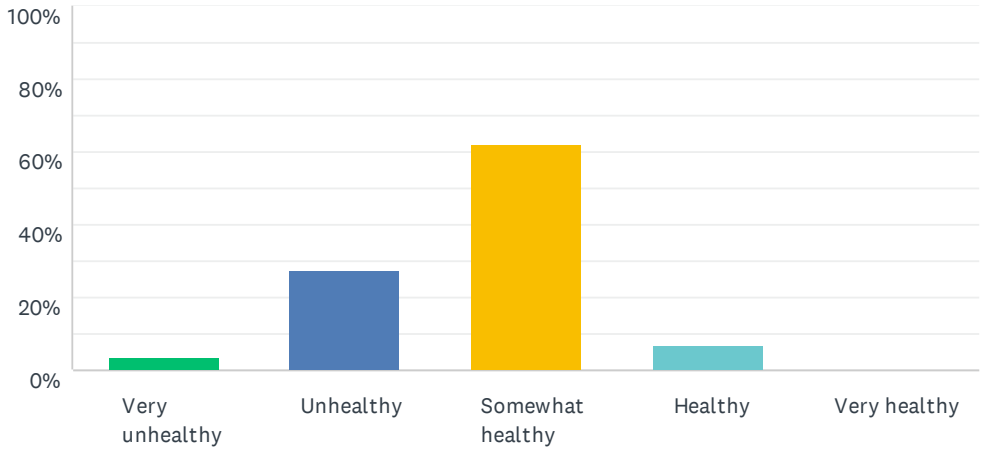


ANSWER CHOICES	RESPONSES	
Very unhealthy	3.45%	1
Unhealthy	17.24%	5
Somewhat healthy	62.07%	18
Healthy	17.24%	5
Very healthy	0.00%	0
TOTAL		29

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	I notice cancer is on the rise in our community	6/14/2021 2:22 PM
2	Many services are available, there's gym to access, outdoor rink, Trails to walk on and a park at sandy beach.	5/27/2021 10:16 AM
3	There seems to be more community members with drug and alcohol addictions or the lasting effects, and there seems to be more cancers and tumors in the community than would be expected elsewhere.	5/25/2021 11:05 AM
4	Our community is divided. We need to come together to heal	5/21/2021 9:10 AM
5	Other than “normal” illnesses the community appears healthy to me	5/20/2021 4:32 PM
6	Diet is an issue, causing all sorts of health issues	5/20/2021 3:59 PM

Q43 How would you rate the overall mental health condition of your community?

Answered: 29 Skipped: 13

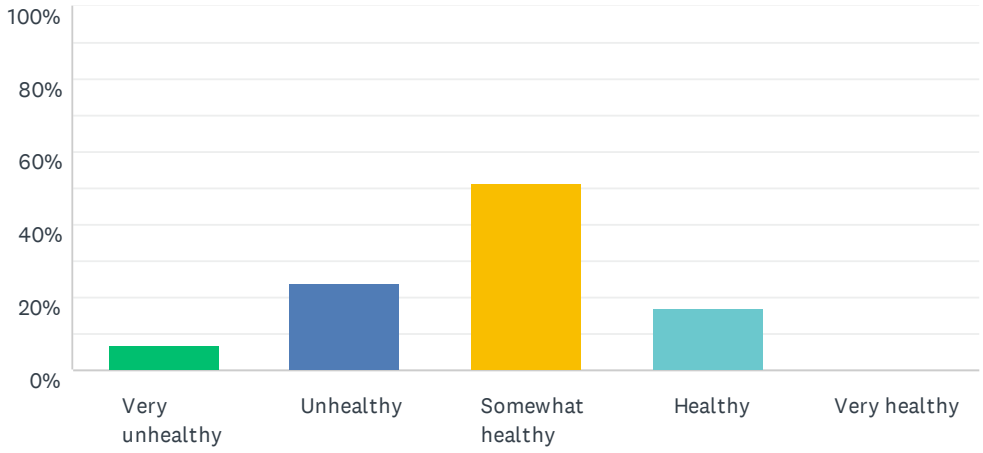


ANSWER CHOICES	RESPONSES	
Very unhealthy	3.45%	1
Unhealthy	27.59%	8
Somewhat healthy	62.07%	18
Healthy	6.90%	2
Very healthy	0.00%	0
TOTAL		29

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	I think we need more counsellors on the Island. I have had a few people tell me that they don't want to live anymore.	6/14/2021 2:22 PM
2	Concerns with young people being on social media and not socializing in person, anxiety issues and concerns with access to drugs.	5/27/2021 10:16 AM
3	A lot of young males with mental health problems	5/25/2021 8:33 PM
4	There are addicts and there are also those with developmental disabilities and children with disabilities as a result of their parents' addictions. There is also a need for counselling and psychological care that hasn't been filled since our psychiatrist passed away. Lots of people who were receiving counselling for many different reasons have been left on their own. There is also an unusual number of people who don't leave their house or go to the mainland.	5/25/2021 11:05 AM
5	Drugs are taking over not just pot etc out hard hard drugs. Crack cocaine fentanyl oxy etc	5/22/2021 9:01 AM
6	We are divided and dislocated from our culture	5/21/2021 9:10 AM
7	I've been here for a short time. Somewhat unaware of all that goes on	5/20/2021 4:32 PM
8	We have lots of mental health issues in our community	5/20/2021 3:59 PM

Q44 How would you rate the overall cultural and spiritual health condition of your community?

Answered: 29 Skipped: 13

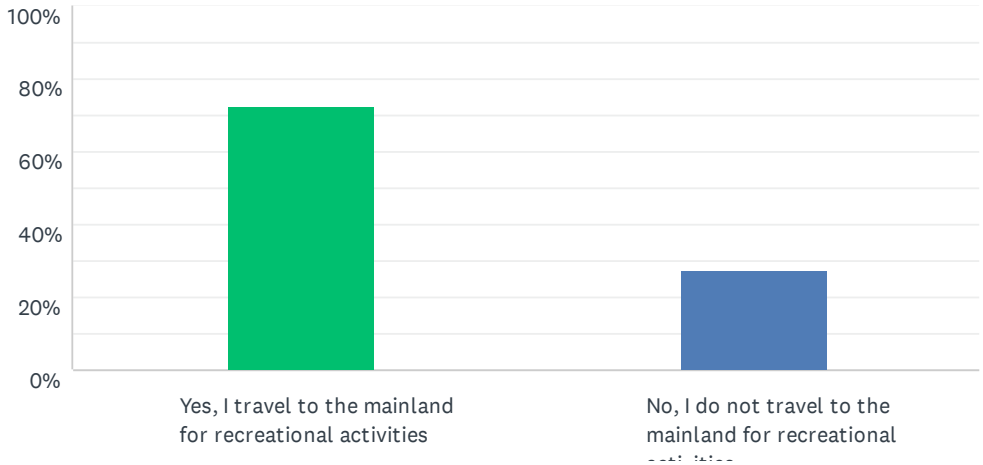


ANSWER CHOICES	RESPONSES	
Very unhealthy	6.90%	2
Unhealthy	24.14%	7
Somewhat healthy	51.72%	15
Healthy	17.24%	5
Very healthy	0.00%	0
TOTAL		29

#	PLEASE EXPLAIN YOUR SELECTION:	DATE
1	we need more spiritual and cultural programs in our community	6/14/2021 2:22 PM
2	unsure	6/14/2021 2:05 PM
3	Workshops being offered on cultural teachings, members learning and teaching our traditions in a good way. Cultural teachers need to be positive.	5/27/2021 10:16 AM
4	We have strong family connections and visit with family often. There is a gap, where traditions have been lost, but more community members are learning about traditional ways from other communities.	5/25/2021 11:05 AM
5	Such a huge divide in our community. It makes you hesitant to even hold a cultural program because everyone shoots it down.	5/22/2021 9:01 AM
6	No trust in leadership and divided ad a community	5/21/2021 9:10 AM
7	Somewhat new to the island	5/20/2021 4:32 PM
8	There needs to be more priority on this because people do not realize how much this is related to the mental health issues, people need to put religion aside and realize cultural and spiritual health is a different thing altogether	5/20/2021 3:59 PM

Q45 Do you travel to the mainland for recreational activities? Recreational activities are activities that you do for fun. Some examples of recreational activities are joining sports teams, taking music or art lessons, or joining programmed activities.

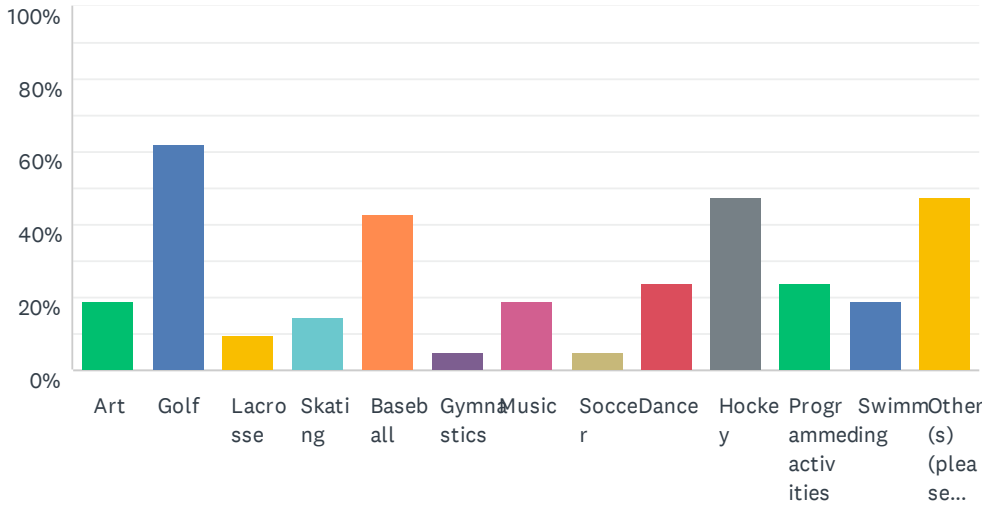
Answered: 29 Skipped: 13



ANSWER CHOICES	RESPONSES	
Yes, I travel to the mainland for recreational activities	72.41%	21
No, I do not travel to the mainland for recreational activities	27.59%	8
TOTAL		29

Q46 Which recreational activities do you travel to the mainland for? Check all that apply.

Answered: 21 Skipped: 21



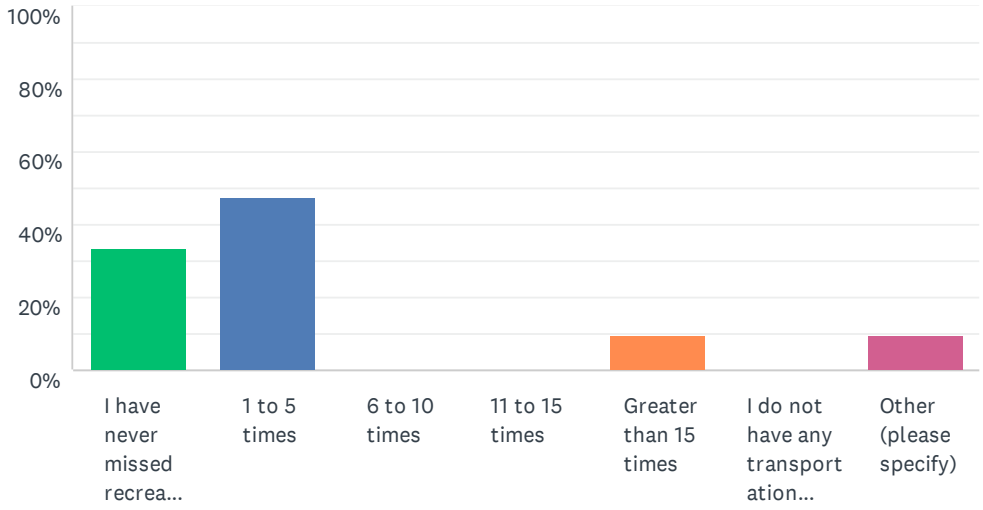
ANSWER CHOICES	RESPONSES	
Art	19.05%	4
Golf	61.90%	13
Lacrosse	9.52%	2
Skating	14.29%	3
Baseball	42.86%	9
Gymnastics	4.76%	1
Music	19.05%	4
Soccer	4.76%	1
Dance	23.81%	5
Hockey	47.62%	10
Programmed activities	23.81%	5
Swimming	19.05%	4
Other(s) (please specify):	47.62%	10
Total Respondents: 21		

#	OTHER(S) (PLEASE SPECIFY):	DATE
1	kickboxing	6/14/2021 2:23 PM
2	bingo, movies	6/14/2021 1:57 PM
3	bingo, concerts	6/11/2021 2:33 PM
4	Ball hockey	5/27/2021 10:19 AM

5	Swimming lessons	5/25/2021 8:36 PM
6	Karate	5/25/2021 2:59 PM
7	skiing, travel, hiking ,sight seeing, restaurants	5/25/2021 11:10 AM
8	These are for my kids.	5/21/2021 9:38 AM
9	Cultural healing and act	5/21/2021 9:12 AM
10	Library movie	5/20/2021 6:41 PM

Q47 In a typical year, how many times have you missed recreational activities because of a down ferry?

Answered: 21 Skipped: 21

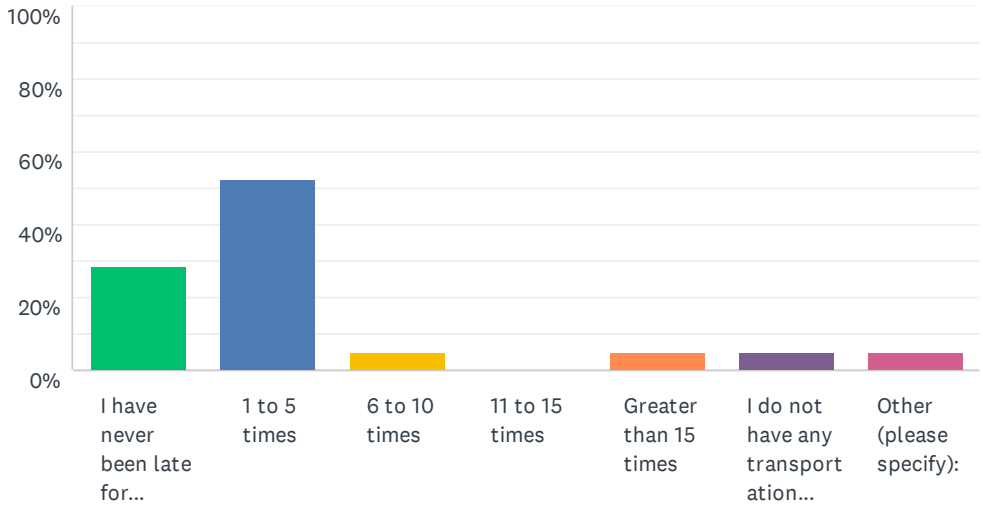


ANSWER CHOICES	RESPONSES	
I have never missed recreational actvities because of a down ferry	33.33%	7
1 to 5 times	47.62%	10
6 to 10 times	0.00%	0
11 to 15 times	0.00%	0
Greater than 15 times	9.52%	2
I do not have any transportation issues going back and forth between the mainland and Georgina Island	0.00%	0
Other (please specify)	9.52%	2
TOTAL		21

#	OTHER (PLEASE SPECIFY)	DATE
1	-	6/14/2021 1:57 PM
2	We have missed a couple of games in a season of baseball.	5/21/2021 9:00 AM

Q48 In a typical year, how many times have you been late for recreational activities because of a down ferry?

Answered: 21 Skipped: 21

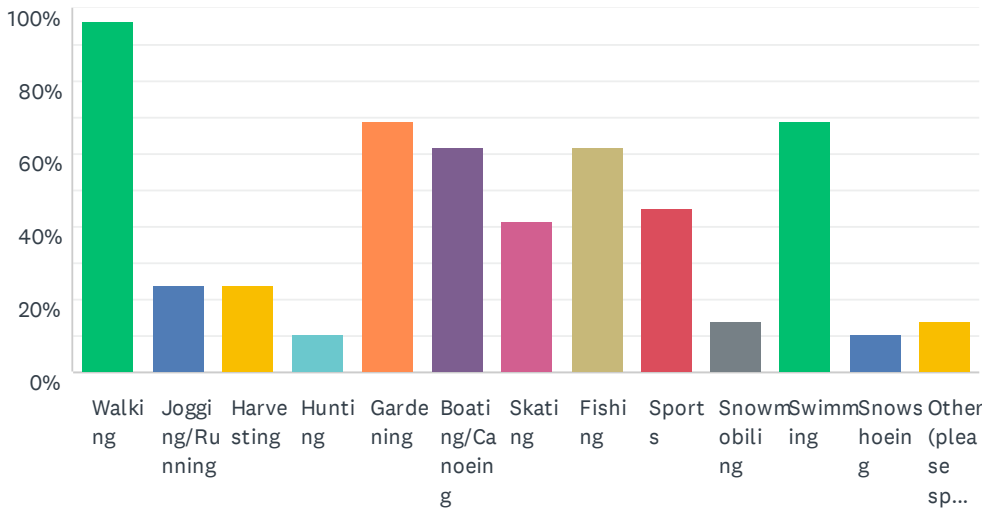


ANSWER CHOICES	RESPONSES	
I have never been late for recreational activities because of a down ferry	28.57%	6
1 to 5 times	52.38%	11
6 to 10 times	4.76%	1
11 to 15 times	0.00%	0
Greater than 15 times	4.76%	1
I do not have any transportation issues going back and forth between the mainland and Georgina Island	4.76%	1
Other (please specify):	4.76%	1
TOTAL		21

#	OTHER (PLEASE SPECIFY):	DATE
1	-	6/14/2021 1:57 PM

Q49 What outdoor activities do you do? Check all that apply.

Answered: 29 Skipped: 13



ANSWER CHOICES	RESPONSES	
Walking	96.55%	28
Jogging/Running	24.14%	7
Harvesting	24.14%	7
Hunting	10.34%	3
Gardening	68.97%	20
Boating/Canoeing	62.07%	18
Skating	41.38%	12
Fishing	62.07%	18
Sports	44.83%	13
Snowmobiling	13.79%	4
Swimming	68.97%	20
Snowshoeing	10.34%	3
Other (please specify)	13.79%	4
Total Respondents: 29		

#	OTHER (PLEASE SPECIFY)	DATE
1	golf	6/14/2021 2:06 PM
2	na	6/11/2021 2:38 PM
3	bike riding	6/11/2021 2:33 PM
4	skiing, hiking	5/25/2021 11:10 AM

Q50 Please list the ways (if any) that the current Island transportation affects your participation in recreational activities:

Answered: 17 Skipped: 25

#	RESPONSES	DATE
1	hard to plan activities off island	8/9/2021 10:59 AM
2	having to pay on the boat affects my participation in recreational events. I am on a tight budget.	6/14/2021 2:23 PM
3	there should be trips for the childrens sports	6/14/2021 1:57 PM
4	na	6/11/2021 2:38 PM
5	we need later trips for bingo and concerts. when I go to concerts I have to leave early because of the ferry schedule	6/11/2021 2:33 PM
6	The timing it takes on the ferry boat to get in line and go across plus the freeze and thaw up can make it dangerous to attend activities.	5/27/2021 10:19 AM
7	over-capacity	5/26/2021 11:18 AM
8	Time management. Work schedule.	5/25/2021 1:16 PM
9	we have to plan our schedule around the ferry boat schedule. Sometimes we cannot make it to early or late hockey games, especially if there is travel to another city for the game. Only certain swimming lessons fit with the ferry schedule. I can't do morning yoga or fitness because of having to go on the ferry boat and how long it would take to get there and back again. Any of the kids sports activities take more time because it takes about an hour longer to get there each way, including time in the ferry line-up.	5/25/2021 11:10 AM
10	You have to plan around the ferry schedule	5/25/2021 8:28 AM
11	Not at all	5/22/2021 10:55 AM
12	The current transportation does not cater to the early practices on weekends. Hockey will start at 7am on Saturdays and Sundays. In the winter, dance/gymnastics runs til 7pm and the last scoot is 6. Very disappointing and discouraging for both parents and the Littles.	5/21/2021 9:38 AM
13	Line ups due to cottagers and construction and broken ferry	5/21/2021 9:12 AM
14	When doing mainland sports it was how late the ferry ran on Monday and Wednesdays.	5/21/2021 9:00 AM
15	Not applicable to me	5/20/2021 4:33 PM
16	Can't get my kids to hockey or skating on time. Have to stay the night on mainland to get there on time	5/20/2021 4:30 PM
17	It's too much of a hassel to go over for recreational activities	5/20/2021 4:01 PM

APPENDIX C

STEERING COMMITTEE PRESENTATION

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Health Impact Assessment (HIA) of Transportation Options To and From Georgina Island

Steering Committee Meeting

August 4, 2021

Acknowledgement

We would like to begin today's meeting by acknowledging that the Health Impact Assessment is being conducted on lands originally and currently used and occupied by the First Peoples of the Williams Treaties First Nations and other Indigenous Peoples and thank them for sharing this land.

We would specifically like to thank the Chief, Council, and community members of the Chippewas of Georgina Island First Nation for their continuous assistance and input into this project. We would like to thank you, the Steering Committee members, for graciously taking the time to be a part of today's discussions.

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Outline

- Introductions
- Context of why we are meeting today
- Brief discussion on the Health Impact Assessment (HIA) Process
- Overview of this HIA Project
- Discussion on Survey Results
- Initial Determinants of Health
- Discussions revolving around finalizing the Determinants of Health



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Introductions



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Context of Project

- Chief and Council would like to evaluate the health impacts to Georgina Island First Nation (GIFN) community members from the current transportation options available to them.
- Intrinsik has been hired by Chief and Council, with assistance of Cambium Indigenous Professional Services (CIPS), to assist in the evaluation of the potential health impacts.
- To complete this assessment process, we will be using a Health Impact Assessment (HIA) framework.

Health Impact Assessment (HIA) looks at both the potential positive and negative health impacts of a project and how these impacts affect different groups of people within a community.

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Health Impact Assessment (HIA)

- The HIA process recognizes that health and well-being can be impacted by a wide range of factors referred to as “determinants of health”
  - We will talk more about this later in the presentation

- HIA includes information from many different sources:
  - ❑ Physical and environmental sciences
  - ❑ Social sciences and humanities
  - ❑ Health and medicine
  - ❑ Community knowledge
  - ❑ Traditional knowledge



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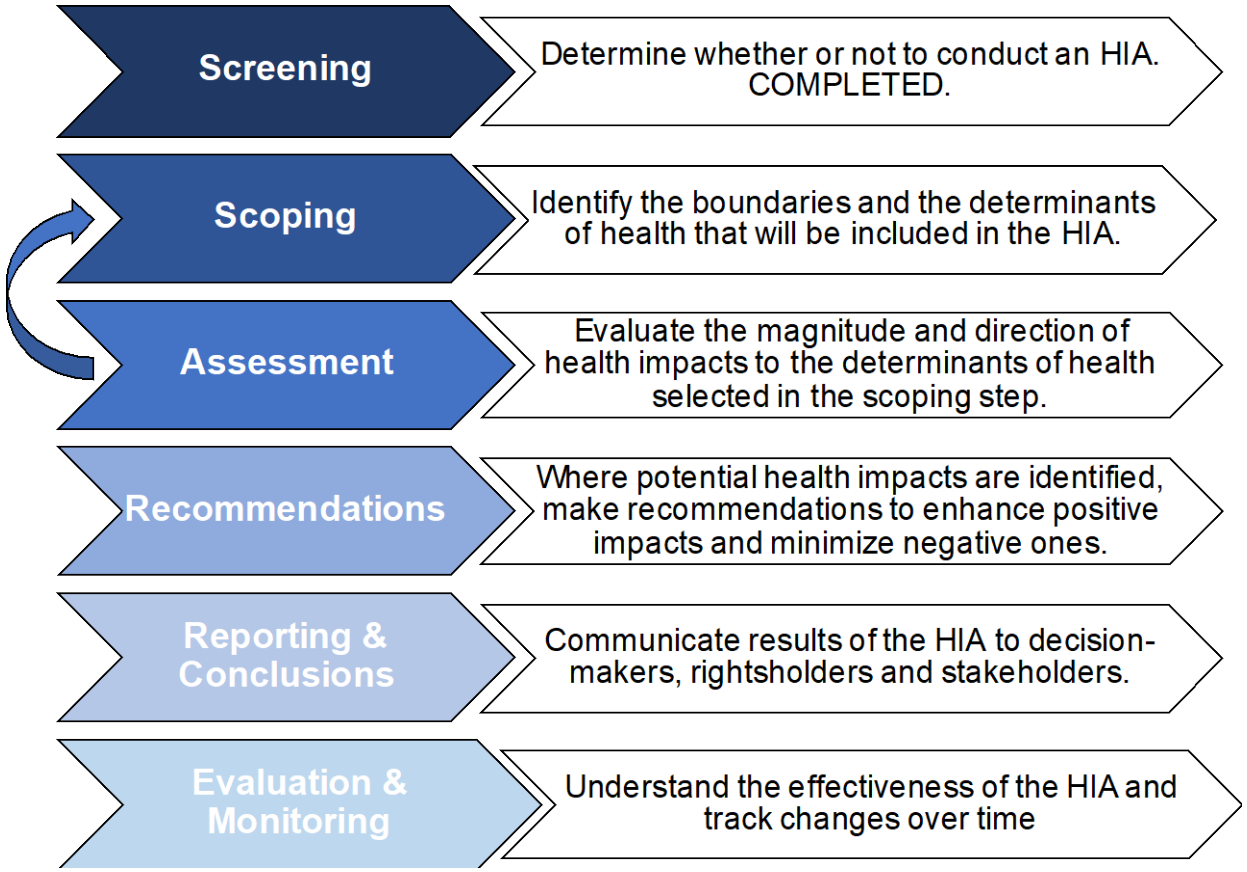
Health Impact Assessment (HIA)

- The purpose of HIA is to characterize potential positive and negative health outcomes associated with projects on community health and how effects are distributed within the community.
- HIA follows a series of phases:



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Overview of the Health Impact Assessment

- The HIA is on the current transportation options to and from Georgina Island.
- The HIA focuses on the benefits and harmful impacts on the health and well-being of the GIFN community that may result due to transportation options available to the community, based on current and future changes in environmental conditions.
- The foundation of the HIA is in the selection of main health issues of concern to community members – these are also called determinants of health.
- The HIA aims to develop recommendations to Chief and Council to address potential health concerns raised by community members.
- An engagement strategy for the HIA includes:
  - Community Health Survey (completed!)
  - HIA Steering Committee (in progress)
  - Key Person Interviews and/or Focus Groups (planned for next week)

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HIA Steering Committee:
Your role

- Gain an understanding of HIA and its usefulness in evaluating the health effects of the transportation options to and from the Island.
- Discuss/share your thoughts on <u>what</u> is most relevant to evaluate the current transportation options:
  - Help us with the selection the determinants of health.
- No opinion/thought/idea shared by you will be directly connected to you during the entire HIA process.
- This meeting will not be recorded in Zoom

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Community Health Survey

- Survey was divided into five (5) sections:

A: Demographics

B: Access to transportation options to the from the Island

C: Health and access to Healthcare services

D: Community health and well-being

E: Recreational activities

- In total, there were 92 responses!

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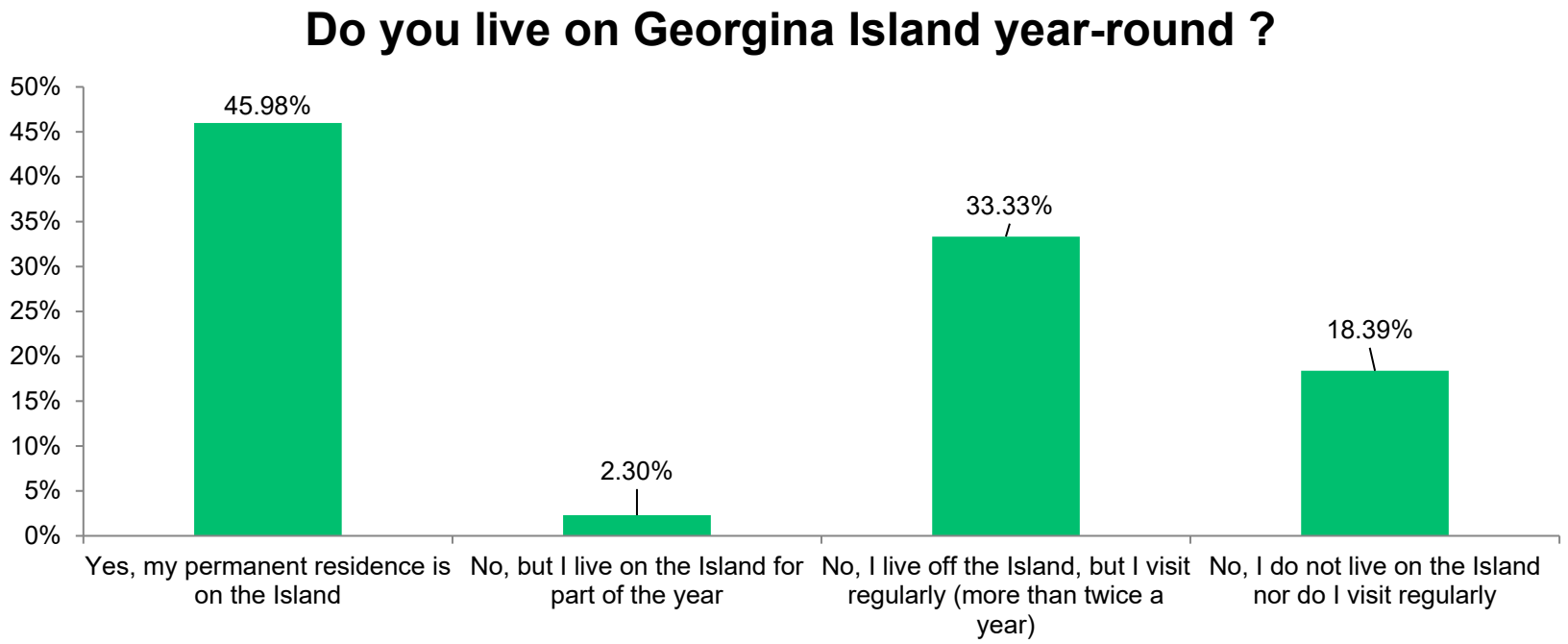
Survey Results - Demographics

- 97% of respondents were GIFN members or have marital, blood or legal ties to a registered GIFN member
- Most respondents have their permanent residence on the Island or they visit regularly



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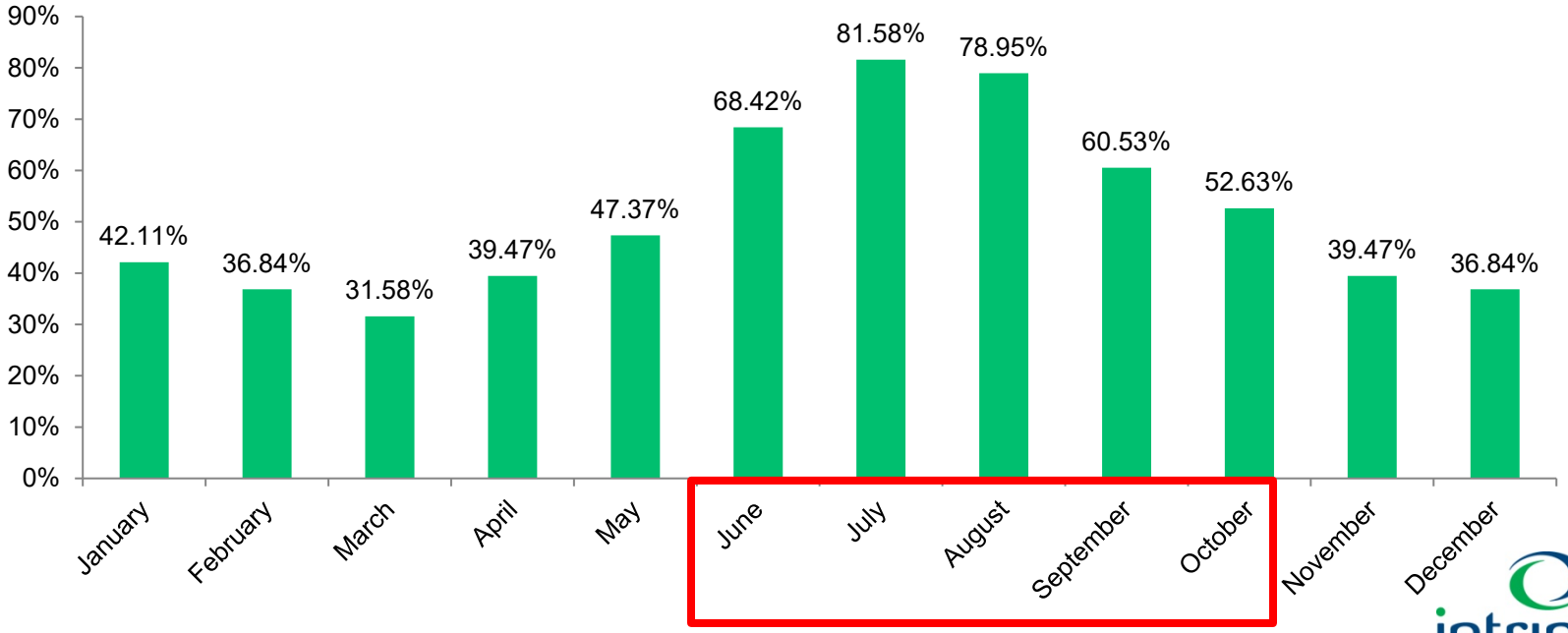
Survey Results - Demographics

- Majority of the respondents live on or visit the Island from June to October with numbers reducing in the winter months
- Are there any additional thoughts anyone may wish to share about why we have this pattern?

What months of the year do you live on or visit Georgina Island? (Check all that apply)



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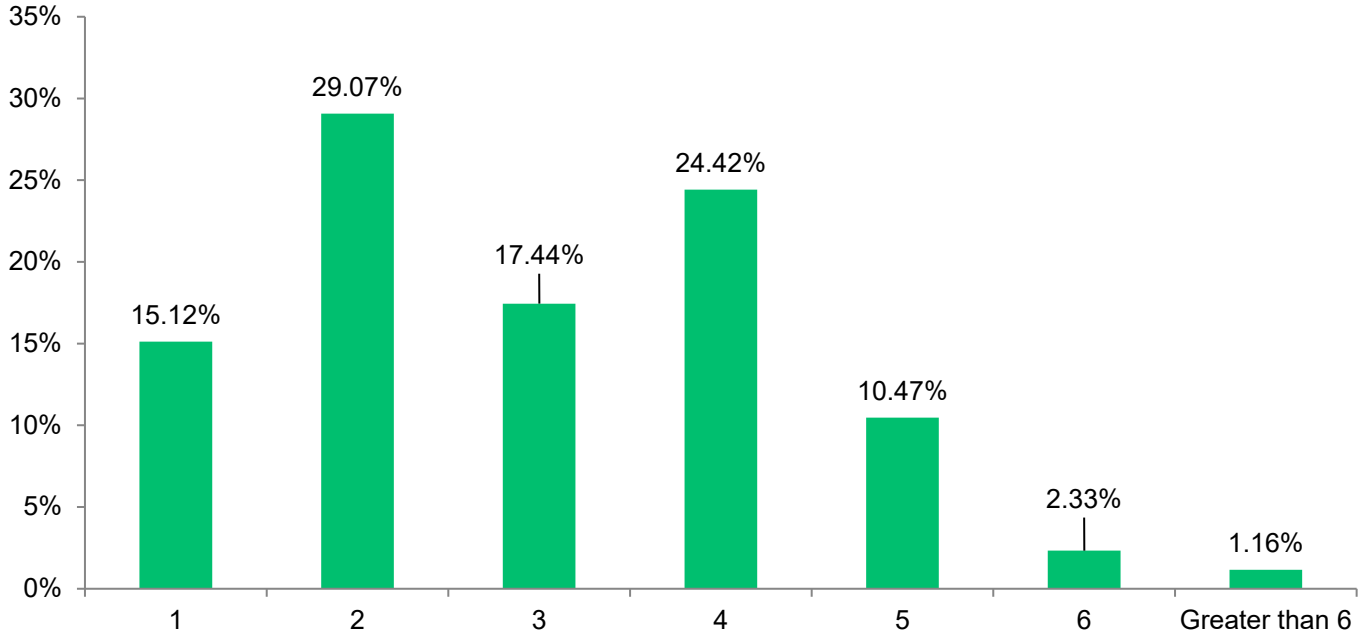
Survey Results - Demographics

- 55% of the respondents were between ages 25-50 and 41% were over 50.
  - Limited responses from members under 25 years of age (2%)
- More respondents identified as females compared to male (73% vs 26%)
- Households had 2 to 4 people and majority of the households had 2 generations (57%)

Including yourself, how many people live in your household?



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Survey Results - Demographics

- As discussed, there was a low response rate from members under 25 years of age (2%).
  - Based on 2016 Census data, there were 80 people younger than 25, making up 30% of the population.
  - The HIA will note this as a potential data gap.
  - Is this something we need to circle back on for more input from youth?

Survey Results - Demographics

- HIAs look at how impacts can affect different groups of people within a community.
- Vulnerable populations within the community are anticipated to include the elderly, pregnant women, individuals with chronic conditions, and children.
- Are there any additional vulnerable populations within the community that we should consider in context to the impacts to the current transportation options?
- Other considerations for the HIA?



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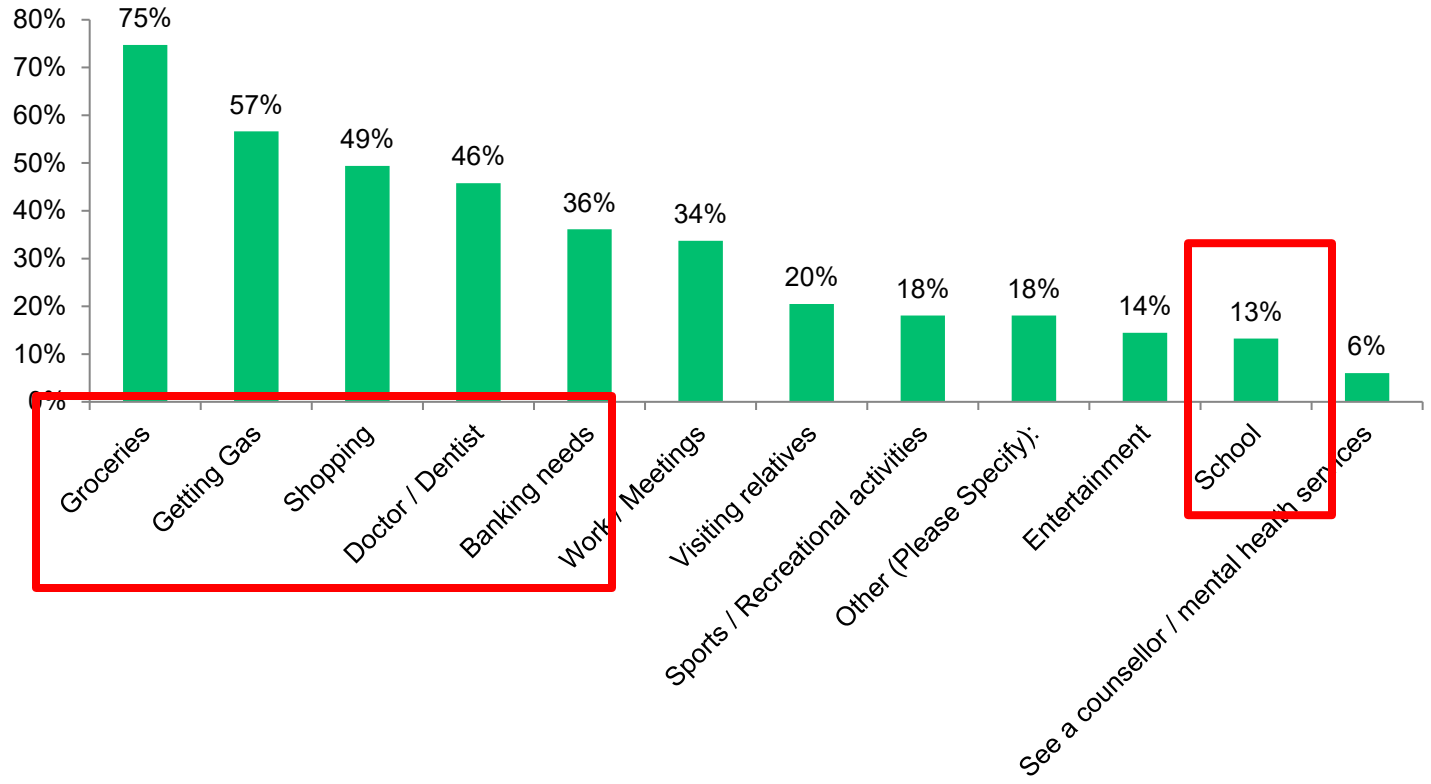
Survey Results – Access to Transportation Options To and From the Island

Please check the top five (5) reasons you travel to the mainland in a typical week.



- Other considerations for the HIA?

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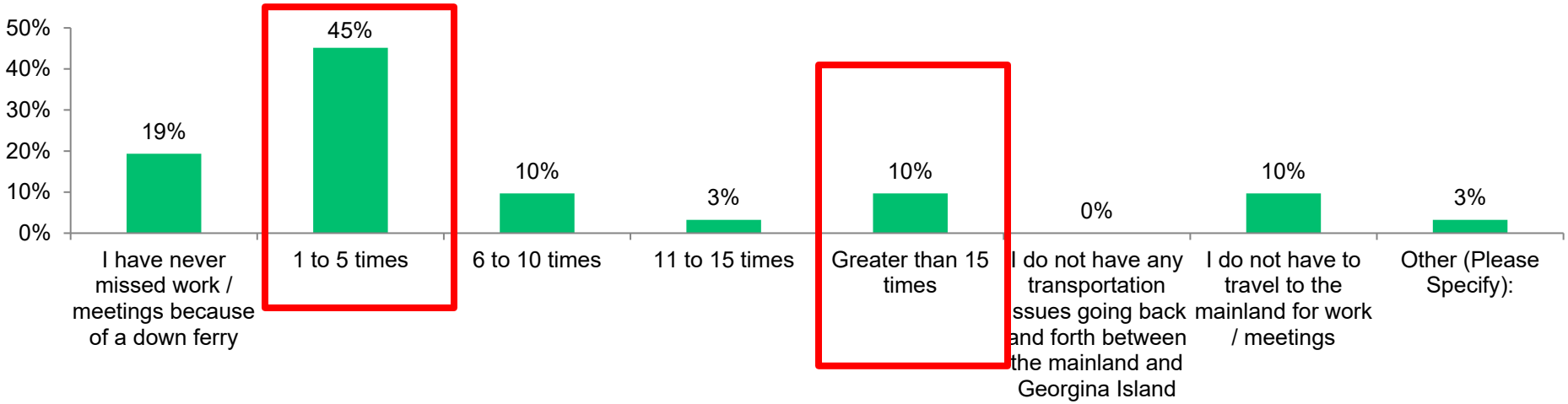
Survey Results – Access to Transportation Options To and From the Island

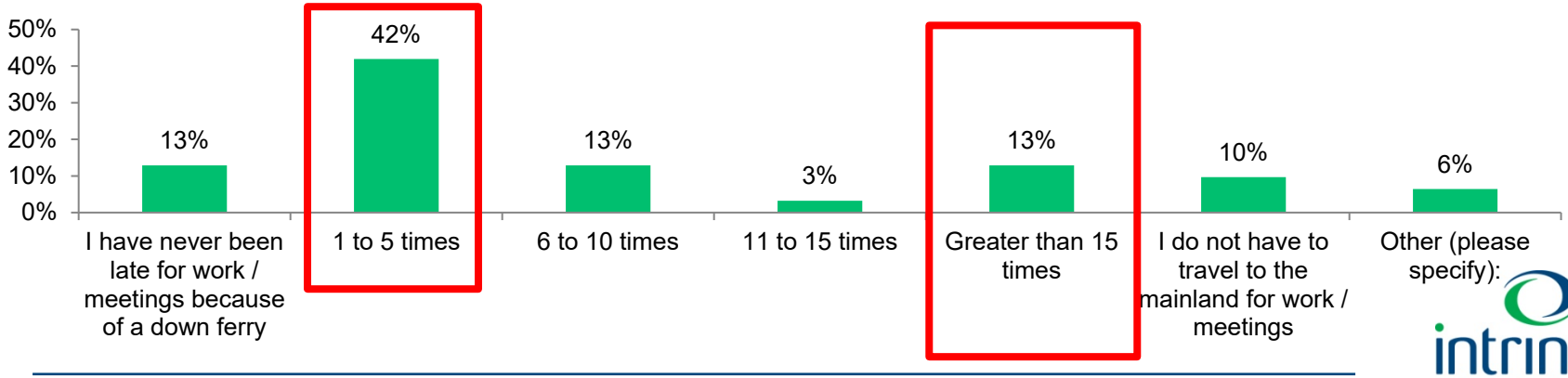
- The survey asked “In a typical year, how many times have you missed school because of a down ferry?” and “In a typical year, how many times have you been late for school because of a down ferry?”
  - These questions were skipped by most respondents. 37% of those which answered did identify that school was missed 1 to 5 times in a typical year and 45% identified they were late for school 1 to 5 times in a typical year.
- The survey asked similar questions associated with missing work/meetings because of a down ferry and being late for work/meetings
  - Respondents identified that 41% missed work/meetings 1 to 5 times in a typical year and 45% were late for work/meetings. Some respondents missed work greater than 15 times in a typical year.

Survey Results – Access to Transportation Options To and From the Island

In a typical year, how many times have you missed work / meetings because of a down ferry?



In a typical year, how many times have you been late for work / meetings because of a down ferry?



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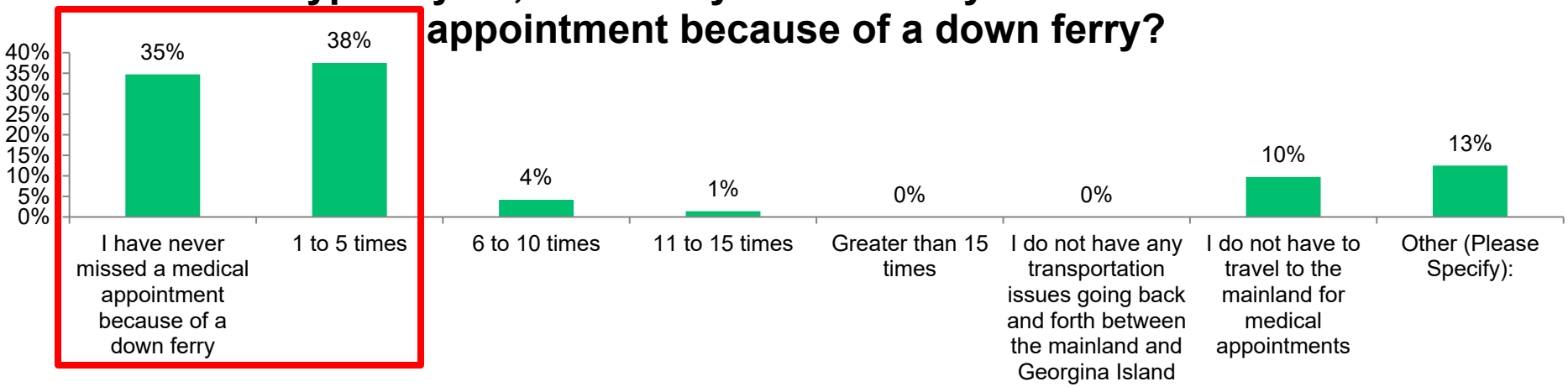
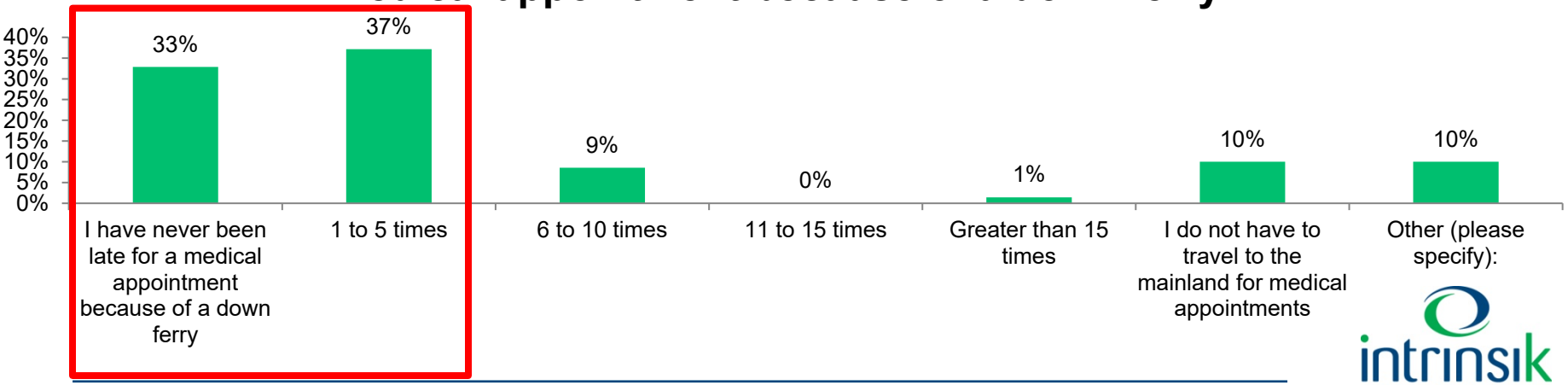
Survey Results – Access to Transportation Options To and From the Island

In a typical year, how many times have you missed a medical appointment because of a down ferry?



In a typical year, how many times have you been late for a medical appointment because of a down ferry?



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Survey Results – Access to Transportation Options To and From the Island

- 30% of respondents use the return ferry service when it is operational once a day and 25% use it once a week:
  - 43% of respondents where unable to come back to the Island because of a down ferry on the same day of visits about 1-5 times in a typical year.
  - Has anyone on the call dealt with this situation before or know someone that has?
  - What did you have to do in this instance?

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Survey Results – Access to Transportation Options To and From the Island

- 78% of the respondents show that freeze-up and thaw seasons do impact the number of crossings typically made and the concerns identifed were:
  - Safety concerns with the Scoot or side by sides;
  - Reliability associated with the Scoot;
  - Respondents change their schedules to avoid crossing during this time; and,
  - Scoot was identified to be uncomfortable (too bumpy and difficult for those with health concerns like back problems).
- The top three (3) preferred methods of travelling during freeze-up and thaw seasons was side-by-side (51%), car/truck (39%), and Scoot (33%).

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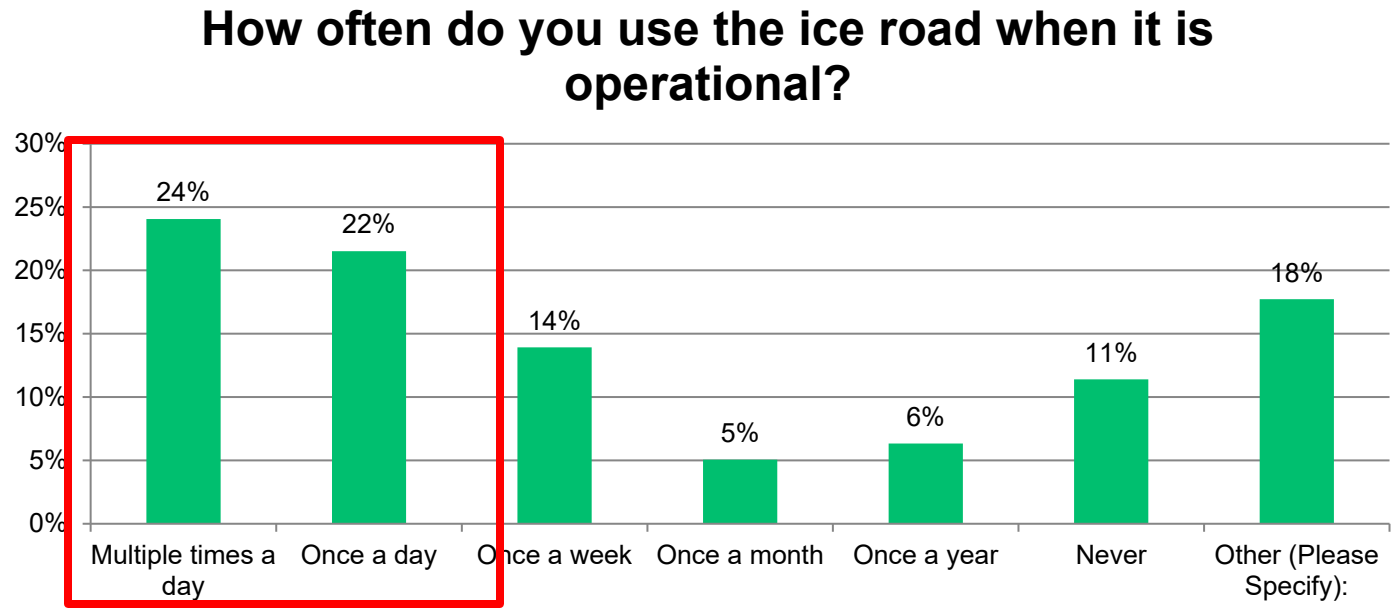
Survey Results – Access to Transportation Options To and From the Island

- When the ice road is operational, 46% of the respondents identified they use the ice road multiple times a day or once a day.



- 80% of the respondents use a car/truck when the ice road is operational for travelling purposes.

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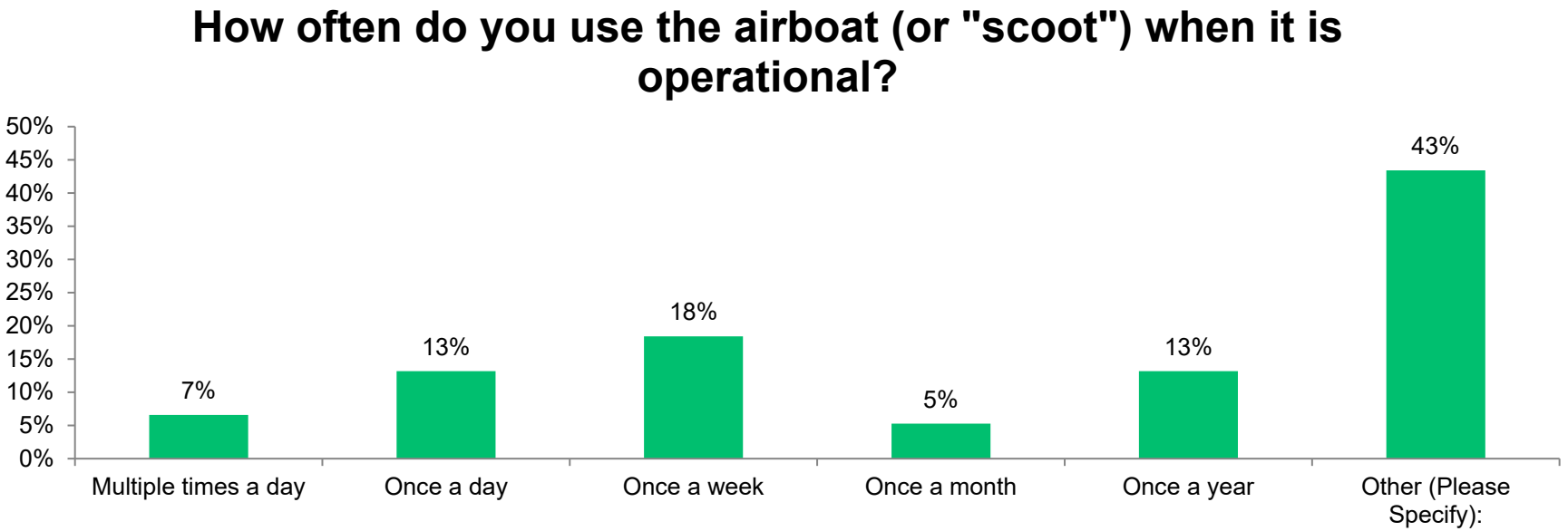
Survey Results – Access to Transportation Options To and From the Island

- Survey asked “how often do you use the airboat or scoot when it is operational” and many selected “other”. Most of the discussions (approximately 60%) identify that they try to limit their use of the scoot or have never used the scoot.



- Is this an appropriate representation for the community?

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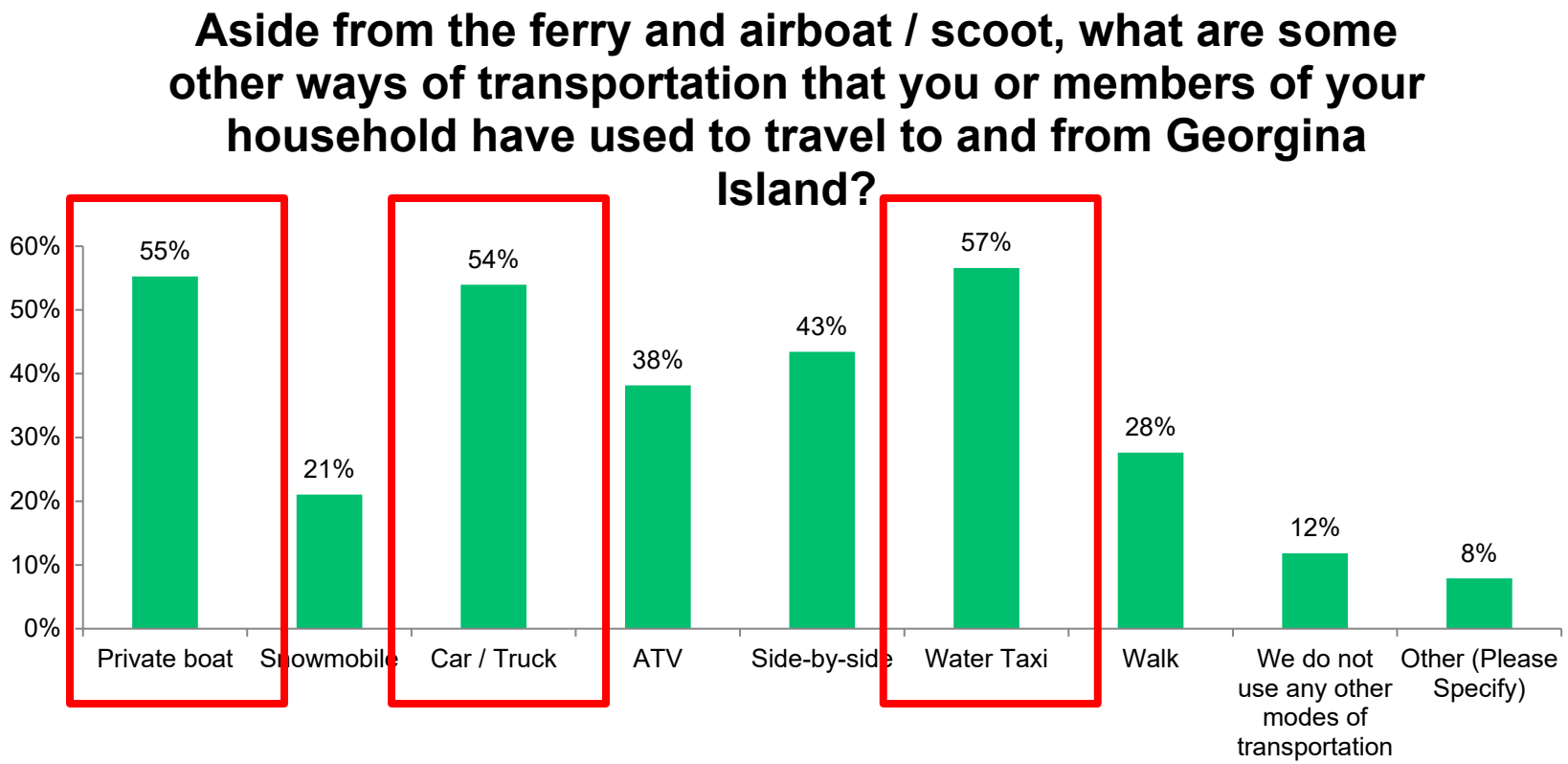
Survey Results – Access to Transportation Options To and From the Island



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Survey Results – Access to Transportation Options To and From the Island

- Majority of the respondents (54%) have not needed emergency medical services off the island.
- Some respondents have had to wait at least 30 minutes to 1 hour for them to get to the mainland (20%) which caused a delay for them getting emergency services.
- Majority of the respondents have concerns with accessing emergency services in the freeze up and thaw seasons (68%).

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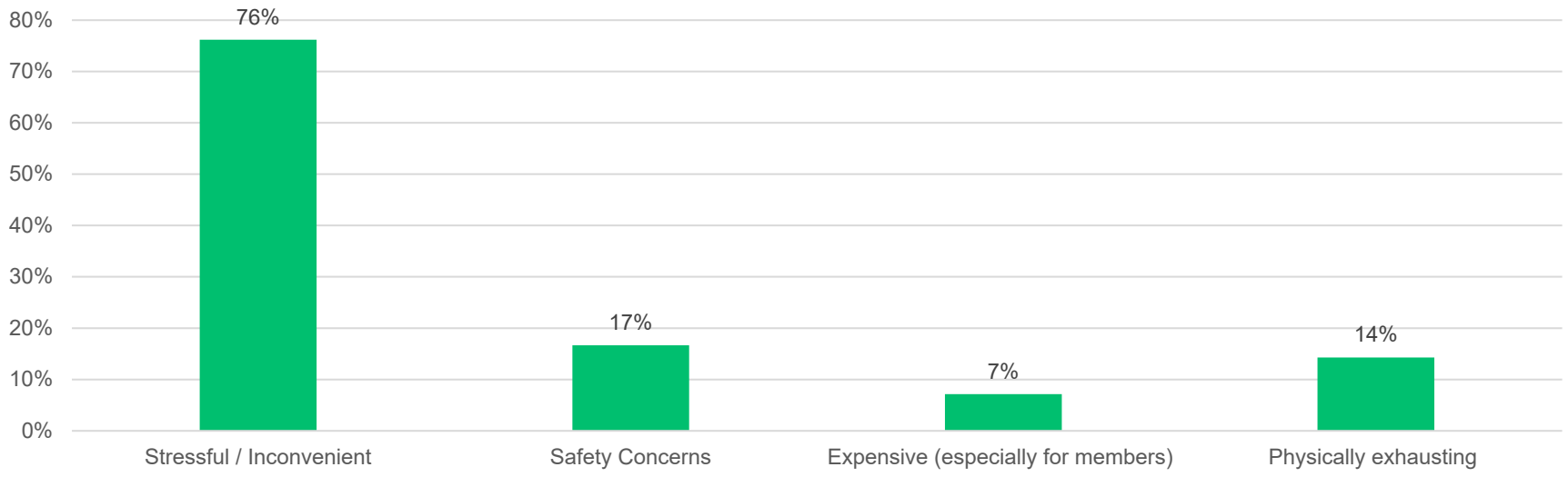
Survey Results – Access to Transportation Options To and From the Island

- How have the uncertainties in the current transportation options to and from the Island impacted your physical, emotional, and mental health?



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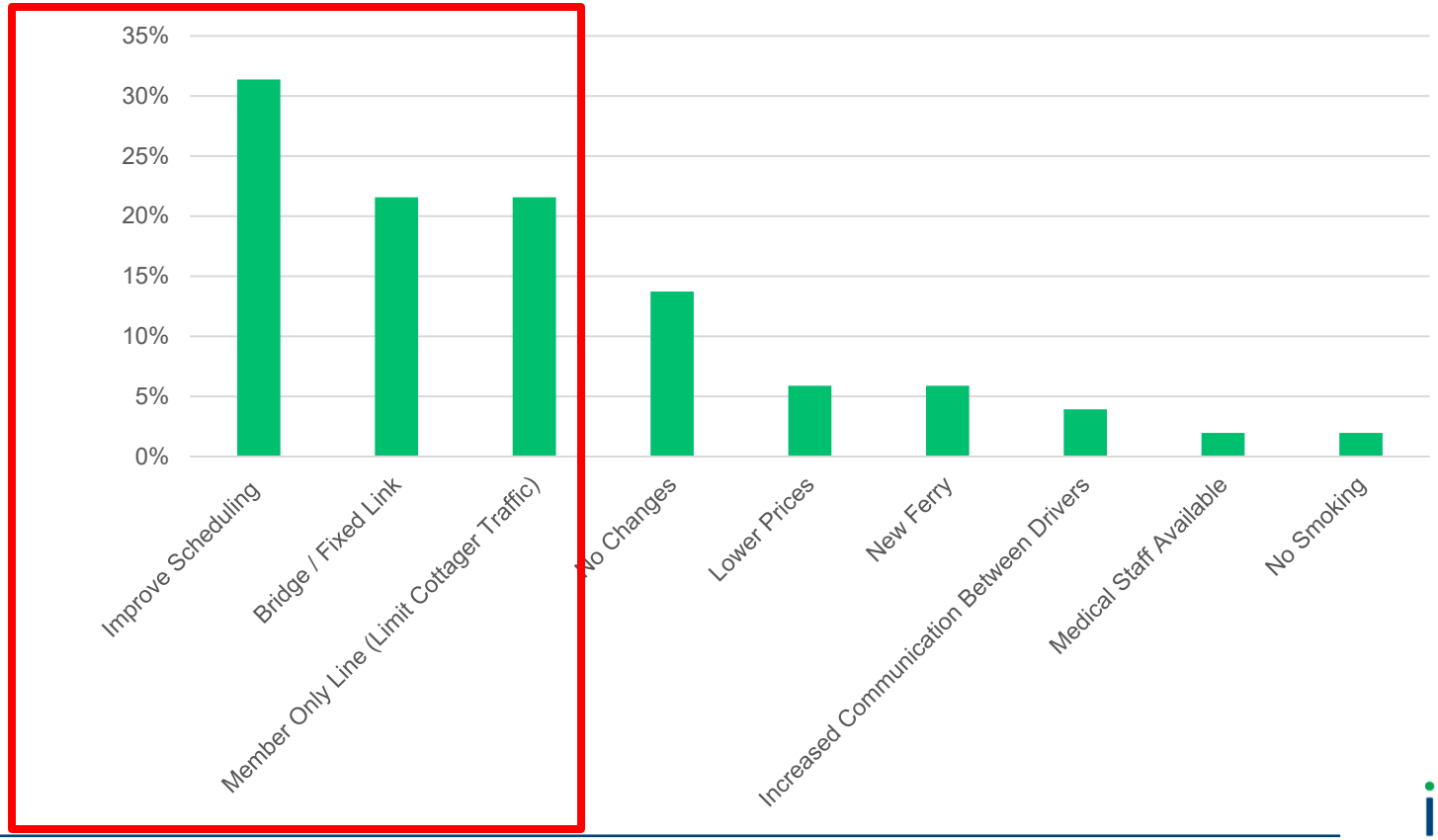
Survey Results – Access to Transportation Options To and From the Island

- What changes can be made to the current transportation options (i.e., ferry, scoot, etc.) for the Island to improve your overall mental, physical, and emotional health?



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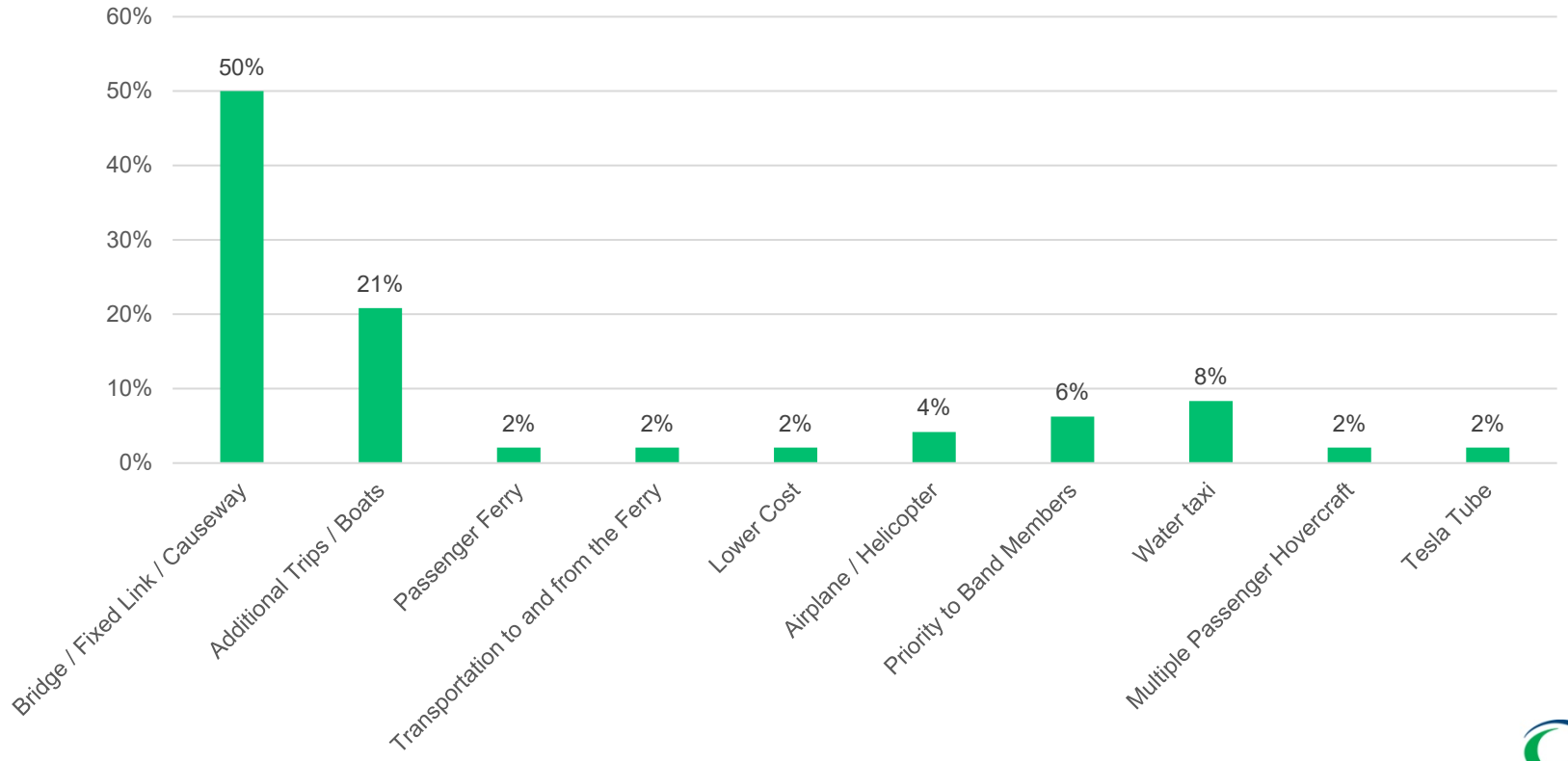
Survey Results – Access to Transportation Options To and From the Island

- What other potential transportation option(s) to and from Georgina Island would improve your overall mental, physical, and emotional health?



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Survey Results – Access to Transportation Options To and From the Island

- What are advantages and disadvantages of the other potential transportation option(s) to and from Georgina Island identified?

ADVANTAGES	DISADVANTAGES
Safer travel, especially in freeze and thaw seasons	More cottagers
Less traffic	Lack of services (police presence)
Less waiting times, convenient	Pollution
Increased freedom	Potential risk to species and environment
Less financial burden (paying for ferry)	Cost to build
Economic development	
More involved in recreational activities	
More accessible	

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Survey Results – Access to Transportation Options To and From the Island

- Are there any additional impacts (positive or negative) to local businesses and the local economy (cottagers and tourists) due to the current transportation options?
- Any thoughts you would like to share?
- Other considerations for the HIA?

Survey Results – Access to Transportation Options To and From the Island

- Climate change and transportation: ice formation and thickness on the Lake for the purposes of travelling to and from the Island is proposed to be a main point the HIA will focus on
- Discussions on climate change in context of transportation to and from the Island:
  - With the climate changing and impacting ice travel, how is the next generation facing this change and barrier?
  - Is the community knowledge related to safe travel on ice being passed to the next generation effectively, or has the changing climate and the changing ice conditions made this knowledge exchange difficult?
  - Has this change affected the community in a meaningful manner?
  - What does it mean for the community in those years when there is no ice road?

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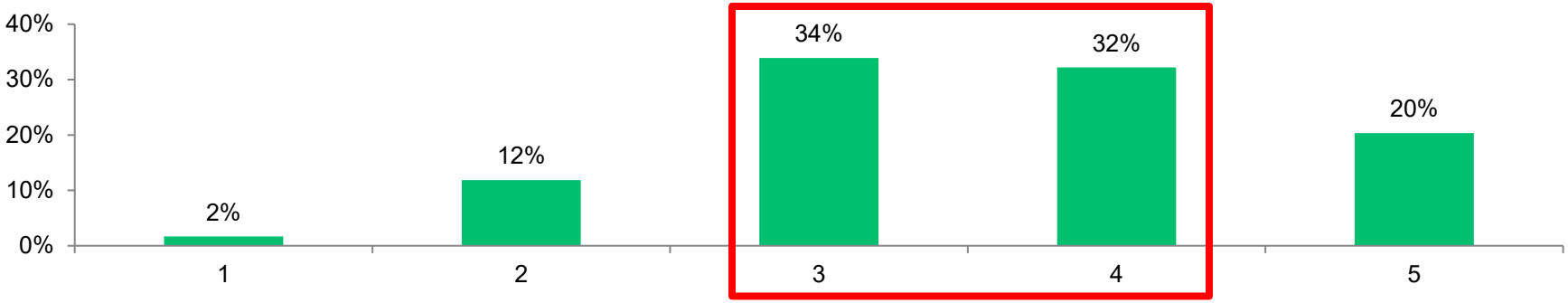
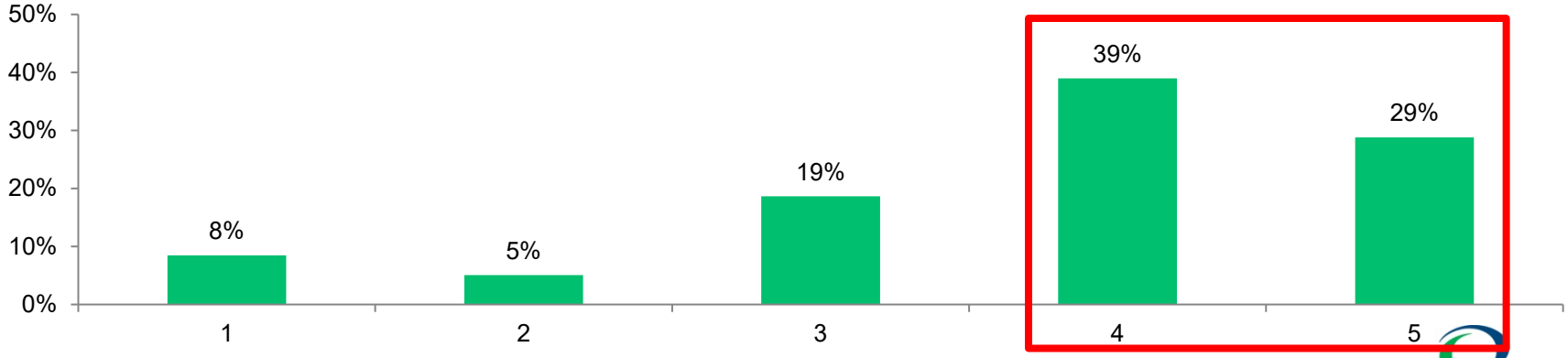
Survey Results – Health and Access to Healthcare Services

On a scale of 1 to 5, how would you rate your overall physical health? (1 = Bad, 5 = Very Good)



On a scale of 1 to 5, how would you rate your overall mental health? (1 = Bad, 5 = Very Good)



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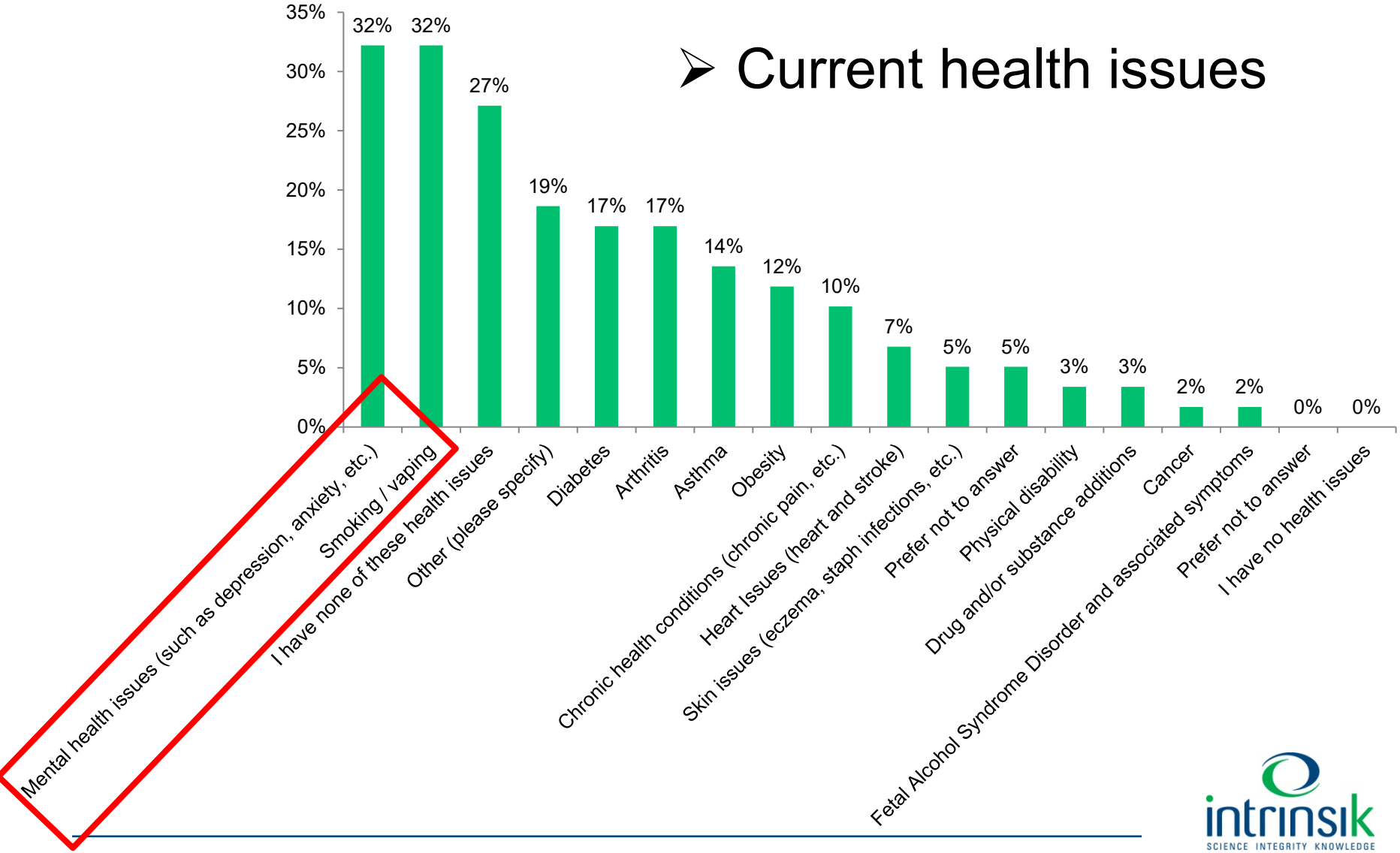
Survey Results – Health and Access to Healthcare Services

- Current health issues



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Survey Results – Health and Access to Healthcare Services

- 32% of respondents identified facing mental health issues such as depression and anxiety.
- When asked “what health care services offered on Georgina Island are you aware of?”, majority of respondents were aware of the health clinic on the Island with in-community access to nurse and the doctor and nurse who come into the community.
  - 27% of respondents were aware of mental health care / therapy services.
- More than 50% of the respondents identifed that the community needs mental health care/and counselling services.

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Survey Results – Health and Access to Healthcare Services

- Based on the additional explanations received throughout the survey, stress and anxiety has been identified with the use of the ferry and the scoot.
- Mental well-being is proposed be a focus area for the HIA.
- Any thoughts you would like to share?
- Other considerations for the HIA?

Survey Results – Community Health and Well-Being

- Majority of the respondents selected “somewhat healthy” for the physical health condition, overall mental health condition and overall cultural and spiritual health condition of the community.
- Through explanations from the respondents the following were identified:
  - For physical health, youth participate in extra-curricular activities, there is access to an outdoor rink and gym, and trails.
  - There are concerns associated with diet and sedentary lifestyles.
  - Support for mental well-being was highlighted as need for the community.
- Any thoughts you would like to share?
- Other considerations for the HIA?

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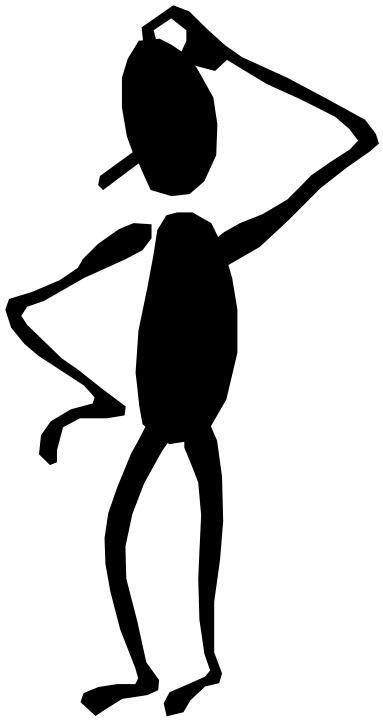
Survey Results – Recreational Activities

- Majority of the respondents travel to the mainland for recreational activities.
- In a typical year, 47% of the respondents have missed recreational activities because of a down ferry 1 to 5 times in a typical year.
- Participation in recreational activities that are off island are impacted by the current island transportation options mostly because of timing of the ferry schedule, and travel time to the mainland.

Survey Results

- This concludes our presentation of the survey results
- Any thoughts you would like to share?
- Other considerations for the HIA?



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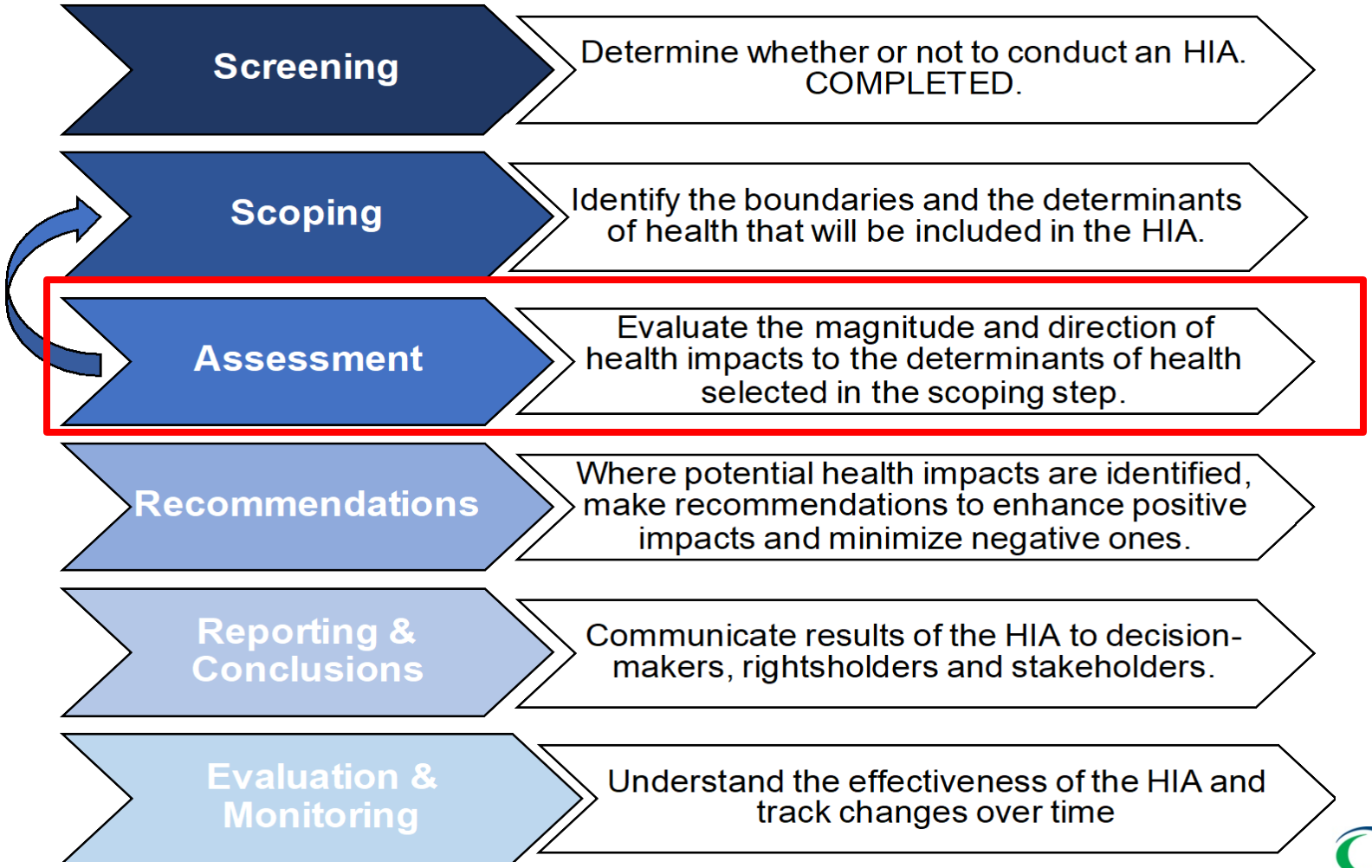
Recap: Where are we in the process?



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Determinants of Health

- The determinants of health are the basis of an HIA.
- They are the lens through which the assessment is conducted in order to understand potential impacts to <u>health and well-being.</u>
- HIA looks at health in terms of:
  - Physical health
  - Mental well-being
  - Social and cultural determinants
  - Economic determinants



A Health Lens

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The Social Determinants of Health

"The social determinants of health are the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels."

(World Health Organization, 2012)



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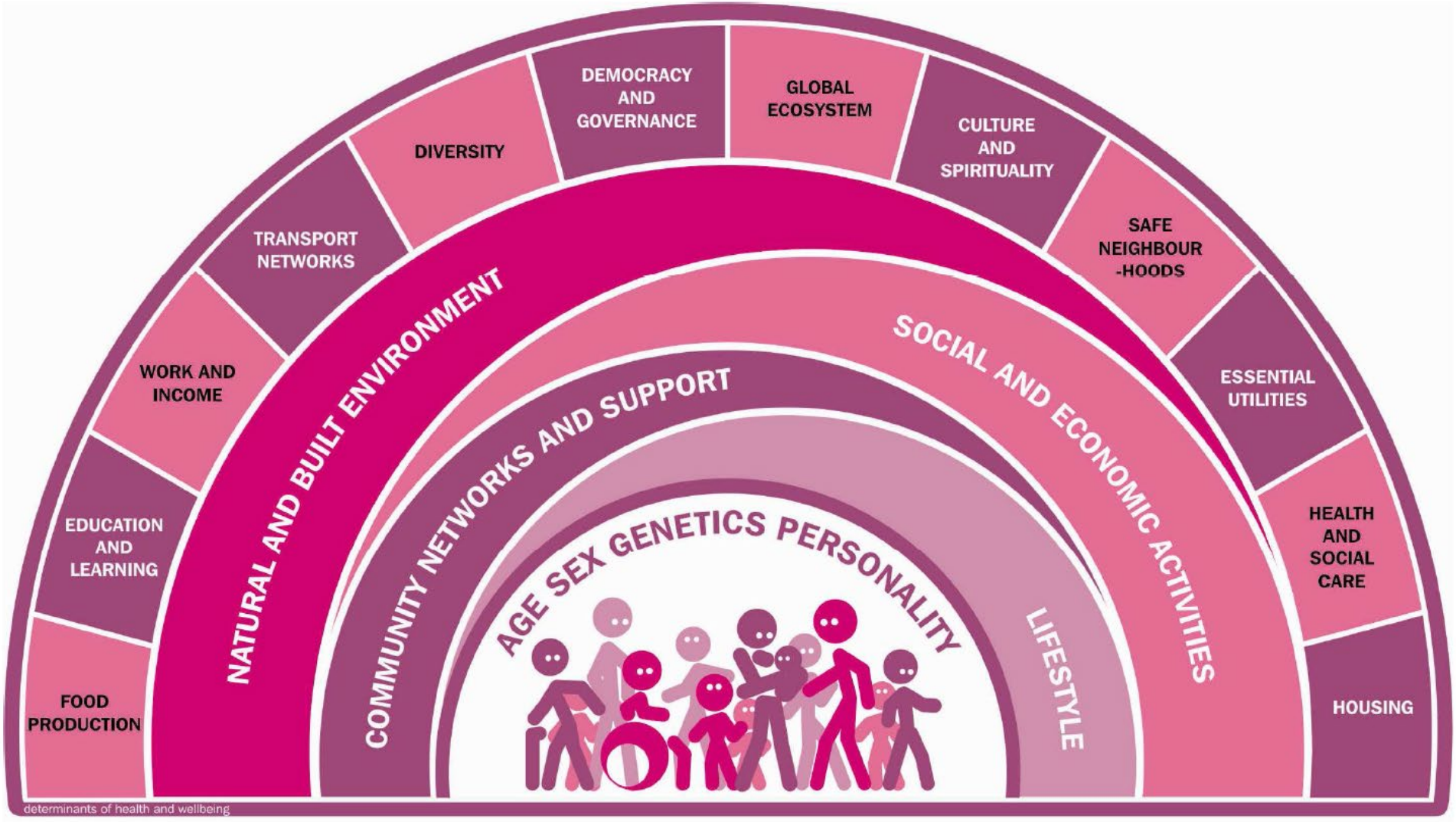
The Social Determinants of Health



Social Determinants of Health. Dahlgren and Whitehead, 1991

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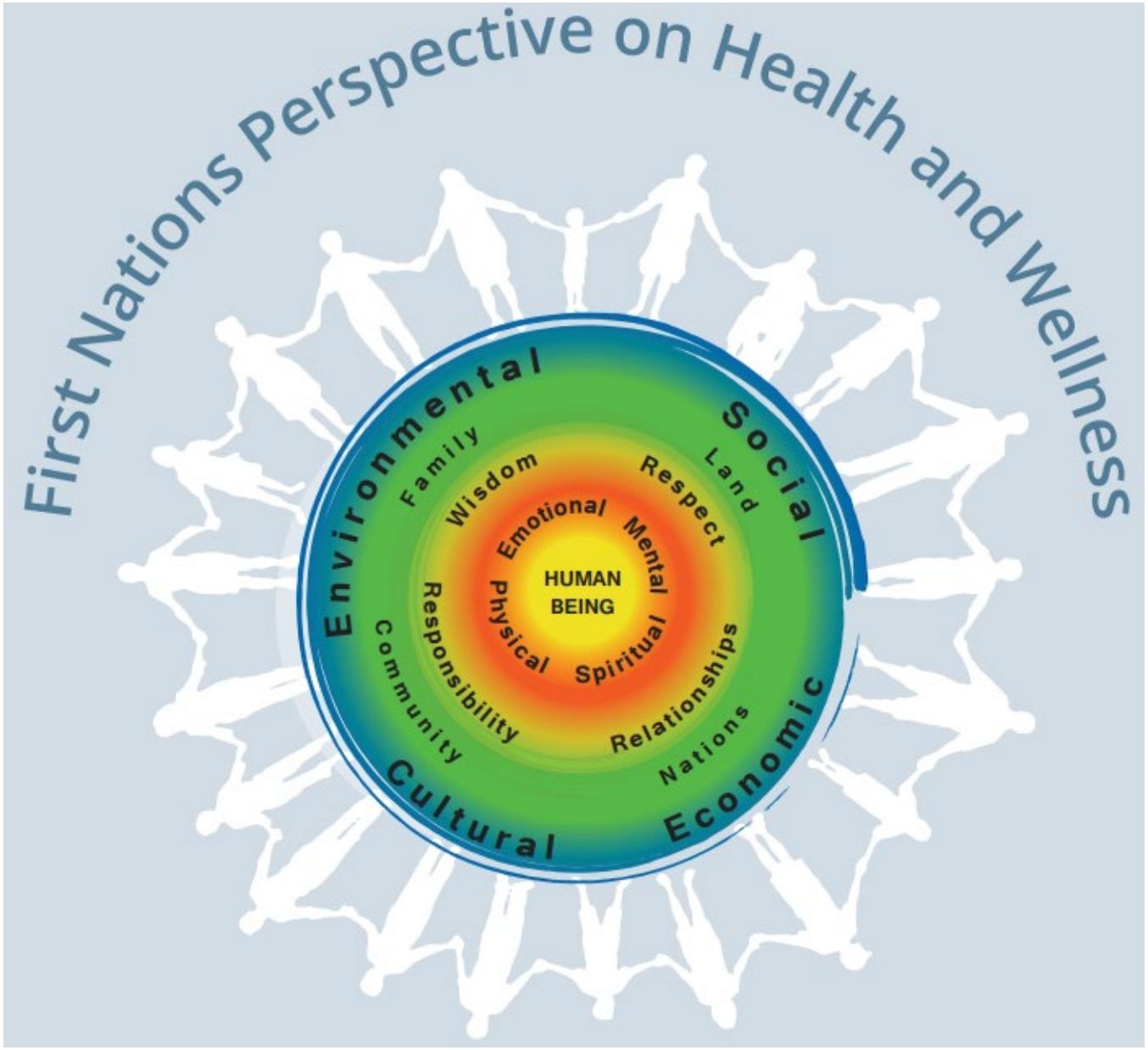

- Physical
- Emotional
- Mental
- Spiritual
- Respect
- Relationships
- Responsibility
- Wisdom
- Family
- Land
- Nations
- Community
- Environmental
- Social
- Economic
- Cultural

First Nations Health Authority:
http://www.fnha.ca/wellness/wellness-for-first-nations

Initial list of Determinants of Health for this HIA

Determinants of Health	Focus Areas
Climate change	➢ Changing ice thickness over the years and impacts to transmission of community knowledge related to ice travel due to a changing climate
Safety and security	➢ Accidents and injuries due to thin ice and unsafe travel conditions in the winter
Economic	➢ Employment opportunities affected as a result of unpredictable travel conditions year- round, especially in freeze up and thaw seasons ➢ Local economic growth, including lost revenue due to unpredictable tourism
Mental Well-Being	➢ Perception of physical and emotional safety and stress due to unpredictable access to emergency health care services ➢ In-person social interactions can be unpredictable due to unsafe travel conditions, leading to lack of social cohesion
Access to services	➢ Access to health, social, community and family services on the mainland is unpredictable ➢ Access to education

➢ Any discussion points? Agreements, disagreements?

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Next Steps

- We use the information that has been gathered so far, we will be moving forward into the HIA
- Using what we have identified to develop a ‘Baseline Health Profile’ of the community – this is a snapshot of the current health status of the community
- We use an HIA evaluation framework to identify and describe potential health impacts associated with the current transportation options for each of the determinants of health (or the main health issues) that were finalized
- With the assistance of Cambium Indigenous, we will present with the results of our assessment to Chief and Council for use in future planning

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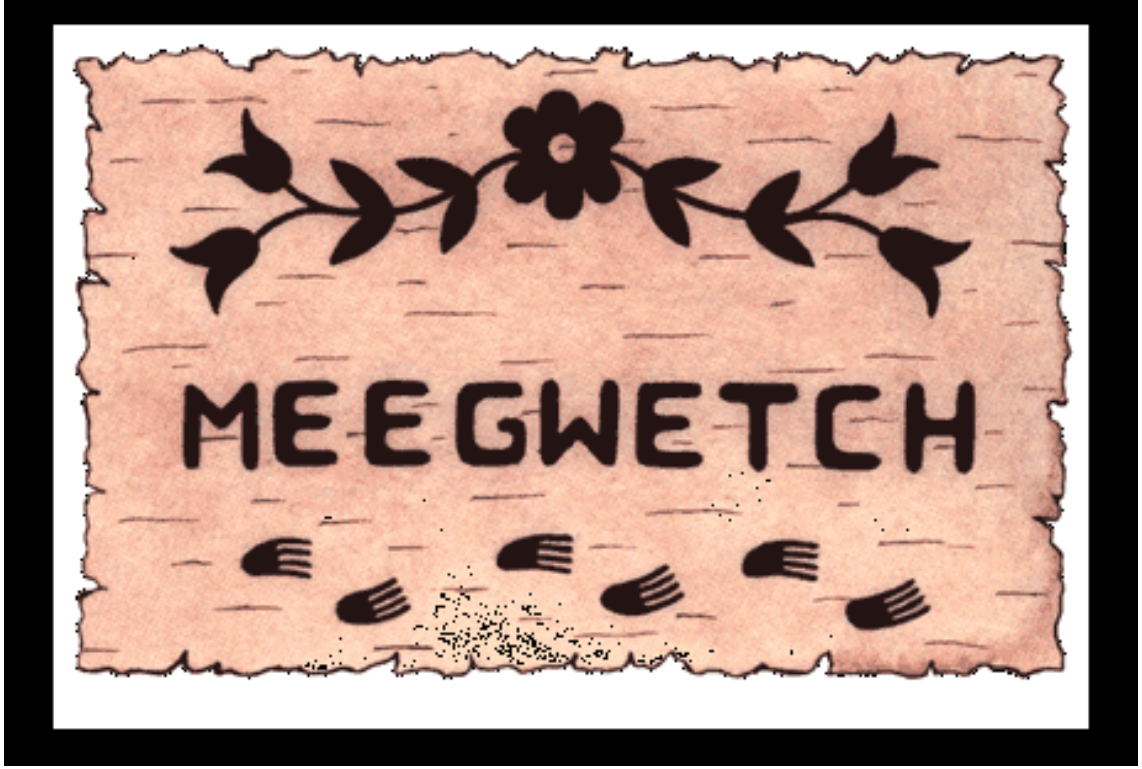

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APPENDIX D

KEY PERSON QUESTIONS

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HEALTH IMPACT ASSESSMENT (HIA) OF TRANSPORTATION OPTIONS TO AND FROM GEORGINA ISLAND

Key Person Interviews

As part of the Engagement Strategy for the Health Impact Assessment (HIA) of Transportation Options To and From Georgina Island (hereafter called 'the HIA'), Key Person Interviews were completed. Key Person Interviews were held on August 11th, 2021 and August 24th, 2021. The questions were focused on the individual's expertise and background. The purpose of the Key Person Interviews was to gather additional data from community members who hold important community knowledge regarding the current transportation options and understanding on topics such as ice thickness and formation around the Island and emergency transportation options.

The interviews were intended to be kept short, approximately 15 minutes with approximately 3 to 5 questions. However, the conversations were really insightful and both calls were longer than 15 minutes. The first interview day, the call was approximately 50 minutes long and included conversations with three (3) community members. The second interview day, the call was approximately 20 minutes long.

The questions included, but are not limited to, the following:

- Are you seeing climate change impacting the number of accidents and injuries for the community? If so, how are they connected?
- Based on your experience, has climate change affected transportation for the community? If so, how has it affected transportation?
- In cases of medical emergencies where travel to the mainland is required, is the person requiring treatment transported to the mainland and met with an ambulance on the other end? How long would it typically be to get a person from the Island to the mainland? Some respondents for the survey have had to wait at least 30 minutes to 1 hour for them to get to the mainland (20%) which caused a delay for them getting emergency services.
- In the event the ice road is unusable or considered unsafe, what would community
- What areas of concerns would you say need to be focused on in the near future?
- Would you like to share any other information with us which could help contribute to the HIA we are conducting on available transportation options?

APPENDIX E

OTHER RELEVANT INFORMATION THAT PLAYS A ROLE IN INFORMING THE HIA

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APPENDIX E: OTHER RELEVANT INFORMATION THAT PLAYS A ROLE IN INFORMING THE HIA

This appendix includes photos, social media posts, and news articles that were used in the preperation of the current HIA.

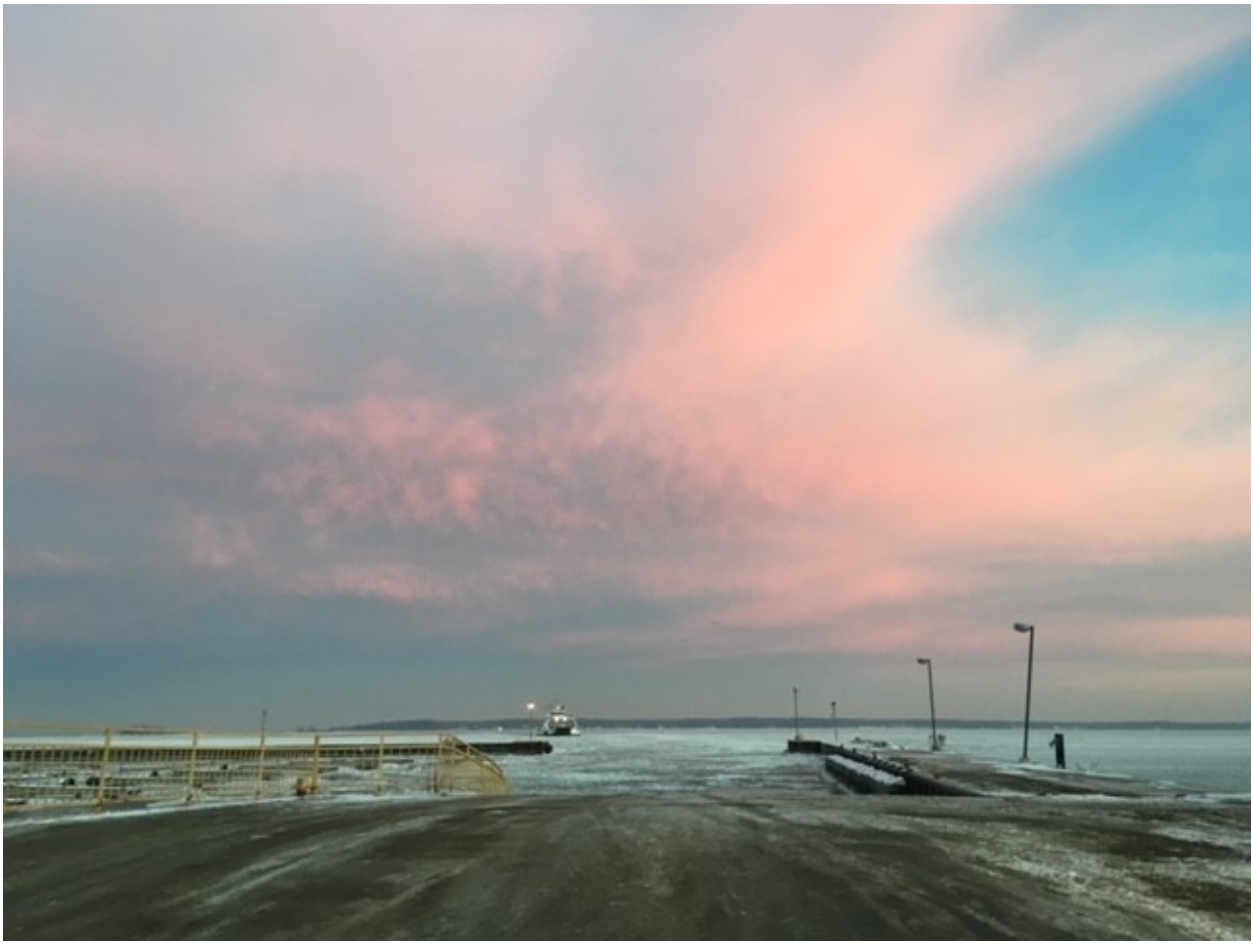


Figure E-1 Photo of a Boat Travelling Through the Frozen Lake



Figure E-2 Photo of Cars Crossing Lake Simcoe on Watery Ice



Figure E-3 Photo of a Car Driving on the Ice Road



Figure E-4 Photo of the Ferry Attempting to Break Through the Ice to Ensure Safe Passage

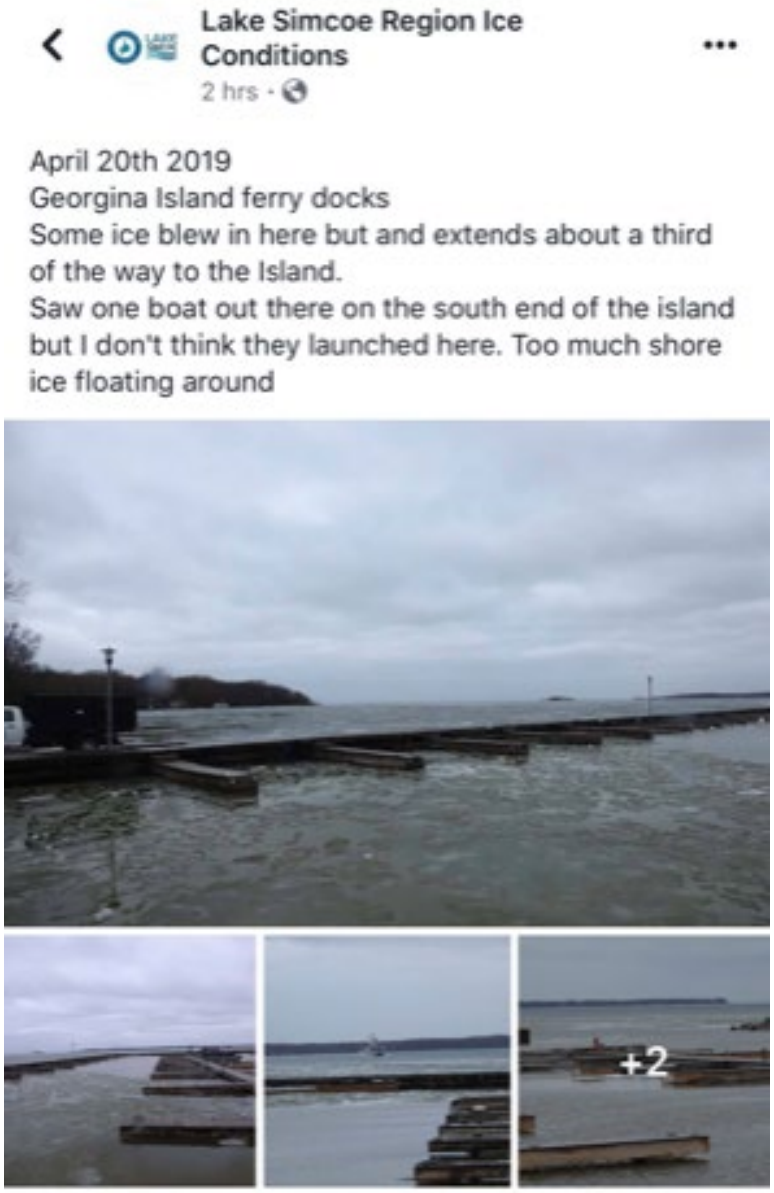


Figure E-5 Social Media Post of Ice Conditions at the Marina in Spring of 2019



Figure E-6 Social Media Post Showing the Ice Pile Up in Spring on Top of a House



Figure E-7 Photo of an Excavator Removing as much Ice as Possible so the Ferry can Land

BARRIE | News

'The lake is literally cracking everywhere,' Shifting ice conditions nearly ends in tragedy



Rob Cooper
CTV News Barrie Videographer
@robcooperctv | Contact

Published Thursday, February 4, 2021 5:03PM EST
Last Updated Thursday, February 4, 2021 5:09PM EST

SHARE:

Tweet Reddit Share 1.1K

Share 11

ORILLIA, ONT. -- A day of fishing on Lake Simcoe nearly turned tragic for several people near Strawberry Island.

Peter Wozniak was ice fishing with a friend when he says there was a loud sound, and he knew something was wrong. "It was a big crack when I was in my tent. I heard cracks."

People on the ice say the cracking sound was the ice shifting and separating near Whitefish Shoal and Moon Shoal near Orillia.

Related Stories

- **Experts warn of Lake Simcoe ice conditions after multiple vehicles plunge through**
- **Police provide a bird's eye view of poor ice conditions on Lake Simcoe**
- **Great Lakes ice coverage hits record lows**

Twelve people were on a slab of ice that caught the attention of Tom Carr.

Carr says he and his friend Mark Bolton raced over to let them know the ice was shifting.

"A guy comes along with a sled from hut to hut and just telling everybody to get off the ice because there's a big crack that just happened, and it was starting to spread starting to open up," Wozniak says.

Carr says he escorted four people with sleds off the ice pack. He says he then went back and drove the rest to safety using his own sled.

"The spider crack was pretty bad. It makes foot travel extremely dangerous. If you actually step on that ice and fall down through that, you have the possibility of that ice now coming back over top of you and locking you in. This year with the ice we are having, it's just the lake is literally cracking everywhere, so it's really unpredictable," Carr warns.

Anyone planning on heading out on any body of water is encouraged to dress appropriately, have the necessary safety gear and always check with local ice hut operators first.

RELATED IMAGES

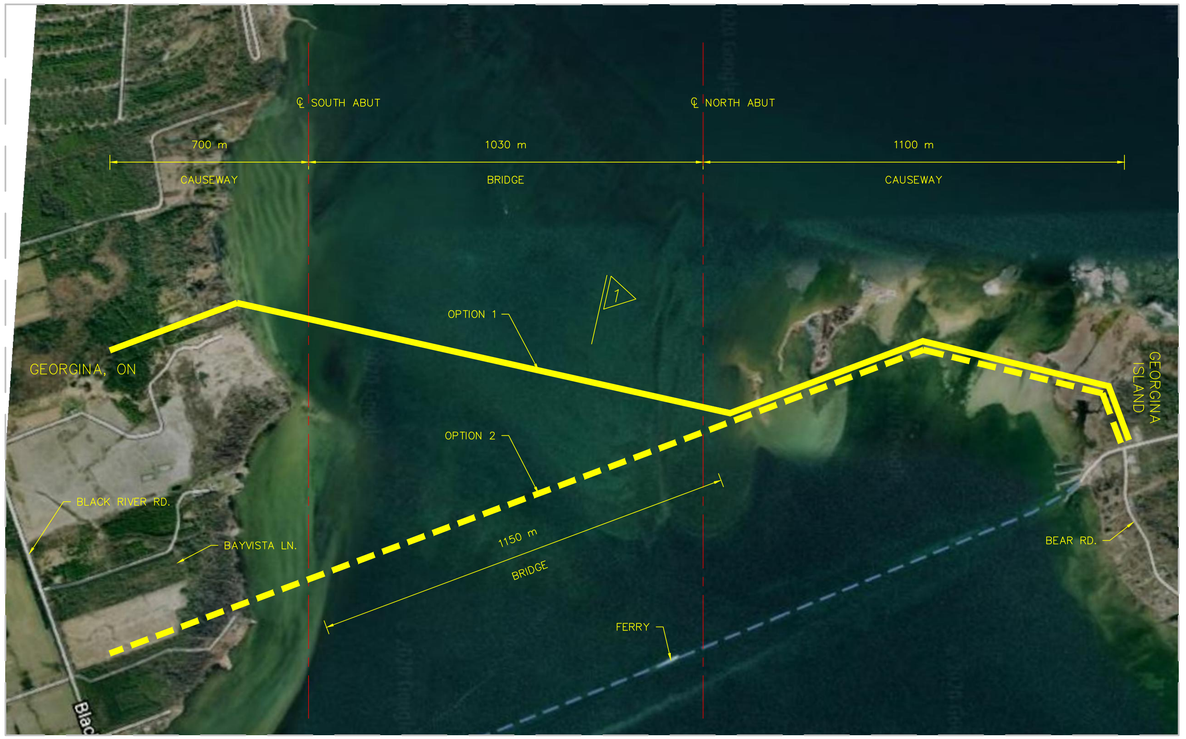


An ice hut is seen on Lake Simcoe on Thurs., Feb. 4, 2021 (Rob Cooper/CTV News)

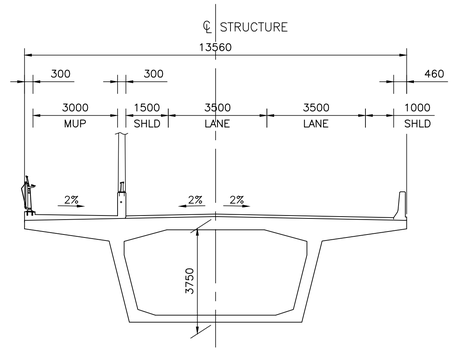
Share 1 weet Reddit Share 1.1K

Appendix H: Preliminary Draft Conceptual Design Drawing

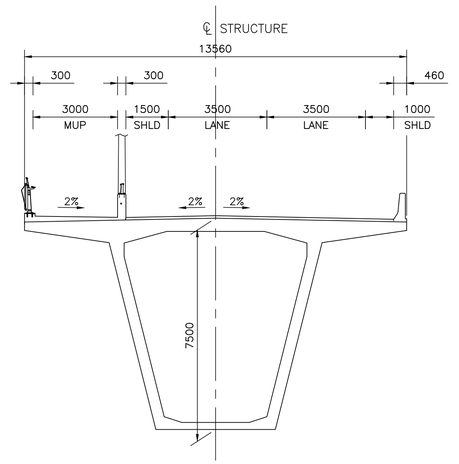
CONSTRUCTION
NORTH



PLAN
1:7500



SECTION 1 (AT MID-SPAN)
1:100



SECTION 1 (AT PIER LOCATION)
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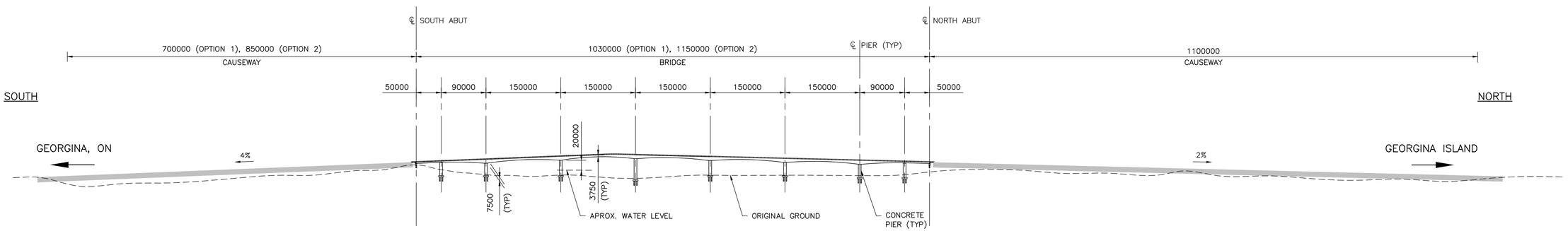
DRAWING NOTES:

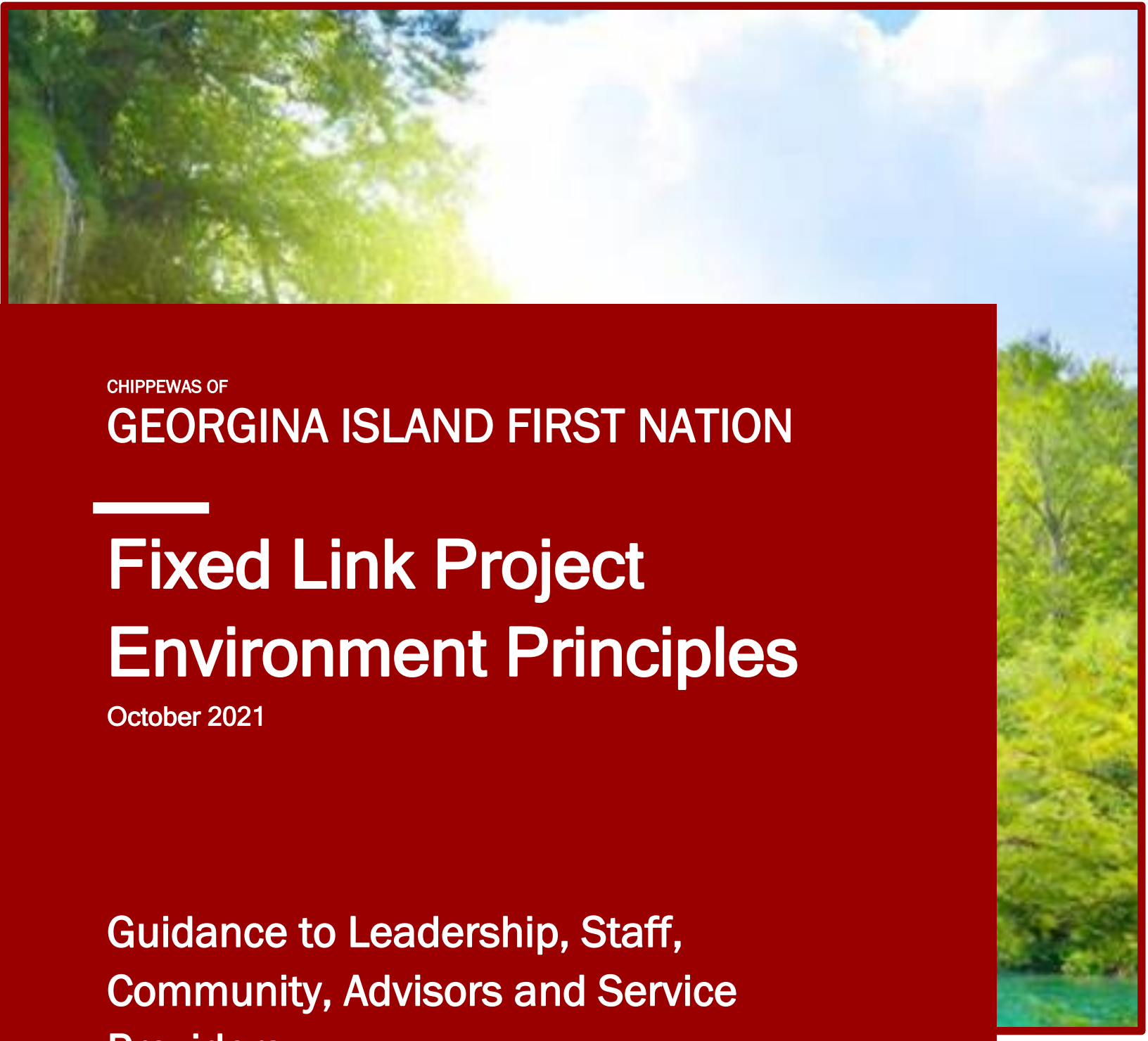
1. DIMENSIONS ARE APPROXIMATE
2. UNITS ARE METRIC



ELEVATION
1:4000

DESIGN BY: M.I.
DRAWN BY: F.Y.
DATE: 15-FEB-2022

Appendix I: Draft GIFN Fixed Link Project Environment Principles



CHIPPEWAS OF

GEORGINA ISLAND FIRST NATION

Fixed Link Project Environment Principles

October 2021

Guidance to Leadership, Staff, Community, Advisors and Service Providers

GIFL

A Project For Seven Generations

First Nation Resolution

On February 16, 2021, the Chippewas of Georgina Island First Nation resolved to build a fixed link that will connect Georgina Island to the mainland with an Impact Assessment completed by December 31, 2024 and final construction completed by December 31, 2026.

About this Document

This document is a framework for the Chippewas of Georgina Island First Nation and is not a by-law or legislation. The principles defined are to be applied by community leadership, staff, members, advisors and service providers driving this major infrastructure development. It is understood that some adverse environmental effects may be identified throughout the evaluation, design and construction phases of the Georgina Island Fixed Link Project. This document is intended to maintain transparency, guide decisions and project evaluation activities to ensure that Mother Earth is respected at every stage of the process.

It is understood that this document is subject to change and evolve as does Mother Earth, and the intention of this document is to remain 'living' e with reviews revisions to occur when deemed appropriate by the Chippewas of Georgina Island First Nation.

Principle Foundations

As a proud Chippewa Nation, the Chippewas of Georgina Island First Nation's culture and traditions are set in the Seven Grandfather Teachings. The Seven Grandfather Teachings are a set of Anishinaabe guiding principles passed down from generation to generation to guide the Anishinaabe to live a good life in peace and without conflict.

Grandfathers gave seven teachings to share with the Anishinaabe people; love, respect, bravery, truth, honesty, humility, and wisdom.

The Chippewas of Georgina Island First Nation have developed the following environmental principles for the Fixed Link Project to align with these teachings.

Application of the Principles

These principles are to be applied to all Fixed Link Project activities. From printing materials to geotechnical work on the lakebed of Lake Simcoe, all parties are to consider these principles in their work. As caretakers of Mother Earth, the community wishes to apply the Seven Grandfather Teachings as a core value system in the environmental framework. This will ensure that the responsibility as a caretaker is honored and the Project will be done in a respectful, sustainable manner for the next Seven Generations.

Prior to completing work on the Fixed Link Project, *any practitioner participating in Project work will be required to verify that they understand these principles through a simple introductory, web-based training activity.* This will be done at their own cost and will be considered a pre-requisite for anyone working on this Project for the First Nation.

In addition, any senior team members of a company completing a Project that will impact the natural environment within the Project Study Area will be required to, prior to Project initiation, participate in a land acknowledgement exercise with a GIFN Knowledge Holder to get a full understanding of the impacts and seriousness of the work that is to undertaken.

These services can be arranged through the Georgina Island Fixed Link Secretariat and will be scheduled and completed at the company's expense. It is believed that all workers require a prerequisite knowledge of the impact of the work they are doing will have on the lands supporting the existence of the Georgina Island community.

Georgina Island Fixed Link Environmental Principles

Principles Guided by The Teaching of Love

1. All Project processes will be examined thoroughly prior to the commencement of work to identify direct and indirect adverse impacts to all of Creation including plants, animals, water, land and air.
    a. Examination will ensure that the integrity of the environment will be kept, and where threats are identified, will be mitigated using the most current best management practices from both Traditional and Western knowledge.

Principles Guided by The Teaching of Wisdom

2. All Project activities will be reviewed through technical and traditional expertise (Anishinaabeg/Western), respecting all opinions provided and applying the best appropriate actions that first and foremost ensure the health and safety of the community and all of Creation.
    a. All persons engaged in the Project will be heard and documented. Opinion from technical experts and traditional knowledge keepers will be communicated effectively and understood to ensure the flow of information in a meaningful way.
    b. Environmental wisdom will consider the impacts of development, extraction and pollution of Mother Earth's natural sources, and understand that impact will have on quality of life for future generations.

Principles Guided by The Teaching of Bravery

3. This principle requires workers and observers of this Project to have the courage to voice an opinion, and demand feedback about a Project activity that is having a negative impact, even when it might be met with negative consequences.
    a. This principle will require all Project leaders to create a safe and ethical space for the communication of observations and potential consequences.

Principles Guided by The Teaching of Honesty

4. The honesty principle speaks to transparency about the potential impacts the Project will bring both temporarily and permanently, both positive and negative.
    a. Allow the truth to guide decision making.
    b. Accept and act on truths through straightforward and appropriate communication during the Project's duration and lifespan.

Principles Guided by The Teaching of Humility

5. This principle is to allow all knowledge shared for the purpose of the Project to have an equal platform and value.
    a. All knowledge includes traditional knowledge, western science and community input. Ensuring equal value to knowledge demonstrates humility and will allow for the best possible collaboration.

Principles Guided by The Teaching of Respect

6. To all possible extents, actions taken to complete the Fixed Link Project will be done with the utmost respect to the natural environment, the community, the people, their peers and the impacts of actions.
    a. This principle requires attention to detail before, during and after the Project completion, which may include continued dialogue, environmental surveys and monitoring, health and safety surveys and monitoring to ensure respect is being given and received to the community and all of Creation.
    b. This principle also requires all Project employees and partners to take a step back and reflect or provide an offering to Mother Earth prior to beginning a Project activity that will alter the natural environment.

Principles Guided by The Teaching of Truth

7. This principle requires that truth be the guiding force behind this Project. Truth will result in knowing, understanding and following these guiding principles as a whole, rather than teaching by teaching.
    a. Truth will result in open and continuous transparency about all aspects of the Project. Highlighting any and all items that may have an impact on the natural environment should be acknowledged and will hold an equal space as all other forms of Project feedback, benefits and information.

The Georgina Island Fixed Link Environmental Principles have been developed to supplement and compliment all current traditional knowledge undertakings and western science-based approaches to work on the Project. If anyone requires clarification of intent or information pertaining to the application of these principles, please contact the Georgina Island Fixed Link Secretariat.